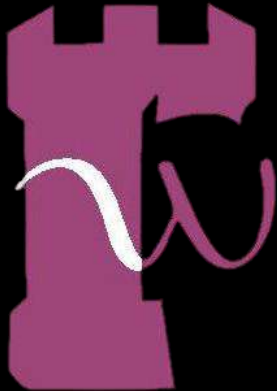


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## The Influence of Multidimensional Poverty Towards Life Satisfaction

Noorhaslinda Kulub Abdul Rashid

Universiti Malaysia Terengganu

Multidimensional poverty encompasses various deprivations that extend beyond income and influence overall well-being among low-income households. This study, anchored in Amartya Sen's Capability Approach, explores the impact of multiple poverty dimensions, namely health, education, living standards, income, religiosity, and digital inclusion, on life satisfaction. This study used a structured questionnaire to collect data from 400 individuals in low-income households in Terengganu. The analysis employed Partial Least Squares–Structural Equation Modelling (PLS-SEM) using SmartPLS 4.0. The analysis demonstrates a significant association between life satisfaction and health, education, living standards, religiosity, and digital inclusion. In contrast, income does not exhibit a significant relationship with life satisfaction, indicating that non-monetary capabilities may play a more influential role in determining overall well-being. The study offers empirical insights for policymakers, particularly in designing multidimensional poverty interventions that strengthen household capabilities and enhance life satisfaction.

**Keyword:** multidimensional poverty; life satisfaction; low-income households; digital inclusion; Capability Approach; PLS-SEM

Life satisfaction is a crucial determinant of overall well-being, particularly among vulnerable and low-income populations. Many individuals living in poverty struggle not only with financial hardship but also with limited social support, weak emotional resilience, and diminished spiritual well-being. Life satisfaction, as noted by Gamble (2012), captures the cognitive dimension of subjective well-being, grounded in people's overall appraisal of their lives. Material resources alone are therefore insufficient; people seek meaning, purpose, and psychological stability to achieve life satisfaction. Persistent deprivation, as noted by Chen et al., (2022), undermines both living conditions and long-term resilience, resulting in lower levels of life satisfaction.

Recent research increasingly acknowledges that poverty is multidimensional, encompassing far more than just income (Alkire et al., 2015; Sen, 2017). This perspective aligns with the Capability Approach, which emphasises individuals' freedom to develop essential capabilities such as health, education, standard of living, and income. Non-material dimensions, including spiritual or "soul deprivation," have been shown to profoundly affect emotional well-being, inner tranquillity, and sense of purpose among people with low incomes (Grewal & Bhullar, 2020; Pargament et al., 2017). For instance, soul deprivation refers to the absence of inner peace, purpose, and emotional fulfilment, while religious deprivation denotes limited access to religious practices, guidance, and supportive faith-based communities. The absence of religious support and community connections may further weaken coping mechanisms and hope (Koenig, 2018; Smith & Denton, 2019). These insights underscore the need to consider both objective and subjective indicators when analysing the lived experience of poverty (Ravallion, 2016; Stiglitz et al., 2018).

In recent years, digital inclusion has emerged as an additional dimension of inequality, particularly affecting vulnerable groups (Van Dijk, 2020; Helsper, 2017). As key services, education, and economic

activities shift onto digital platforms, individuals without internet access, digital tools, or technological skills experience heightened exclusion (Scheerder et al., 2017). This digital divide restricts access to opportunities, reinforces existing disadvantages, and contributes to reduced life satisfaction (Park, 2017; Pick & Nishida, 2015).

There is substantial evidence of multidimensional poverty worldwide, but little research on how multiple capability deprivations affect life satisfaction among Malaysia's B40 households. The B40 group remains the most socially and economically vulnerable in the country. They still have problems with education, health care, digital participation, and religious support. Although national poverty metrics are increasingly recognising multidimensional deprivation, insufficient attention has been paid to the collective influence of these dimensions on subjective well-being. These dimensions are also an essential criterion for formulating effective poverty alleviation strategies.

Therefore, a research gap exists due to an inadequate understanding of how the multidimensional components of poverty, both material and non-material, affect life satisfaction among low-income households in Malaysia. Current research primarily emphasises income or isolated dimensions, neglecting the comprehensive interplay between capabilities and well-being. To fill this gap, this study uses a multidimensional poverty framework based on the Capability Approach to look at how six crucial factors, which are health, education, standard of living, income, religiosity, and digital inclusion, affect life satisfaction in B40 households in Terengganu.

## **Literature Review**

### **The Six Dimensions of Poverty**

Understanding poverty through a multidimensional lens provides a more holistic representation of human well-being compared to conventional income-based approaches. Looking at how income, education, health, standard of living, religion, and digital inclusion collectively affect subjective well-being is crucial because recent research emphasizes that life satisfaction is shaped by a combination of deprivations rather than by a single constraint (Santos & Seth, 2023; Strotmann & Volkert, 2018; Tafran et al., 2020). While existing studies have examined each dimension independently, there remains a limited integrative analysis explaining how these deprivations jointly shape life satisfaction, particularly in developing-country contexts. This review synthesises current knowledge to establish a stronger conceptual foundation for linking multidimensional poverty and life satisfaction.

### **Deprivation of Standard of Living**

Deprivation in the standard of living remains a significant driver of subjective well-being. Although access to basic needs is universally recognised as central to human functioning, fluctuations in income, living costs, and commodity prices often weaken households' ability to maintain consistent living standards (Zhu & Chou, 2023). Research consistently finds that a lower standard of living is associated with greater life dissatisfaction because insecurity about basic needs triggers anxiety about the future (Ramia & Voicu, 2020; Terraneo, 2021; Yeo & Lee, 2019). However, despite robust evidence showing its adverse effect, studies rarely explore how standard-of-living deprivation interacts with other social and psychological forms of deprivation. This gap is critical because material living conditions alone cannot fully explain life satisfaction in poverty-stricken populations.

### **Deprivation of Education**

Education deprivation is another recurring determinant of long-term well-being. While poverty can persist even among the educated, empirical evidence shows that limited access to quality education reinforces the intergenerational transmission of poverty by restricting academic performance, tertiary access, and upward mobility (UNESCO, 2020; Sirin, 2005). Cognitive and emotional constraints among children from low-income households further hinder academic development, leading to lower achievement and reduced future opportunities (Duncan & Murnane, 2016). Although increased investment in early education can mitigate long-term disadvantages (Reardon et al., 2019), global data continue to show socioeconomic status as a strong

predictor of academic outcomes (OECD, 2018). A limitation of current research, however, is that most studies treat educational deprivation as an outcome rather than a driver of subjective well-being. Few explore how the emotional strain associated with educational exclusion contributes directly to life dissatisfaction beyond its economic implications.

### **Deprivation of Health**

Health deprivation is widely recognised as one of the most severe consequences of poverty. Lack of access to adequate healthcare, nutrition, sanitation, and safe living conditions reduces individuals' functional capacity and undermines their ability to participate productively in society (Kim et al., 2023; Vilar-Compte et al., 2021). Structural barriers, including financial constraints and geographical inaccessibility, often lead to untreated illnesses and preventable mortality (Chatata & Chirwa, 2025; Khanna et al., 2022). Poor health also diminishes individuals' ability to pursue education or employment, thereby reinforcing multidimensional hardship. While the literature strongly links health deprivation to lower well-being, few studies explicitly connect it to life satisfaction within a multidimensional poverty context, signalling a conceptual gap that this study seeks to address.

### **Deprivation of Income**

Income deprivation remains the most visible indicator of poverty, affecting an individual's ability to secure basic needs (Vilar-Compte et al., 2021). Recent scholarship highlights that rising living costs and widening inequality have intensified income scarcity for low-income households, trapping them in cycles of economic vulnerability (Alaba et al., 2023; Wagstaff, 2024). Beyond material hardship, income deprivation leads to psychological stress, reduced self-confidence, and diminished motivation (Khanna et al., 2022). However, studies often overemphasise material indicators while overlooking the psychological and social pathways through which income deprivation reduces life satisfaction. More integrative studies are needed to understand how economic scarcity interacts with spiritual, relational, and digital dimensions of poverty.

### **Deprivation of Religious**

Religious deprivation is an emerging but understudied dimension in multidimensional poverty. Religion often provides moral guidance, social support, and emotional resilience, contributing substantially to individuals' capacity to cope with adversity (Aggarwal et al., 2023; Layson et al., 2023). When impoverished individuals lack access to religious education or community participation due to economic or structural barriers, they may experience diminished purpose, weaker coping mechanisms, and reduced mental health (Büssing et al., 2021; Illueca et al., 2023). Despite these documented benefits, mainstream multidimensional poverty frameworks rarely integrate religious deprivation. Evidence from Southeast Asian contexts, including Malaysia, suggests that religious engagement plays a central role in fostering resilience and psychological well-being among low-income populations. However, mainstream poverty frameworks often overlook this dimension, reflecting a divergence between global measurement approaches and local socio-cultural realities. This omission represents a significant conceptual gap, particularly in culturally religious societies where spirituality is central to identity formation and resilience.

### **Deprivation of Digital Inclusion**

Digital inclusion deprivation has gained increasing relevance with the rapid digitisation of essential services. Individuals without access to digital technologies, internet connectivity, and digital skills face exclusion from education, e-governance, healthcare information, and employment opportunities (Park, 2017; Robinson et al., 2015; Scheerder et al., 2017). Digital exclusion not only widens socioeconomic disparities but also contributes to psychological isolation and reduced life satisfaction (Van Dijk, 2020; Van Deursen & Helsper, 2018). Nevertheless, the correlation between digital deprivation and life satisfaction is still little examined, particularly with multidimensional poverty. Most studies emphasize digital availability rather than its effects on subjective well-being (Hámori, Á. 2023).

## **Multidimensional Poverty and Life Satisfaction**

The shift towards multidimensional poverty frameworks has been driven by recognition that well-being extends beyond income. The Multidimensional Poverty Index (MPI), developed by OPHI and applied by UNDP, integrates indicators such as schooling, sanitation, drinking water, cooking fuel, child mortality, and asset ownership to provide a more comprehensive understanding of deprivation (Santos & Seth, 2023; Tafran et al., 2020). Studies show that multidimensional poverty predicts life expectancy more effectively than income alone, with deprivation in education, health, and living conditions strongly influencing long-term outcomes (Tafran et al., 2020). Nevertheless, there is still conflicting evidence regarding the empirical connection between MPI and life satisfaction. Some studies report weak correlations between objective indicators and subjective happiness, suggesting that subjective well-being may be influenced by additional "missing dimensions" not captured in traditional MPI, such as religiosity, digital inclusion, or relational factors (Strotmann & Volkert, 2018). From a theoretical perspective, the Capability Approach implies that well-being depends not only on material resources but also on individuals' ability to achieve valued functionings, including psychological stability, social participation, and meaning in life. In this context, non-material dimensions such as religiosity and digital inclusion may play a critical role by enhancing coping mechanisms, social connectedness, and access to opportunities. This gap highlights the need for expanded frameworks that integrate both material and non-material deprivations better to explain subjective well-being among people with low incomes.

In general, the literature shows that each deprivation has an effect on well-being. However, research rarely combines all six dimensions, which are income, education, health, standard of living, religion, and digital inclusion, into a single model that explains life satisfaction. Additionally, limited study examines how these deprivations concurrently affect people's subjective well-being in developing countries. This study fills these gaps by creating a complete conceptual framework that connects these six aspects of multidimensional poverty to life satisfaction. This contributes to poverty research both theoretically and empirically.

## **Hypothesis Development**

As stated by Vitters (2002), often called cognitive well-being, life satisfaction (LS) is the fundamental component of subjective well-being (SWB). Life satisfaction (LS) can be characterised as a comparison between an individual's ideal life and their actual circumstances, as well as a comprehensive evaluation of their overall existence. Each conceptualisation possesses inherent faults. The term "life satisfaction" was also conceptually examined by Carlquist et al., (2017). Life satisfaction, or "livstilfredshet" in Norwegian, has several meanings, according to qualitative replies from 276 Norwegians. Financial considerations, health, nutrition, material circumstances, and psychological settings were the categories into which the meanings were divided. The latter category includes both affective and cognitive meanings, such as harmony, peace, joy, happiness, enjoyment, and the lack of worries. Discontent drives us to change the current situation, whereas contentment forces us to preserve the status quo. However, this does not mean that contented people are inactive, as they clearly are (e.g., Kushlev et al., 2020). According to the stability hypothesis, simple mental and physical activities are more often associated with life satisfaction than complicated ones. Moreover, deprivation impacts life satisfaction and well-being.

Therefore, the hypothesis for this research is:

- H1: There is a positive relationship between digital inclusion and life satisfaction
- H2: There is a positive relationship between education and life satisfaction
- H3: There is a positive relationship between health and life satisfaction
- H4: There is a positive relationship between income and life satisfaction.
- H5: There is a positive relationship between religion and life satisfaction
- H6: There is a positive relationship between standard of living and life satisfaction

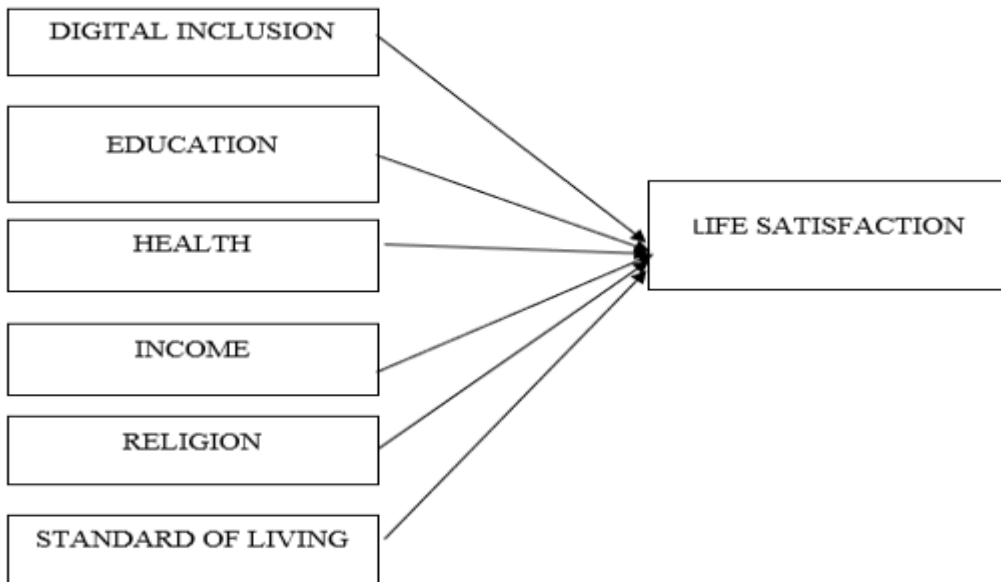


Figure 1: Research Framework

### Method

A structured questionnaire was used as the primary data collection method in this study's quantitative approach. While it supports statistical inference and structural modeling in line with the goals of the study, the quantitative approach is suitable for investigating the connections between multidimensional poverty aspects and life happiness. Based on the geographic distribution of Terengganu's low-income settlements, cluster sampling was used to choose respondents. This sampling strategy ensured coverage of diverse localities within the state however, as with all cluster-based designs, the possibility of intra-cluster homogeneity and sampling bias is acknowledged. To minimise this limitation, clusters were selected from both rural and semi-urban areas to enhance representativeness.

A total of 400 low-income (B40) individuals, as defined by Mahadir (2014), participated in the study. The sample size was determined using Krejcie and Morgan's (1970) sample size determination table, ensuring adequacy for PLS-SEM analysis. Respondents were made aware of the study's goal, anonymity, and confidentiality protections, and participation was entirely voluntary. Prior to data collection, informed consent was acquired. The relevant university ethics committee granted ethical approval for the study, guaranteeing that it adhered to accepted ethical standards for research involving human subjects.

The questionnaire consisted of seven sections measuring income, standard of living, health, education, life satisfaction, religiosity, and digital inclusion. These instruments were adopted and adapted from Ismail (2018) and Zailani et al., (2025), with previously established reliability (Cronbach's alpha = 0.827). All constructs for both exogenous and endogenous variables were assessed using a 7-point Likert scale, which provides enhanced discrimination and mitigates the possibility of central tendency bias. To address potential standard method bias, a series of procedural and statistical remedies was employed. Procedurally, anonymity, simple language, and randomisation of items were incorporated. Statistically, to ensure that the study's results were not unduly influenced by common method bias, both Harman's single-factor test and a complete collinearity assessment (Kock, 2015) were performed. The studies indicated that no individual factor accounted for over 50% of the overall variance, implying that standard procedure variance was not a substantial concern in this study.

Data were analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) with SmartPLS 4.0, consistent with recommended analytical practices for latent variable modelling (Hair et al., 2022). PLS-SEM was selected due to its suitability for predictive-oriented studies, complex models involving multiple constructs, and the inclusion of formative and reflective indicators. The analysis followed a two-step approach comprising (i) the reflective measurement model assessment, including indicator reliability, convergent validity, internal consistency reliability and discriminant validity and (ii) the structural model assessment, which examined path coefficients, explanatory power ( $R^2$ ), predictive relevance ( $Q^2$ ), and effect sizes ( $f^2$ ). Bootstrapping with 5,000 resamples was used to test the significance of hypothesised relationships. Overall, the methodological approach ensured rigour, validity, and reliability while addressing potential biases and ethical considerations commonly expected in contemporary empirical research.

**Table 1**  
*Demographic Data*

Demographic	Frequency	Percentage (%)
<b>Gender</b>		
Male	351	87.8
Female	49	12.3
<b>Area</b>		
Urban	200	50
Rural	200	50
<b>Age</b>		
<25	4	1
25-35	90	22.5
36-45	108	27
46-55	85	21.3
56-60	42	10.5
>60	71	17.8
<b>Occupation</b>		
Government	47	11.8
Self Employed	210	52.5
Private Company	69	17.3
Unemployed	74	18.5

**Results**

Figure 2 presents the hypothesis analysis results that meet the measurement model evaluation criteria, as determined by the Partial Least Squares – Structural Equation Modelling (PLS-SEM) analysis procedure using SmartPLS 4.0 software.

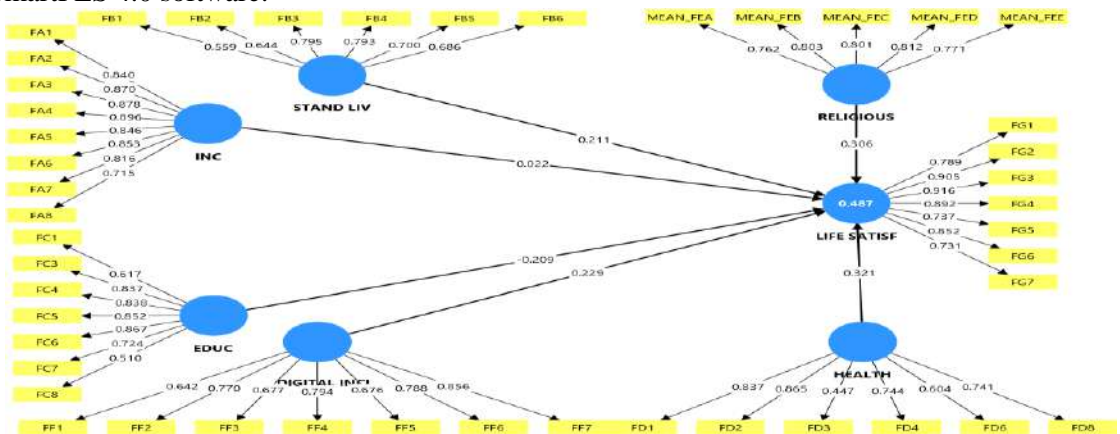


Figure 2: PLS – SEM MODEL

Table 2 presents the results of the evaluation of the measurement model from four perspectives: (1) composite reliability; (2) each indicator's reliability based on external load value; (3) convergence validity based on Average Variance Extracted (AVE); and (4) discriminant validity based on cross loading value and the Fornell-Larcker Criterion (Sarstedt et al., 2014).

Digital inclusion (AVE = 0.558), education (AVE = 0.578), health (AVE = 0.519), income (AVE = 0.707), religion (AVE = 0.624), standard of living (AVE = 0.491), and life satisfaction (AVE = 0.697) were the research components with the highest AVE values, according to a convergence validity evaluation. Every item surpasses the suggested threshold of 0.5 (Hair et al., 2010). The range of factor loadings is 0.473 to 0.922. The AVE value for each indication associated with the latent construct is shown in Table 1. For every construct, the AVE value ought to be higher than 0.50 (Barclay et al., 1995). The extracted average variance is between 0.473 to 0.849. When the level of standard of living is higher than 0.4, the AVE value is still acceptable. If the AVE is less than 0.5, the composite reliability is higher than 0.6, and the convergence of its construction is sufficient (Fornell & Larcker, 1981).

**Table 2**  
*Indicator, Factor Loading, AVE, and CR*

Variables	Indicator	Factor Loading	AVE	CR
DIGITAL INCL	FF_1	0.642	0.558	0.897
	FF_2	0.77		
	FF_3	0.677		
	FF_4	0.794		
	FF_5	0.676		
	FF_6	0.788		
	FF_7	0.856		
EDUC	FC_1	0.617	0.578	0.903
	FC_2	0.837		
	FC_3	0.838		
	FC_4	0.852		
	FC_5	0.867		
	FC_6	0.724		
	FC_7	0.51		
HEALTH	FD_1	0.837	0.519	0.862
	FD_2	0.865		
	FD_3	0.447		
	FD_4	0.744		
	FD_5	0.604		
	FD_6	0.741		
INC	FA_1	0.84	0.707	0.951
	FA_2	0.87		
	FA_3	0.878		
	FA_4	0.896		
	FA_5	0.846		
	FA_6	0.853		
	FA_7	0.816		
	FA_8	0.715		
RELIGIOUS	MEAN_FEA	0.762	0.624	0.892
	MEAN_FEB	0.803		
	MEAN_FEC	0.801		
	MEAN_FED	0.812		
	MEAN_FEE	0.771		
STAND LIV	FB_1	0.559	0.491	0.851
	FB_2	0.644		
	FB_3	0.795		
	FB_4	0.793		
	FB_5	0.7		
	FB_6	0.686		
LIFE SATISF	FG_1	0.789	0.697	0.941
	FG_2	0.905		
	FG_3	0.916		
	FG_4	0.892		
	FG_5	0.737		
	FG_6	0.852		
	FG_7	0.731		

Furthermore, referring to Table 3, discriminant validity was assessed using Fornell and Larcker's (1971) method by comparing the square root of each AVE in the diagonal with the correlation coefficients for

each construct in the relevant rows and columns. Since every diagonal value is higher than the values below, the requirements for discriminant validity have been satisfied. Overall, this measuring model's discriminant validity is acceptable, and the constructs' discriminant validity is confirmed.

**Table 3**  
*Discriminant Validity of Construct*

	Digital Incl	Educ	Health	Inc	Life Satisf	Religious	Stand Liv
Digital Incl	<b>0.747</b>						
Educ	0.336	<b>0.760</b>					
Health	0.301	0.564	<b>0.721</b>				
Inc	0.032	0.260	0.381	<b>0.841</b>			
Life Satisf	0.456	0.248	0.536	0.224	<b>0.835</b>		
Religious	0.536	0.378	0.509	0.061	0.563	<b>0.790</b>	
Stand Liv	0.172	0.366	0.470	0.513	0.406	0.227	<b>0.701</b>

### Godness of Fit (GoF) – SRMR

The evaluation of the structural model in Table 4 presents the Goodness of Fit (GoF) measures using several key statistics to assess the suitability of the PLS-SEM model. The SRMR (Standardised Root Mean Square Residual) value of 0.080 indicates a slight difference between the actual data and the predicted model, suggesting that the model has a good fit since an SRMR value below 0.08 is considered acceptable. The d\_ULS and d\_G values represent residual distance measures used to assess the model's fit in more detail. A high Chi-Square value indicates differences between the model and the data; however, in the context of PLS-SEM, it is not the primary focus. The NFI (Normed Fit Index) value of 0.731 indicates a moderate level of model fit, where values closer to 1 reflect a better-fitting model.

**Table 4**  
*Godness of Fit (GoF) – SRMR*

	Estimated model
SRMR	0.080
d_ULS	6.849
d_G	1.676
Chi-square	3671.313
NFI	0.731

### Structural Model Evaluation

The structural model was first examined in order to evaluate the collinearity issue. Collinearity is not a concern because the independent variable's inner VIF value (1.343) is less than 5 and 3.3 (Hair et al., 2022). Path coefficients between one and two latent variables are used in this study to assess the validity of structural models and hypotheses. According to earlier research, in order to characterize certain impacts in the model, coefficient path values should be set to 0.1 (Hair et al., 2017).

**Table 5**  
*Hypothesis Testing*

Hypothesis	Relationship	$\beta$	t-value	p- values	Results
H <sub>1</sub>	Digital Incl -> Life Satisf	0.229	5.505	0.000	Supported
H <sub>2</sub>	Educ -> Life Satisf	-0.209	4.012	0.000	Supported
H <sub>3</sub>	Health -> Life Satisf	0.321	4.689	0.000	Supported
H <sub>4</sub>	Inc -> Life Satisf	0.022	0.528	0.597	Not Supported
H <sub>5</sub>	Religious -> Life Satisf	0.306	5.559	0.000	Supported
H <sub>6</sub>	Stand Liv -> Life Satisf	0.211	3.943	0.000	Supported

Based on the result in Table 4, all hypotheses for direct relationships were supported except Hypothesis 4. Result showed that digital inclusion, education, health, religious and standard of living positively influence the life satisfaction ( $\beta = 0.0229$ ,  $p < 0.000$ ), ( $\beta = -0.209$ ,  $p < 0.000$ ), ( $\beta = 0.321$ ,  $p < 0.000$ ), ( $\beta = 0.306$ ,  $p < 0.000$ ), ( $\beta = 0.211$ ,  $p < 0.000$ ). Subsequently, income does not relate to life satisfaction ( $\beta = 0.022$ ,  $p < 0.597$ ). In summary, the analysis's findings show that one hypothesis is unsupported and five are supported at a significance level of 0.01.

Next, the Coefficient of Determination  $R^2$  was examined. 48% (variance of life satisfaction) was jointly explained by digital inclusion, health, religion, and standard of living. A medium impact size is indicated by R-square values between 0.13 and 0.25, according to Cohen (1992). Consequently, a significant degree of predictive accuracy was deduced because the  $R^2$  values were greater than 0.19. Since human behavior cannot be precisely predicted, a low R-square is frequently not an issue in the arts, humanities, and social sciences, where research with an R-square as low as 10% are typically accepted. Cohen's ( $f^2$ ) (Cohen, 1988) was used in this study to further analyze the impact size; values of 0.35, 0.15, and 0.02 indicated large, medium, and small effect sizes, respectively. In explaining life satisfaction, digital inclusion (0.070), education (0.054), health (0.099), Income (0.001), religious (0.104), and standard of living (0.055) indicated small effect sizes. Lastly, Stone-Geisser's  $Q^2$  was used to assess predictive relevance ( $Q^2$ ), which is 0.02, 0.15, and 0.35 for weak, moderate, and strong (Geisser, 1974; Stone, 1974). The indicator's  $Q^2$  readings for life satisfaction are (0.461) and higher than 0.35. As a result, the model demonstrated adequate predictive relevance.

### **Hypothesis 1 (H<sub>1</sub>): Digital Inclusion leads to Life Satisfaction.**

The findings demonstrate a positive and statistically significant correlation between digital inclusion and life satisfaction ( $\beta = 0.229$ ,  $t = 5.505$ ,  $p < 0.001$ ). Thus,  $H_1$  is supported. This conclusion implies that greater access to and use of digital technologies significantly contribute to persons' overall sense of life satisfaction. Digital inclusion is theoretically linked to life satisfaction through the Capability Approach, as it enhances individuals' ability to access information, participate in society, and expand economic opportunities. This result shows the significance of digital infrastructure and digital literacy in the contemporary economic environment. Digital serving not only as instruments of economic productivity but also as crucial determinants of subjective well-being. Digital inclusion enhances life satisfaction by promoting social connectivity, access to knowledge, and opportunities. Participation in digital leisure and community activities will improve overall quality of life (Niehaves & Plattfaut, 2014; Xin et al., 2025; Yang et al., 2025).

### **Hypothesis 2 (H<sub>2</sub>): Education leads to Life Satisfaction.**

Contrary to conventional economic theories that perceive education as a straight route to improved well-being, the study reveals a significant negative connection ( $\beta = -0.209$ ,  $t = 4.012$ ,  $p < 0.001$ ). Consequently,  $H_2$  is supported, but in something contradictory to common assumptions. The theoretical perspectives "aspiration-adjustment" notion could clarify this fascinating outcome (Zhang et al., 2013). Higher education can elevate individuals' hopes and expectations concerning occupational success and money, which, if unmet, may lead to frustration and reduced life satisfaction (Dockery, 2010). Conversely, the weight of student debt or the stress of intensely competitive job markets associated with educational achievement may be moderating this detrimental effect (Shamsuddin et.al, 2024; Sulkers & Loos, 2022)

### **Hypothesis 3 (H<sub>3</sub>): Health leads to Life Satisfaction.**

The predicted relationship between Health and Life Satisfaction is affirmative, substantial, and statistically significant ( $\beta = 0.321$ ,  $t = 4.689$ ,  $p < 0.001$ ).  $H_3$  is supported. This discovery is among the most robust in well-being literature, consistently demonstrating that excellent health is a fundamental component of a high quality of life (Diener et al., 2018). In theoretical perspective, health is a core component of well-being within the Capability Approach, as it directly affects individuals' ability to function and engage in daily activities. From an economic perspective, health represents a type of human capital that directly enhances consumption and production activities, with its decline leading to significant utility costs.

### **Hypothesis 4 (H<sub>4</sub>): Income led to Life Satisfaction.**

The results indicate that the direct effect of Income on Life Satisfaction is negligible and statistically insignificant ( $\beta = 0.022$ ,  $t = 0.528$ ,  $p = 0.597$ ). Therefore,  $H_4$  is unsupported. This significant conclusion aligns with the "Easterlin Paradox" and subsequent research, indicating that income is crucial for well-being only to a certain extent (satisfying fundamental necessities), after which its effectiveness diminishes rapidly (Easterlin, 1974). These results are also supported by research that was done by Boudesseul et al., (2023), which discusses that there is no relationship between income and life satisfaction. Furthermore, relative income (peer comparisons) may have a more significant impact than absolute wealth, a point not captured in this straight method. The influence of money may also be indirect, mediated by other factors such as the Standard of Living.

#### **Hypothesis 5 ( $H_5$ ): Religion leads to life satisfaction.**

The path coefficient for religiosity is significant, positive, and substantial ( $\beta = 0.306$ ,  $t = 5.559$ ,  $p < 0.001$ ).  $H_5$  is supported. Within the Capability Approach, it enhances psychological and social functioning. This supports the belief that religious affiliation and practice can provide individuals with non-material forms of happiness, such as a feeling of purpose, community connection, and ways to deal with problems (Singh et al., 2020; Lim & Putnam, 2010). This highlights the importance of incorporating non-monetary, social, and spiritual capital as fundamental components of human flourishing in an economic framework.

#### **Hypothesis 6 ( $H_6$ ): Standard of Living leads to Life Satisfaction.**

The relationship between Standard of Living and Life Satisfaction is positive and significant ( $\beta = 0.211$ ,  $t = 3.943$ ,  $p < 0.001$ ).  $H_6$  is supported. This finding distinguishes the material conditions of life from mere monetary income. The standard of living, which includes housing quality, durable goods, and overall material comfort, directly and tangibly affects daily well-being (Mohamed, et al, 2025; Alias, et al., 2025). This suggests that converting income into an actual, improved living standard is a key mechanism linking economic resources to life satisfaction. This process may also explain why income itself shows a non-significant direct effect.

### **Discussion**

The findings of this study indicate that multiple interrelated factors influence the life satisfaction of Malaysia's B40 demographic, including quality of life, education, health, digital inclusion, and religiosity. Standard of living encompasses not only income but also access to essential services, quality housing, and general living conditions. While income alone does not directly influence well-being, its role in meeting fundamental needs remains critical. This aligns with Maslow's hierarchy of needs (Maslow, 1943), which emphasises that sufficient material resources and accessible infrastructure are more determinant of well-being than financial wealth alone. From the perspective of Sen's Capability Approach, it is not merely the possession of resources but the capability to convert these resources into valuable functioning, such as adequate housing, nutrition, and social participation, that underpins life satisfaction (Sen, 1999).

Education emerged as a robust predictor of life satisfaction, particularly among B40 students. Academic success not only fosters self-esteem and social mobility but also expands future opportunities, consistent with global evidence showing the long-term psychosocial and economic benefits of educational attainment for disadvantaged groups (OECD, 2018; Reardon, Kalogrides, & Shores, 2019). Although the financial burden of higher education is acknowledged, the perceived long-term benefits, including enhanced agency and life choices, outweigh immediate economic costs. This reinforces the importance of enabling equitable educational access as a structural mechanism to break intergenerational cycles of poverty.

Health, as expected, is a fundamental determinant of well-being. Vulnerabilities stemming from inadequate access to healthcare, caregiving responsibilities, and financial constraints reduce life satisfaction, highlighting the need for targeted health interventions and social protection policies for economically disadvantaged populations. These findings resonate with international evidence demonstrating that health inequalities significantly constrain capabilities, limiting individuals' opportunities to lead fulfilling lives (O'Donnell, 2024).

Digital inclusion has emerged as a critical, yet often overlooked, factor influencing life satisfaction in the digital age. Access to digital technologies facilitates education, employment, entrepreneurship, and civic participation, while mitigating social isolation (Van Dijk, 2020; Robinson et al., 2015). However, structural barriers such as limited access to devices, poor connectivity, and digital illiteracy continue to constrain the B40 population's capacity to benefit fully from digital tools. Addressing these gaps requires not only the provision of technology but also skill-building programs and systemic support, aligning with global recommendations for reducing digital poverty and enhancing social participation (Van Deursen & Helsper, 2018; Scheerder et al., 2017).

Religious beliefs also contribute significantly to life satisfaction by providing purpose, social support, and psychological resilience. Among Malay B40 households in Terengganu, Religiosity functions as a culturally embedded safeguard against economic stress, consistent with literature highlighting the role of spirituality in coping with deprivation globally (Büssing et al., 2021; Aggarwal et al., 2023). Nonetheless, it is crucial to critically contextualise these findings: while religious engagement supports subjective well-being, its impact may vary across cultures, religious affiliations, and socioeconomic contexts, suggesting the need for broader comparative analyses.

Interestingly, this study finds that income does not have a statistically significant effect on life satisfaction among the B40 group, challenging conventional assumptions about the income–well-being link. This finding is consistent with the Easterlin Paradox and social comparison theory, which posit that once basic needs are met, additional income contributes minimally to happiness (Easterlin, 1974; Clark et al., 2008). For the B40, rising living costs and debt levels mean that higher incomes do not automatically translate to improved life satisfaction. Instead, perceptions of relative socioeconomic status and social comparison exert more potent effects on subjective well-being. These insights highlight the diminishing returns of income and underscore the necessity to address structural constraints, including housing, healthcare, education, and digital access, rather than focusing solely on income enhancement.

Taken together, the findings support multidimensional poverty alleviation strategies that emphasise improving living standards, non-material well-being, and capabilities over merely increasing income. This perspective aligns with global evidence demonstrating that policies addressing education, health, digital inclusion, and psychosocial well-being are more effective in enhancing life satisfaction and reducing intergenerational poverty than income-focused interventions alone (Alkire et al., 2015; Diener et al., 2018; Van Dijk, 2020). The significant role of non-material dimensions, policymakers should strengthen community and religious-based support systems by supporting local institutions, counselling services, and social cohesion programmes that enhance resilience and psychological well-being. By integrating Maslow's hierarchy, the Capability Approach, and the Easterlin Paradox, this study provides a theoretically enriched framework that underscores the multifaceted nature of well-being among vulnerable populations.

### **Conclusion**

This study provides empirical evidence that multidimensional poverty impacts life satisfaction among the B40 demographic in Terengganu, Malaysia. The results indicate that income does not significantly affect life satisfaction, which contradicts the traditional view that income is the most crucial factor in well-being. Instead, other factors, such as health, education, standard of living, religion, and digital inclusion, have a greater impact on how people feel about their lives. These findings underscore the necessity of a comprehensive, multidimensional strategy for poverty alleviation, incorporating both material and non-material indicators, as proposed by Amartya Sen's Capability Approach. Therefore, policymakers should look beyond income-based programs and focus on comprehensive strategies that enhance access to healthcare, promote educational equity, foster digital inclusion, and provide spiritual support to make low-income individuals more resilient, empowered, and content in a rapidly changing society.

### Limitations and Future Research

This study has several limitations, including its cross-sectional design, reliance on self-reported data, and focus on a single geographic region. In order to provide a deeper understanding of the links between multidimensional poverty and life satisfaction, future research could overcome these limitations through cross-state comparisons, longitudinal studies, and the incorporation of new qualitative measures.

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## **The Evolution of Egyptian Religious Thought: From Totemism to Atenism**

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This study provides a historical analysis of the significant religions of ancient Egypt. Early Egyptians revered a vast number of deities, and every locality, no matter how small, had its own tutelary deity, and in certain instances, two or more. Consequently, this led to a religious landscape in Egypt that was very diverse, much like the other primitive or natural religions, as will be shown in this paper. The development of religious thinking in ancient Egypt took the form of a sequence of various stages. To comprehend this development, one has to trace its historical development starting with Totemism, which was the first cornerstone of the religion of the ancient people, then the emergence of polytheism with its plurality of divine figures, and finally the religious reform of Akhenaten, which focused on the new deity (Aten). The results show that the religious beliefs of the ancient Egyptians were cumulative in nature. The different historical periods produced new doctrines that coexisted with the earlier traditions: Totemism coexisted with theology, and polytheism with new monotheistic inclinations. This rich religious text is an expression of the intellectual depth of the ancient Egyptians and the scope of their spiritual imaginations.

**Keywords:** ancient Egyptian, religions of ancient Egypt, totemism, akhenaten

The role of religion in the life of the ancient Egyptian state was significant, as it impacted the social, political, and economic organization of that state. It penetrated almost all spheres of life, and people tried to explain cosmic processes by referring to the divine power. They were also convinced that there was a supernatural power that controlled human life, and that this power could be approached and appeased with offerings and rituals.

Egyptian civilization and especially wall paintings have been described by many scholars as being rigid. But a more careful study of these images, frequently of animals, will show a continuity of movement that goes beyond stillness. What seems lifeless in a single piece of carving or painting comes alive when seen in a group, and the artist of the ancient Egyptian art was consciously engraving and painting with the hope that he was ensuring the continuation of life itself. The visual imagery appears to address the viewer through the ages and conveys the idea that the painter knew his art would live on even after his time.

Detailed information is present in these inscriptions and paintings; it requires the contemplative eye that jolts memory and imagination into awakening. By so doing, they introduce the viewer into the world perception of the ancient Egyptians, allowing us to recreate their perception of both the life on earth and life after death.

The first step in the right direction towards such an inquiry is to admit that what has been inscribed, written, painted, and preserved is but a part of what there used to be. Life in the past, as to-day, was full of events of the most ordinary sort, which were not written, learned, or recollected at all, because of their homeliness--things inherited, or done without thinking, or too trivial to be worthy of notice or description. This fact enables us to create a more precise opinion about the evolution and the splendor of Egyptian civilization,

and especially religious aspect. The few pieces that remain, inscriptions, objects, and paintings, are therefore a reflection of the eternal Egyptian spirit of curiosity.

### **Research Problem**

According to this research's perspective, the study seeks to trace the development of Egyptian religious thought from its initial totemic origins to the occurrence of the Atenist faith. It proceeds from a central research problem framing the following question: How did Egyptian religious thought evolve from the symbolic plurality of deities to the concept of universal divinity?

### **Research Questions**

From the problem arises several subsidiary questions that the study aims to address, the most significant of which are:

- How did intellectual, social, and natural transformations contribute to shaping this religious consciousness?
- What were the theological and intellectual characteristics that distinguished the period of Akhenaten's religious movement?
- To what extent did the monotheistic movements known in Egypt affect Egyptian religious thought?

### **Method**

The study adopts a historical–analytical approach to examine the diverse religious phenomena of ancient Egyptian society, situating them within their specific temporal and intellectual contexts. This approach allows for a systematic tracing of the development of Egyptian religious thought across successive historical periods.

Given the cumulative and overlapping nature of Egyptian religious beliefs, the research further employs the comparative historical method alongside historical analysis in order to clarify the main features of this complex religious system and to account for its long-term evolution. Such a methodological combination is particularly relevant to the study of the Atenist movement.

Through this comparative framework, the study examines the intellectual and religious transformations associated with Atenism in relation to the broader religious messages attributed to prophets who are traditionally believed to have visited Egypt. This approach contributes to a more nuanced understanding of Atenism by situating it within its wider historical and intellectual context, and by interpreting its emergence as a religious phenomenon shaped by a multifaceted cultural and religious environment.

The religious thought of the ancient Egyptians represented the frame through which he perceived existence, structured their system of governance, and organized their daily life. The deeper we understand the development of this religious thought, the closer we come to grasping the essence of ancient Egyptian civilization, a civilization born from a faith in immortality and in the divine power that inhabits both the universe and humankind.

### **The Importance of Studying Egyptian Religion**

Religion in Egypt permeated every aspect of life throughout its history (Durant, 1988). Greek historian Herodotus considered the ancient Egyptians very meticulous in their daily religious practices. They ensured that their lives followed all religious codes and taboos. In the Egyptian religion alone lies the justification for organizing the country, especially since they believed that the land belonged to the gods and that the pharaohs were the divinely authorized rulers (Emar, 2003).

The Egyptians were so dedicated to religion, that they oriented life, art, governance and all other aspects of their livelihood with their religion (Hatoum, 1964). The religion ruled the everyday life in ancient

Egypt. The largest product of religious faith was literature, art, and stories. There were numerous deities like gods of the sky, gods of the sun, gods of vegetation, animal deities, deities of sexuality, anthropomorphic deities such as Osiris, Isis, and Horus, minor deities, priests, and the doctrine of immortality. This is one of the most outstanding elements of ancient Egyptian thought. (Abu Zahra, 1991).

According to this mutual connection, the explanation of the refinement of Egyptian civilization should start with the basis and structure of it, the religious thought of the ancient Egyptians. One cannot understand the greatness of ancient Egyptian civilization, its peculiarities as compared to other ancient civilizations, the phases of its evolution, and the interpretation of Egyptian architectural and ornamental systems without being aware of the religious philosophy of Egyptians, their vision of the source of life, and their conception of the afterlife.

### **Totemism in Ancient Egyptian Religion**

Totemism<sup>1</sup> is: a religion composed of ideas, symbols, and rituals based on the relationship between a human community and a natural object called the totem, which could be an animal, a bird, or a cosmic phenomenon (Al-Majdi, 2016).

Other historians have refuted the fact that there was totemism in Egyptian religion. Nonetheless, tombs with mummified animals depict the fact of animal worshipping unambiguously. As an example, there were calves tombs in Saqqara. The emergence of totemic symbols was common in the Predynastic Period because of fragmentation of Egyptian regions. It would later become the beginning of Upper Egypt and Lower Egypt which had an emblem of totemism. Certain totemic practices continued in Egyptian religion into later periods, as evidenced by tombs containing mummified sacred birds dating back to the Thirtieth Dynasty (Shalabi, 1984).

During these stages, the ancient Egyptians worshipped calves, such as the bull *Apis*, as well as crocodiles, falcons, cows, dogs, jackals, and serpents. Even when the gods assumed human forms, they retained their animal attributes in hybrid representations: *Amun* was symbolized as a ram, *Amenhotep* as a cow, and *Horus* as a falcon (Durant, 1988). Nevertheless, it is unlikely that the ancient Egyptians, with their advanced religious outlook, continued to regard animal and plant symbols as deities in themselves in the later stages. Rather, they may have perceived in each of these creatures certain divine attributes, with every symbol embodying one of the qualities of the gods.

### **The Theological Reality among the Ancient Egyptians**

The number of deities in ancient Egypt was enormous, and it is possible to divide them into two groups: major gods whose popularity fluctuated with the course of events, and minor gods whose only local cult was the god of the Nile, Hapi, and the goddess of hippopotami, Taweret (Daumas, 1998).

Great deities were Ra, Amun, Ptah, and Aten. These gods were highly related to political occurrences. When a deity changed to another, it could be an indication that there was a change in politics. But the older gods were by no means destroyed; they were in other cases, absorbed as personalities of some attributes of the supreme deity. There was also the spread of religious icons, and the victory of a certain group frequently symbolized the victory of a corresponding god over other groups (Asfour, 1987).

This is very much associated with the administrative and political boundaries of Egypt. The gods were pertained to certain areas, but that did not imply totally different religions. This multiplicity of the symbols can be likened to the one God worship religions, where various churches in common can have practices that are alike, but distinct symbols linger in the common memory (Daumas, 1998).

The development of religious symbols was in line with civilization. Rituals may emerge or disappear, and new symbols tend to appear to replace old ones. This process resulted in more and more religious symbols with time. Moreover, a combination between two or more gods was also adopted in the Egyptian religion with

integration of their name and their qualities. These practices indicate that there were several gods even in the presence of monotheistic tendencies (Daumas, 1998).

Prior to the merging of the upper and lower Egypt, the nation was broken into forty-two provinces, with each having its gods. These provinces later became the two kingdoms. The Egyptians had their gods namely, Upper Egypt that worshipped Seth, and Lower Egypt that worshipped Horus. These religious divisions were mostly portrayed in political conflicts. The pharaohs could be associated with either a god to ensure popularity or to remain in power (Suleiman, 1978).

The popular gods were incorporated into well-known myths, including the Osiris myth, alongside the local and cosmic gods. There were hero figures such as Seth, Horus and Isis whose roles were vital. Using this myth, Osiris was not only a god of the dead but also the one who would judge the activities of humans in the afterlife (Emar, 2003).

The Egyptian religion was intricate as seen by the numerous gods. The Egyptians never envisaged a single Supreme Being who had all the divine qualities. They instead shared these attributes among various gods, each portraying a part of the supreme deity.

### **Myth and the Interpretation of the Origin of the Universe and Humanity**

The mythological explanation of life, creation, and existence played a significant role in the ancient Egyptian religion. The interpretations can be categorized, based on Egyptologists and archeologists, into school and theories. In the general interpretation, there are texts that state that creation grew out of a vacuum in the primordial eternity; this was the beginning of the earth. The text of other works talks about the cosmic egg, one of the key symbols of Egyptian cosmogony. The egg held the lotus flower and the bird of light, which bore the child sun. In these myths, all temples symbolized the center of the world, the place where everything started (Nardo, 2011)

One of them explains how a cosmic egg was laid by the heavenly goose. One of the texts says that the god Apis dropped this egg, and when it broke, a great bird was born, which is thought to have been the ibis, the companion of the god Thoth, the god of wisdom. Another document holds that it was the god Ra who broke out of the egg; when he appeared, the eight primordial gods fled to the underworld, leaving Ra in the universe to accomplish the work of creating humankind and all the forms of the universe. Certain researchers understand the idea of the cosmic egg and the moment of its explosion as a symbolic expression of the contemporary idea of the Big Bang (Eliade, 1987).

### **Mythological School**

#### *First: The Heliopolitan School*

As per this theory, back in ancient times, both the earth and the sky did not exist. There was just an empty place which was filled with a watery body called Nun. Out of it a creative spirit was formed, the god Atum, who in his turn brought forth Shu and Tefnut. These gods later produced Geb, Nut, Isis, Nephthys and Horus, which were referred to as the Great Ennead (Armour, 2005).

Atum was regarded as the primordial god, and he was the creator of the primordial couple. This pair produced a second generation that comprised Osiris, the god of fertility and agriculture, Isis, who was the embodiment of the black soil that was sustained by the Nile water and Nephthys who was the embodiment of barren land. All these aspects created a spectrum between nature and man (Armour, 2005).

#### *Second: Hermopolitan School.*

This school was concerned with the Ogdoad which was a sacred group of eight gods that predated the emergence of Ra-Atum. Similar to the Heliopolitan School, it believed water to be the origin of life. These four gods were in the form of frogs and the remaining four in the form of serpents. Light represented by the

sun was also added to supplement the Heliopolitan theory and it reiterates the fact that creation had to be made before even the gods existed (Asfour, 1987).

#### *Third: The Memphite School*

The Memphite School had an Ennead similar to the one of Heliopolis. Ptah was the god considered the artisan, and the creator of eight gods, he created Atum through the spirit and utterance. Ptah was thus regarded to be older than the other gods. These gods took actual human shapes (Eliade, 1987). Memphis people were of the view that all their known deities were embodiments or hypostases of Ptah who was the ultimate content and origin of all things (Mehran, 1989).

#### *Fourth: The Theban School*

According to the Theban School, Amun was the sovereign of all the deities, the birthplace of primitive deities, and self-created. The Thebans combined him with the sun god in solar worship and this led to Amun-Ra (Armour, 2005).

### **One of the Most Prominent Myths of Ancient Egypt is *The Osiris Myth***

*Isis* was the sister and wife of *Osiris* and became an image to depict the motherhood, sympathy, and the typical goddess mother. There was a conflict between *Osiris* and his uncle *Seth* over who should rule in Egypt, and this conflict led to *Seth* killing *Osiris*, wrapping his body in a coffin, and throwing the body into the Nile. Seeking to redeem him, *Isis* found the body at Byblos, but *Seth* had preceded her, cutting the body into pieces and throwing them into the river. *Isis* then took up the scattered parts of her husband and brother and buried each part in a different part of Egypt. Thereafter, temples were constructed in these areas in memory of *Osiris*, the god of the dead. Kingship was then passed to his son *Horus*, who symbolized a critical intermediate phase in Egyptian mythology and the transition between divine rule and the dynastic rule of the pharaohs. This is why the title of *Horus* became part of the ruler's titulary at the earliest stages of rule. The *Osiris* myth, therefore, remained as the central religious and culture construct that survived in the later stages of the Pharaonic era (Hatoum, 1964).

### **Historical Events and Their Impact on the Transformation of Deities**

The historian *Manetho* documents that initially government was led by the gods-*Ptah, Ra, Shu, Osiris, Seth, and Horus*, then by demi-gods, and then by mortal kings. He also adds that *Seth* was seen as the primordial god, that the *Osirian* cult had developed in Western Asia, the *Horus* cult in the *Wadi Hammamat* area, and that *Isis* was worshiped mostly in the north, and *Horus* in the western Delt (Asfour, 1987).

The royal titulary, which first appeared during the era of the dynastic period, was used to denote the primacy of a god. *Horus* rose to the forefront, as we see in the fact that his name was associated with the name of King *Serapis-en*, who led a religious reform by identifying himself with *Seth*, the god of the south, in order to seek rapprochement with southern communities after a theological crisis (Asfour, 1987).

*Ra* started gaining influence in the Fourth Dynasty, and this can be seen in the royal names of *Khafra* and *Menkaura*. During the Sixth Dynasty, with *Teti* in charge, the relationship between the priesthood of *Ptah* and that of *Ra* became strained, and ultimately, the latter triumphed, and the power of *Ra* became centralized in persecutors like *Userkare*. Religious underpinnings were also shaken during the First Intermediate Period: some communities began to doubt the old beliefs, and others focused on righteous behaviour as the way to become immortal, the afterlife being the completion of earthly actions (Salim, 1989).

As the Eleventh Dynasty started to ascend to power in Thebes, the cult of *Amun* started gaining significance, as he was introduced as the god of the dynasty. Other gods were gradually absorbed into his personality, and reached its climax in the theological unification of *Amun-Ra* (Asfour, 1987).

The invasion of the *Hyksos*<sup>2</sup> brought with them the foreign deities of Syria, *Baal* and *Teshub*. They identified the southern Egyptian God, *Seth*, with these gods and brought him to the rank of official cult deity,

which Mircea Eliade documents by stating that King *Apophis* had officially proclaimed *Seth* to be the state god. The followers of other deities considered this move an insult, especially considering that *Seth* had killed *Osiris* (Eliade, 1987).

After the *Hyksos* had been thrown out of Egypt by a king of Thebes, the supremacy of *Amun* was again established, and he was made the official god of the Egyptian empire. A syncretism of *Horus* and *Ra* occurred, though under *Amenhotep III*, the name *Thoth* came into prominence, in an attempt to reduce the influence of priests over the cult of *Amun*. At the same time, *Aten* was thought of as a solar incarnation of *Ra*, and a new type of worship appeared--the worship of the living pharaoh himself (Asfour, 1987).

Origins of royal divinity, though, are earlier than this development. The pharaoh was already considered to be the son of *Ra* and the successor of *Horus* as a king. However, his humanity did not take a back seat as indicated in the ancient writings that highlighted the two aspects of the monarch: the godly ruler on the one hand, and the accountable human ruler on the other. These two aspects have been shown in the writings of the Instructions of *Amenemhat* to his son *Senusret*, the Tale of *Sinuhe*, and also in the writings of the Pyramid Texts, which have emphasized the duality of the pharaoh (Kemp, 2006).

### **Akhenaten's Religious Reform**

Templor worship of *Aten* was not invented by *Akhenaten* (*Amenhotep IV*) because he was already one of the Egypt gods. *Aten* had already started increasing in influence during the reign of *Amenhotep III*, in part as a reaction to the rise of the *Amun* priesthood. But it was under the reign of *Amenhotep IV* that the monotheistic tendency was formed. He changed his name to *Akhenaten* and declared himself a servant of one deity (the sun) and founded a new capital at *Tell El-Amarna*. His hymn is the most important and celebrated piece of art to study the doctrine of *Atenism* (Mehran, 1989).

### **The Distinctive Features of Akhenaten's Religious Reform**

*First:* Universality. The universal nature of the sun disk as a goddess symbol was apparent when *Akhenaten* adopted it as a universal symbol. *Aten* was therefore not only the god of Egypt but of Kush, Syria, and Palestine as well. This gave a new dimension to the Egyptian religion--a gradual awakening that divinity had to be universal and that divinity must include all humanity (Shibl,1974).

*Second:* The non-traditional triad of the Egyptian religious mind and the denunciation of myths and legends. *Akhenaten* rejected, e.g., the idea that the Nile was a personification of *Osiris*, but instead was governed by natural laws ruled by *Aten*. This difference was also highlighted in his order and instruction to remove the plural form of the word gods in the previous inscriptions to uphold the oneness of the divine (Hornung,2010).

*Third:* The *Akhenaten* Hymn involved elevated levels of thinking in the sense that it provided a generalized explanation of natural phenomena. They can be the development of the embryo in the womb of the mother or the hatching of the chick in the egg at a specific time. The uniqueness of the reforms of *Akhenaten*, therefore, lay in their focus on monotheism, but also in the intellectual subtlety and philosophical complexity implied by the treatment of the subject of causality and of natural order in the hymn (Aldred,2001)

### **Egyptian Religious Thought in Comparison with Monotheistic Faiths**

The level of sophistication in religious awareness reached the most high level in Egypt. In a number of ways, it parallels with monotheistic religions. This does not however, deny the relevance of the later monotheistic revelations, but instead it is a sign of an early effort to conceptualize divine unity.

This progression can be arguably explained by the absolute purity of Egyptian temperament, which frequently brought the Egyptians to the right spiritual path. This tendency is particularly evident when one compares the development of the Egyptian religious consciousness as a whole with the development of the

individual consciousness of the Prophet Abraham (peace be upon him) because in both situations, it was the sun that was recognized first, and then the One and Eternal God was realized. The other plausible reason--possibly an extension of the previous one--is the impact of the revealed monotheistic religions that had penetrated Egypt. These were, even though not wholly accepted, in any case very impressive, bringing the Egyptian religiosity nearer to the Egyptian doctrines on the unity of the divinity (Asfour, 1987).

The Egyptian belief in immortality of the soul is a good example. One of the first--indeed possibly the very first--to conceive human life as comprised of a mortal body and an immortal soul were the Egyptians. In the event of death, the soul was condemned through its earthly actions in the court of *Osiris* where it was weighed against the plume of truth (Abu Zahra, 1991). This concept has certain similarity with the Christian confession under the concept of absolution (Anriani, Sari, Junaidi, & Hamka, 2022).

The other notable characteristic is the intricacy of the Egyptian understanding of the immortality of the soul, which consisted of a long series of changes--even the pharaoh was supposed to experience it. This is well illustrated in the tombs of the Valley of the Kings, the corridors of which represented successive steps of spiritual elevation: the state of man, the state of the sages and priests, the state of demigods, the state of complete divinity. The belief that resurrection needed a physical body was reinforced by the mummified body of the pharaoh, which was stored in the funeral chamber. Therefore mummification. In case the body decomposed, the coffin was used as an alternative; in case even the coffin was lost, the spirit could be contained in the wife's paintings on the surrounding walls of the tomb. The art of Egypt thus depicted the shape of the pharaoh with artificial precision: the head in profile, the body in frontal, the feet bare--so that all the necessary details of the body would forever be obtained (Abu Zahra, 1991).

Considering these developments, i.e., texts, pictures, and mummification, one must inquire: Is it possible to consider this deep religious consciousness of the ancient Egyptian as something common and unworthy of close attention?

### **Visits of Monotheistic Prophets to Egypt and Their Influence on Egyptian Religion**

A particularly noticeable point when analyzing both the historical and intellectual process of Egyptian religion is the existence of gaps without any explanations. The Egyptian religion could hardly be called monotheistic; otherwise, how could it have reached a level of theological refinements so high and so independent of divine revelation? The question is: how did the prophetic monotheistic traditions that God sent his messengers to Egypt intersect with the Egyptian land? One of the most influential influences is the visits of the prophets themselves--and even of one of them--to Egypt.

The book starts with the life of the prophet Abraham (peace be upon him) who was born in Ur in the nineteenth century BCE. His trip, according to biblical records, was in a north-south direction of the Euphrates River into Harran, and then to the West into the Bekaa Valley to the northern Jordan, and then to the Canaan territory where he established himself in Hebron. Thence Abraham went at length to Egypt--a fact of special interest to our topic. The Middle Kingdom was the period when Abraham entered Egypt under King *Senusret II* or III. With the *Canaanites* having commercial links with Egypt, such an expedition was but natural (Susa, 1990).

The only account we have of the presence of *Abraham* in Egypt is his Torah. It documents that *Abraham* and his nephew *Lot* and his wife *Sarah*, whom he termed as his sister, went to the land to avoid injury by Pharaoh. When Pharaoh seized *Sarah*, he was punished by God, and he returned her to him, and commanded *Abraham* to go away safely, and even sent him soldiers as an escort (Genesis 13, NIV).

Joseph (peace be upon him): Another oracular figure of great weight was Joseph, the son of Jacob, whose account is given in the Qur`an: "Some of them said: Kill not Joseph but cast him into the bottom of the well; some travelers will find him, had you done something"(Qur`an, Surah Yusuf, 12:10).

Joseph was sold as a slave, finally, to a man of Egypt: "The one of Egypt who bought him said to his wife: Give him an honorable place. He can do us service, or we can take him in as a son. So, we set up Joseph in the land and we taught him the meaning of things"(Qur'an, Surah Yusuf, 12:21).

This was during the time the Hyksos and Joseph entered Egypt. He was thrown into jail when he opposed the overtures of the wife of the official, but it was there that he commenced his work. His success in dream interpretation, especially the one experienced by Pharaoh, made him go from being a prisoner to a royal administrator and eventually found himself in control of the granaries. Then his brothers came, his family, including Jacob, came later. And so, Egypt was the home of Abraham, of Lot, of Jacob, of Joseph, and of Moses and Aaron--a concentration of prophetic office unrivaled in history (Mehran,1989).

The fact that Joseph is known to have been part of the Egyptian administration indicates that his monotheistic message must have found some impression, directly or indirectly, on Egyptian religious thinking.

*Moses* (peace be upon him): The perspectives of scholars concerning the personality of Moses (peace be upon him) are quite different and, sometimes, divergent. There are some scholars who have depicted him as an Egyptian, in addition to, one of the advocates of the religion that was promoted by Akhenaten. Some of the prominent names that were linked with this opinion included Sigmund Freud who, although of Jewish origin, held the belief that Moses was an Egyptian and a close associate of Akhenaten. Freud also stated that, after the death of Akhenaten, Moses became the figure who aligned himself with a Semitic tribe and, finally, gave it the religion of Akhenaten, though in its stricter, more austere manifestation form (Freud, 1986).

It is important to note that Freud's theoretical perspective relies mainly on the distortion of the Israelite stories of the prophethood of Moses (peace be upon him) in Egypt. There are significant inconsistencies and contradictions in such accounts compared to the Quranic narrative which is one of the authoritative sources of studying the prophethood of Moses and his monotheistic mission in Egypt. It seems quite clear that the sub-text of Freud was, considering that he was Jewish by birth, to demonstrate the historical existence of the Hebrew Semitic group, the descendants of Abraham (peace be upon him), and to highlight the fact that Moses belonged to that group (Susa, 1990).

The key aspect to consider is the fact that there was indeed an appeal to monotheism which went to the people of ancient Egypt via the prophets of God (peace be upon them). Notwithstanding that the pharaohs were staunchly stuck to the worship of the deities grounded in their own imagination; it is still possible that the prophetic message had a significant impact on the change that took place in the Egyptian religious thought during the reign of pharaoh Akhenaten.

### **Reflections on Features Derived from Monotheistic Doctrines**

Suppose we agree that the prophetic customs which either visited or originated in Egypt must have made their mark on Egyptian religious thought, it is necessary to discover some such evidence in Egyptian religious thought which substantiate this judgment.

The Egyptian religion was based on the same principles as the revealed religions: faith in immortality, judgment, moral responsibility, and the afterlife. The artistic imagination used in the wall paintings depicted this eschatological vision; on one side of the scale, the heart of the dead was depicted, the feather of truth on the other, all the gods of the dead, Osiris and Anubis, presided over (Saif al-Din, 1991). This imagery was used to portray the nature of Egyptian religion as will be further depicted in the following section.

The greatest phenomenon was that of the call to monotheism of Akhenaten, which doubtless must have been inspired by earlier monotheistic doctrine, as it also in turn imprinted itself on later monotheistic doctrine. There exists a sharp parallel between the hymn of *Akhenaten* and Psalm 104 of David, both speaking of life and of creation, and sharing strikingly similar grounds of devotion to one God (Psalm 104, NIV.).

The other influence--monotheistic traditions on Egyptian religion--was highly effective as well. Later Christianity even used the Egyptian triad of *Osiris*, *Isis*, and *Horus*, which was transformed into the Father-Son-Holy Spirit doctrine (Al-Khashab,1989).

The other instance is the use of the Egyptian ankh, or key of life, as a representation of the Nile flanked by two branches and its Delta in between. And when Christianity was officially adopted as the religion of the empire under Constantine, this emblem was reinterpreted as the Christian cross (Zakri, 1923).

Egyptian patterns of legitimization also influenced Christianity. The story of the birth of Christ, e.g., is based on divine births of some pharaohs, e.g., *Thutmose III* and *Hatshepsut*, whose births were elevated by the priesthood to achieve legitimacy. The Christian tradition of confession, too, is like the Egyptian tradition of the deceased declaring his negativity--his innocence of sins like fornication--before going to the underworld (Zakri, 1923).

All these similarities force us to abandon the reductionist perception that Egyptian religion was nothing more than primitive paganism, which valued the veneration of animals, plants, or humans. The system of thought that it displays in its doctrines is much deeper and more complicated.

Other scholars go to the extent of suggesting an Arabian origin of some of the Egyptian gods. An example of this is *Min*, the fertility god of Akhmim, supposedly of Semitic origin. Likewise, the goddess, *Nehbet*, of childbirth has her name based on the Semitic root, *naqaba* (to open), meaning to make childbirth easier (Khusheim, 1990).

The Egyptians believed in *Ashtoret*, who was the goddess of war and daughter of *Ra* and *Ptah* during the Twelfth Dynasty was. To the *Canaanites*, she was *Astarte*, and to the South Arabians, *Athirat*, the oldest daughter of the moon god *Sin*. The other example is the Egyptian god *Shai-Rab*, the god of luck, whose name itself refers to fate or destiny (Khusheim, 1990).

We therefore have the mediating elements of organic continuity and historical development between these traditions. Nothing was formed in a vacuum; every stage was born of the womb of its predecessor, and in this way, there formed a chain of continuity in the development of religious thought.

### **How Can We Describe the Ancient Egyptian Religion?**

Once the nature of a thing is comprehended, a description of it follows naturally, and more so when the description is a reflection of the nature of the object itself (Anriani, Sari, Junaidi, & Hamka, 2022). This is the difficulty of Egyptian religion, however. The multiple dimensions of it are faced with various interpretations by scholars, some of which contradict each other. Paradoxical things cannot be described in a paradoxical way. Thus it would be wrong so much to assert, that the Egyptian religion was exclusively polytheistic, that it was solely the worship of statues and images; and it would be an exaggeration to say that it was exclusively monotheistic and devoted to the worship of one god. Then the question is What then is the real character of Egyptian religion, and why, why should interpretations swing between these two extremes?

The solution might be in the accrual aspect of Egyptian beliefs. Throughout the course of history in Egypt, there was a formation of new religious ideas every historical period, which did not necessarily replace the previous ones. So totemism coexisted with theology and polytheism with monotheism (Erman, 1995).

To delimit the characteristics of this complex tissue, we must do it by following its different stages:

First: The initial point of departure is what made the religious thought in early Egypt--namely, that nature and the state were endowed with the religious nature.

This has been mentioned previously in connection with geography, surrounding, and the influence it creates on religion (Breasted, 1996). The other dimension was the impact of the political events and developments in generating change in religion.

The social conflict between the rulers and the ruled resulted in an increasing trend to raise the concept of justice to the eternal life. This is seen in the well-known Song of the Harpist: The mansions are destroyed, and the nobles have gone into death. And will any come back there and tell us how they died? (Shakir, 1993).

Second: Egyptian Religion: Polytheism and monotheism. Polytheism also cannot be ignored in Egyptian religion, as historians have carried a list of numerous gods and goddesses having various functions. But there were also scholars like *Pierret*, *De Rouge*, and *Grebaut* who claimed that this plurality was only a phenomenon, as meant to convey various forms of the divine spirit (Al-Khashab, 1989).

Even with monotheism, it was still hidden under the obvious incarnation of the deity. The water, fertility, good, and harvest was a personification of *Osiris*. And *Osiris* himself was embodied in the bull. When the crocodile was worshiped, it was due to the reason that it was the only animal which did not possess a tongue. Since, as Plutarch writes: The words of God require no tongue. The veiled eyes of the crocodile represented an anonymous prophet--Aton, the concealed one--and therefore referred to the veneration of the supreme deity by symbol (Mehran, 1989).

The entirety of the latent energies of gods were expressed in concrete signs, each of which embodied one of the enigmas, or qualities of them. Meanwhile other passages addressed the divine directly by name, that is, Ra, Atum, Khnum, Amun, or Ptah, but these were not perceived as different gods, but different manifestations of the same divine personality. It is a different interpretation compared to the monotheism of the Abrahamic religions that is strict (Mehran, 1989).

The Judgment of the Dead was the most resounding example of the belief in the afterlife, and it could be found in various inscriptions of different time spans. The dead man had to stand before *Osiris*, the king of the underworld, and demonstrate that during his life he had not committed sins that would represent the forty-two demons who represented the witnesses at the trial. In case of his acquittal, *Horus* welcomed him as a new member of the netherworld (Vandenberg, 1984).

## Conclusion

This paper has been able to come to the conclusion that ancient Egyptian religion cannot be termed as a purely polytheistic religion whose only focus was worship of statues and images through the stages of religion development. Neither can it be said that the opposite was the case--that it was a monotheistic religion at the very beginning, that it was based on the cult of one God--and this would be a serious exaggeration. So, then what is the reason behind this paradox?

The solution can be in the fact that Egyptian beliefs are cumulative. The successive periods in Egypt gave birth to new religious ideas and they co-existed with the earlier ones. The worship of symbols was not the only totemism; it was a set of attempts to comprehend the divine nature using its various forms in the universe and in life. The presence of many gods did not necessarily imply the division but it was an endeavor to represent the qualities of the One God in various forms. This led to the Atenist movement which was an outcome of a long cumulative evolution of Egyptian religious thought, propelled by the natural and political environment, as well as by the influence of the then monotheistic heavenly calls, which spread in Egypt.

In such a way, the present research has helped to provide a more balanced picture of what the nature of the religion of ancient Egypt was and to answer the primary question about its intellectual nature: it was a cumulative religion, which could unite profound religious feeling with logical interest in discovering the One

God- making it an incomparable example in terms of its influence in the progress of religious experience in the history of mankind.

### Endnotes

<sup>1</sup> In this study, the term “Totemism” is used descriptively to refer to early religious traditions in ancient civilizations, where certain animals or plants served as religious symbols and identifiers for individuals and groups. This usage does not intend to confine Ancient Egyptian religious practices within the classical anthropological framework of totemism; rather, the term is employed here as an interpretive tool, not as a definitive classification. From this perspective, animal and plant symbolism in Ancient Egyptian religion reflects cosmic forces and complex religious ideas that developed within a more sophisticated theological system, and should not be understood as purely totemistic.

<sup>2</sup> The Hyksos: peoples of Amorite origin who entered Sinai during a period of weakness at the end of the Middle Kingdom (c. end of the 14th Dynasty). They ruled Egypt for about one hundred years until Ahmose I expelled them. See: Grimal, Nicolas, *A History of Ancient Egypt*, p. 193.

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## **Meme Culture as Folk Art: Digital Vernacular Creativity and Community Formation**

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This study examines how platform infrastructures, algorithmic visibility structures, and commercial logics reshape folkloric practices in digital meme communities. It investigates whether these communities reflect traditional folklore transposed online or represent algorithmically constituted cultural formations with transformed dynamics. Using a digital ethnographic approach, the research participants were 342 members of Reddit, Twitter, and TikTok who actively participate in meme culture. Data were gathered through online surveys, a contextual meme-evaluation task using 480 trending memes, and semi-structured interviews with 72 participants. Quantitative data were analysed using MANOVA and logistic regression, while qualitative data were analysed using constructivist grounded theory and thematic coding. Findings show that platforms actively shape cultural authority, aesthetic conventions, and community autonomy, with creators deploying strategies such as aesthetic gatekeeping, platform migration, and ironic subversion. The study theorizes platform-mediated folk culture as a hybrid system where community validation, algorithmic amplification and reflexive meta-cultural awareness transform traditional folkloric mechanisms under commercially extractive conditions.

**Keywords:** digital folklore; meme culture; participatory media; cultural transmission; platform affordances; algorithmic mediation

Internet memes have become more than viral objects, as these memes have become complex systems of cultural communication that allow for political expression, collective meaning making, and community formation (Shifman, 2014; Milner, 2016; Nusrat et al., 2025). Contemporary scholarship sees memes as a kind of folk art which is participatory and shared rather than being isolated and individual (Wiggins & Bowers, 2015). Unlike geographically bound traditional folklore, meme culture is created in the context of digital environments that are formally open but structurally hierarchical, and influenced by algorithms, follower metrics, and verification systems (Knobel & Lankshear, 2007). Within these conditions, memes serve similar social roles as digital folklore, such as cultural commentary, boundary negotiation and amplification of the voices of the marginalized (Blank, 2009; Howard, 2009).

While the folkloric character of memes is well established, the way they operate within platform-based infrastructures raises critical questions. Existing research has largely shown that memes have folkloric features, but is less clear on how computational systems change the way that folklore is produced, circulated and maintained. Traditional theory of folklore focuses on the emergence from and transmission of folklore from

the ground up, the organic along with the aesthetic of community while meme culture functions in an environment that is algorithmic for visibility, and monetized for logics and governed by the platform. The fundamental analytical issue, then, is not the folkloric status of memes but the transformation of folkloric mechanisms under platform capitalism.

### ***Participatory Culture***

Scholarship on participatory culture is an important basis from which to understand meme production. Howard (2013) presents digital environments as vernacular webs in which there is collaborative creativity that is not under institutional control. Along the similar lines, Burgess (2006) focuses on everyday creativity as the foundation of vernacular digital culture. Jenkins (2006) differentiates between bottom-up participatory production and top-down media systems which are further defined, according to Jenkins et al., (2016), by characteristics such as low barriers to expression, informal mentorship and the sense of social relevance of participants. These features are closely related to meme communities, which are based on common templates, remixing, and mutual recognition of conventions (Shifman, 2014).

Folklore transmission theory adds further refinement of this analysis by adding a principle of stability in the midst of variation, in which cultural forms retain recognizably the same forms, with room for localized adaptation (Bascom, 1954). Internet memes exhibit similar dynamics of successful formats persisting as stable templates and open to constant modification (Wiggins & Bowers, 2015). This process of replication – variation –selection resembles the model of cultural evolution developed by Dawkins (1976) and strengthens the conceptual parallel of memes and the traditional processes of folkloric transmission. However, while these frameworks take into account participatory practices and cultural continuity, they do not do enough with regard to infrastructural mediation through which such processes now take place.

### ***Community Formation***

Digital folklore research shows how internet technologies allow for traditional folkloric functions of community formation, boundary maintenance, and cultural critique on an unprecedented scale (Blank, 2012; Bronner, 2009). Anderson's (2020) concept of imagined communities that is originally based on the combined principles of geography and simultaneity is transposed in meme cultures which function through networked and asynchronous participation. Rheingold's (2000) concept of virtual communities captures this shift towards affective bonds developed through habitual online interaction while Gee's (2004) affinity spaces refer to communities organized around shared practices as opposed to demographic identity. Meme communities are a good example of such space, where affiliation is not based on offline social categories, but on participating in the creation and circulation of memes.

Yet these theories tend to bring to the foreground the participatory nature of organization, whilst neglecting the importance of structural inequalities embedded in the digital platforms. Algorithmic ranking systems, follower hierarchies and verification mechanisms create new forms of stratification that are perhaps opposite to the egalitarian notions associated with the participatory culture. As a result, while meme communities seem to be inclusive and practice-based, the internal dynamics of these formations can replicate or exacerbate power asymmetries that are informed by the design of a platform as opposed to the norms of the community.

### ***Platform Infrastructures***

More directly, these infrastructural dynamics are addressed by platform-based studies. Van Dijck (2013) shows the ways in which platform specific affordances influence cultural production, ranging from the text constrained memes of Twitter to the audiovisual format of TikTok. Gillespie's (2014) notion of calculated publics is used to emphasize the algorithmic rather than organic constitution of audiences; and Manovich (2001) variability, modularity, and automation are among the defining characteristics of digital aesthetics. Steyerl (2012) idea of the poor image provides an additional explanation for the degraded and quickly circulating visuals as templates of authenticity and belonging in meme cultures.

Despite these insights, platform studies and folklore theory remain insufficiently integrated. Platform affordances are often considered neutral contexts instead of active structuring forces. The global and ephemeral nature of digital platforms has tested the frameworks of folkloristic practices developed for stable and localised communities (Castells, 2015), whereas commercial appropriation has allowed for the speedy extraction and dilution of community-specific meanings (Karppi, 2018). Algorithmic curation is a substitute for community-created valuation with computationally generated visibility, raising fundamental questions about the viability of platform-mediated cultural memes, which may or may not sustain autonomy in folklore (Gillespie, 2014).

This gap is evident in the literature through participants' perspectives on identity, boundary-making, and aesthetic negotiation. More critically, scholarship has thus been unable to decide whether meme communities are continuations of folk culture recast for new media, or post-traditional communities in which computational infrastructures transform folkloric mechanisms in real ways. As Phillips and Milner (2017) point out, memes function in ways as vernacular creativity in ambivalent internet spaces where content and platform power intersect. Whether or not these communities are able to achieve cultural continuity and autonomy under conditions of algorithmic governance remains a question.

### *Present Study*

This study addresses these analytical shortcomings by ethnographic approaches to the study of meme culture as infrastructurally mediated digital folk art and examines processes of shared meaning and identity construction among online communities in platform-specific technological and commercial contexts. The research investigates the active role of platform architectures, algorithmic systems, and commercial imperatives in reshaping folkloric mechanisms, examining how folklore has shifted from a culturally mediated practice to a technologically mediated one.

### **Hypotheses:**

- H1: meme communities exhibit traditional folk characteristics including collective creation, shared aesthetics, and insider/outsider distinctions
- H2: platform-specific features shape distinct aesthetic conventions and cultural practices differentially across Reddit, Twitter, and TikTok
- H3: meme participation correlates positively with community belonging and identity formation.

**Research Question:** How meme communities negotiate cultural autonomy against platform algorithmic control, commercial appropriation, and political instrumentalization.

### **Method**

Mixed-methods ethnography with participant observation, content analysis and interviews with the members of the community. This methodology is used to address the limitations of the previous quantitative research, which has been carried out measuring the circulation trends, without a focus on the cultural content and group interactions.

### *Participants*

The sample of participants comprised 342 members of three major meme-sharing communities: 114 on Reddit (r/dankmemes, r/memeeconomy, r/deepfriedmemes), 115 on Twitter (meme-related hashtags and retweet networks), and 113 on TikTok (meme-centred accounts and hashtags). This cross-platform sampling ensured variation in the community's digital folk practices and norms.

Participants were between the ages of 16-35 ( $M=22.1$ ,  $SD=5.4$ ), 52% were male, 43% were female and 5% were non-binary or other. The geographical distribution was North America (68%), Europe (21%), Asia (8%), and others (3%). Eligibility required behaviour related to memes (creating, sharing, and commenting) and multichannel meme literacy. Platform use varied: Reddit had the highest single meme creating (59%), but TikTok users were getting more daily time with memes ( $M=2.8$  hours) as opposed to Reddit (1.5 hours) and Twitter (1.2 hours).

### ***Procedure***

The research methods used were digital ethnography, survey research, contextual meme retrieval, and interviews. Phase one was an online survey to gather demographic information, platform use, and engagement practices, and was designed to respect digital community norms such as anonymity and informal communication.

Phase two consisted of meme contextualization tasks. Participants were shown eight trending memes randomly selected from a curated corpus collected the week before the interviews. Selection criteria included minimum engagement (500+ likes/shares), platform-native format, and cultural relevance. Participants rated the aesthetic value of each meme on a 7-point Likert scale, as well as its cultural appropriateness and fit, and provided free-text explanations. This model tested the interpretive processes while having standardised stimuli across subjects.

Phase three consisted of semi-structured video interviews with 72 participants (24 per platform), lasting 45-90 minutes (median=67 minutes). Discussions included meme creation, aesthetic norms, cultural observation and meme practices as folk art. To prevent priming effects, participants were told at the outset of the study that it focused on digital cultural practices, but the focus on memes emerged only after the interviews were completed, with no dropouts from the study after this explanation.

### ***Materials***

The researchers created a corpus consisting of 480 meme artifacts (160 per platform), which is ordered according to popularity metrics. Distribution was image macros (45%), short videos (30%), text-based meme (15%) and multimedia hybrid (10%). Each artifact was manually annotated for visual form, cultural content and emotional tone based on established protocols that are used across different platforms.

Platform affordances influenced the content in distinctive ways: Reddit had the culture of aggregation (cross post, original content); Twitter was a short text-image format; TikTok was an audio-visual interaction in short videos. Key constructs were Aesthetic Preferences (community quality standard), Creation Behavior (meme's production and sharing pattern), Cultural Transmission (participation in spread findings meme knowledge) and Community Belonging (formation of identity in communities).

Three survey instruments were used. The Digital Folk Culture Engagement Scale was created based on Bronner (2002) and Blank (2012) and included 18 items that measured collective creation ( $\alpha=.86$ ), cultural transmission ( $\alpha=.82$ ), and tradition formation ( $\alpha=.88$ ). The 16-item Community Aesthetic Standards Inventory ( $\alpha=.84$ ) assessed awareness of visual and cultural standards of a particular platform. The 12-item Meme Literacy Assessment was based on Nissenbaum and Shifman (2017) and was used to assess familiarity with platform conventions and in-group knowledge ( $\alpha=.79$ ). Semi-structured interviews based on a pilot-tested interview protocol that covered five themes included meme-making practices, aesthetic conventions, cultural transmission, identity and belonging, and perceived connections between meme practice and folk culture.

### ***Analysis***

Data were analyzed with a convergent mixed method approach combining quantitative data from survey results and qualitative data from meme contextualization and interviews. Quantitative analysis included descriptive statistics, correlational analyses, and MANOVA to uncover cross-platform engagement and aesthetic differences.

Qualitative analysis was based on constructivist grounded theory. Researchers engaged in open coding of interview transcripts and open-ended surveys to derive themes about folk culture, sensibilities and community values. Memes were evaluated using a four-dimensional coding rubric for aesthetic appreciation, cultural awareness, community utility, and folk attributes.

Reliability (inter-rater) was determined by independent coding of 25% of qualitative data by two trained investigators. Cohen's kappa reached .89 for surveys and .84 for interviews. Joint displays synthesised

and visually demonstrated relationships between qualitative insights and quantitative measures, enabling the detection of convergent patterns across methods.

## Results

### *Preliminary Observations*

Descriptive statistics showed a clear difference in the engagement patterns of the three meme community platforms. The levels of interaction with the respective platforms were high among the participants, with TikTok users exhibiting the most intensive daily consumption habits ( $M = 2.8$  hours,  $SD = 1.2$ ) when compared to the level of interaction with Reddit ( $M = 1.5$  hours,  $SD = 0.8$ ) and Twitter users ( $M = 1.2$  hours,  $SD = 0.7$ ). One-way ANOVA statistically indicated that there were significant differences among platforms with regards to daily consumption,  $F(2, 339) = 127.43$ ,  $p < .001$ ,  $\eta^2 = .43$ .

In general, meme artefacts that were more of a political or social commentary were more valued ( $M = 5.3$ ,  $SD = 1.4$ ) than those that were more about entertainment ( $M = 4.7$ ,  $SD = 1.6$ ). The kinds of responses the various categories of memes elicited among the participants were very different, in that they either triggered folk culture recognition or did not. Memes containing political information, as revealed in Table 1, induced predominantly responses of the Folk Culture Recognition code only as compared to those of the Aesthetic Appreciation Only code.

H1 assumed that the community of memes would exhibit features of traditional folk culture. The hypothesis was supported by a McNemar test of paired categorical data, which showed significant evidence [ $\chi^2(1) = 203.58$ ,  $p = .001$ ] that participants identified the characteristics of folk culture in their meme practices, and 267 participants (78 percent) of the total sample exhibited explicit recognition of collective creation processes, whereas 75 participants (22 percent) did not.

According to the categorisation of participants' answers regarding the characteristics of folk culture, they automatically segregated into three clusters: [1 = High Folk Culture Recognition; 2 = Moderate Folk Culture Recognition; 3 = Low Folk Culture Recognition]. The preliminary steps in this analysis included inspecting each group's mean scores on platform engagement and the Digital Folk Culture Engagement Scale subscales.

**Table 1**

*Platform Usage and Meme Interpretation Metrics Across Social Media Platforms*

Section	Category / Variable	TikTok	Reddit	Twitter	Additional Notes
<b>Platform Engagement</b>	Daily Consumption (hours)	$M = 2.8$ , $SD = 1.2$	$M = 1.5$ , $SD = 0.8$	$M = 1.2$ , $SD = 0.7$	ANOVA: $F(2, 339) = 127.43$ , $p < .001$ , $\eta^2 = .43$
<b>Meme Appreciation by Content Type</b>	Political/Social Commentary	–	–	–	$M = 5.3$ , $SD = 1.4$ ; Response: Folk Culture Recognition
	Entertainment-Focused	–	–	–	$M = 4.7$ , $SD = 1.6$ ; Response: Aesthetic Appreciation Only
<b>Folk Culture Recognition</b>	Recognized	–	–	–	$n = 267$ (78%)
	Collective Creation	–	–	–	$n = 75$ (22%)
	Did Not Recognize	–	–	–	$n = 75$ (22%)
	McNemar Test Result	–	–	–	$\chi^2(1) = 203.58$ , $p < .001$

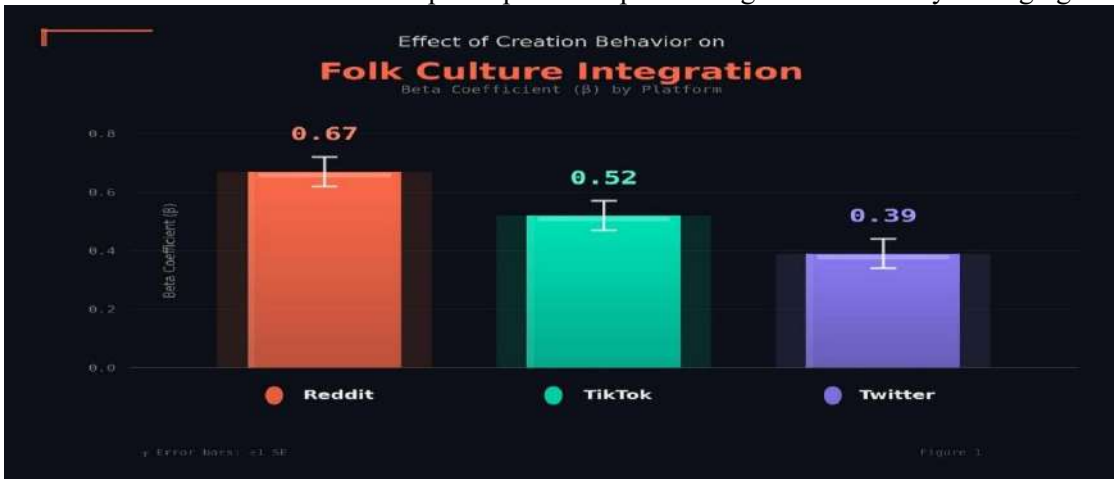
Table 1 shows a summary of the user engagement, appreciation of the meme content, and awareness of the folk culture across different platforms. The most used was Tik Tok in terms of daily use and political memes made a larger cultural reaction. Most of the participants identified collective creation which was supported by a significant McNemar test. These results indicate differences in the platform practices and cultural interactions in meme communities.

**Differences between Platforms and Cultural Practices**

Digital Folk Culture Engagement Scale and Meme Literacy Assessment scores were found to be strongly positively correlated ( $r=.72, p=.001$ ). These measurements were combined to create Folk Culture Integration and showed high reliability and was used as an individual difference variable in latter analyses.

MANOVA results indicated significant multivariate effects of platform type (Wilks=.68,  $F(12,664)=12.47, p=.001, \eta^2=.18$ ) to support H2. The platform specific aesthetic preferences of the subjects suggested by univariate analyses were platform specific: Reddit users gave more importance to intellectual complexity ( $M=6.1, SD=1.0$ ), Twitter users to cultural timeliness ( $M=6.3, SD=0.9$ ) and TikTok users to creative innovation ( $M=5.9, SD=1.1$ ),  $F(2,339)=34.82, p<.001$ .

Logistic regression was applied to validate the hypothesis H3, and active meme creation was found to be a significant predictive factor of Folk Culture Integration scores ( $B=0.58, SE=0.09, z=6.44, p<.001$ ). Regular original content creators were 79% more likely to achieve high Folk Culture Integration (OR=1.79, 95% CI[1.50,2.14]) than the passive meme consumers. These findings show that platform affordances help to shape aesthetic conventions and that active participation helps to strengthen community belonging.



Separate analyses of each platform showed that the behaviour of creation was a strong predictor of integration on Reddit (67,  $p = 0.001$ ), then TikTok ( = 52,  $p = 0.001$ ) and Twitter ( = 39,  $p = 0.01$ ). Findings of this analysis are represented in Figure 1.

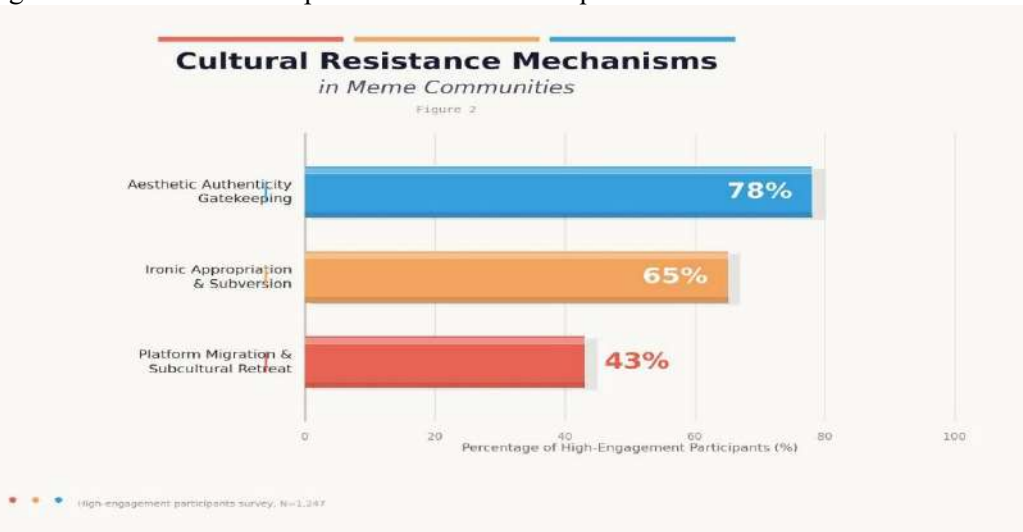
**Table 2**  
*Summary of Digital Folk Culture Integration Analyses*

Section	Variable / Platform	Statistic	Value / Description
Index Construction	Correlation (Engagement × Literacy)	r	.72, $p < .001$
	Reliability (Folk Culture Integration)	$\alpha$	.89
Aesthetic Preferences by Platform	Reddit	Intellectual Complexity	M = 6.1, SD = 1.0
	Twitter	Cultural Timeliness	M = 6.3, SD = 0.9
	TikTok	Creative Innovation	M = 5.9, SD = 1.1
	MANOVA Result	Wilks' $\lambda$	.68
	Univariate ANOVA	$F(12, 664)$	12.47, $p < .001, \eta^2 = .18$
Creation Behavior & Integration	Logistic Regression (All Platforms)	B	0.58, SE = 0.09, $z = 6.44, p < .001$
	Odds Ratio (All Platforms)	OR	1.79 (95% CI [1.50, 2.14])
	Reddit	$\beta$	.67, $p < .001$
	TikTok	$\beta$	.52, $p < .001$
	Twitter	$\beta$	.39, $p < .01$

Table 2 summarises the main results of the integration of digital folk culture: index construction, platform-specific aesthetic norms, and the predictive impacts of meme creation. It emphasizes good reliability of integration measure, clear platform preferences, and high correlations between creation behaviours and cultural engagement, which emphasizes the role of digital environments in the development of participatory folk culture.

### ***Political Expression and Community Autonomy***

To address RQ1, the researchers examined responses from the 245 participants who scored high on folk culture engagement (top tertile). The researchers in this subset computed the percentage of those who explicitly specify plans to uphold cultural autonomy against commercial appropriation. This percentage figure was 62% (N = 152). Among individuals who were highly engaged and expressed this activity, 47% (N=115) reported using memes to comment on politics and social critique.



*The content analysis found three main mechanisms of resistance that were repeated in all platforms: Aesthetic Authenticity Gatekeeping (mentioned by 78% of participants with high engagement), Platform Migration and Subcultural Retreat (mentioned by 43%), and Ironic Appropriation and Subversion (mentioned by 65%). These percentages are visualised in figure 2, and representative examples of the responses given by the participants are also given.*

### ***Community Formation and Cultural Transmission***

H1 assumed meme communities would exhibit folk culture traits. Content analysis revealed 78% of participants demonstrated awareness of folk patterns in meme practices through explicit recognition responses. High Folk Culture Recognition responses employed terminology parallel to traditional folklore concepts. One Reddit user (age 22) noted: "There are certainly memes that belong to us. If you fail to understand the reference, you are not a full member of the community." Others described processes of cultural transmission: "Some types of memes have become classics." We continue to use them with different meanings. They are already in our vocabulary" (TikTok user, aged 20). Some participants made a direct connection between online activities and folk culture: "It is too good to make memes that people in my community like. It is like I added to the mutual culture" (Reddit user, age 25). Others explained cultural learning experiences: "You have to learn our language to make your way in. It is not rude, it is only the way you show that you do fit in" (Twitter user, age 23).

Low Folk Culture Recognition responses saw memes as individual diversion not as a shared community activity: "I just post funny pictures." I do not even consider it a culture thing" (Twitter user, age 19). These participants felt that meme engagement was in the form of simple consumption rather than cultural participation.

***Cross-Platform Cultural Exchange***

Cross-platform cultural exchange showed more complex patterns of adaptation and transformation compared with platform-specific practices (89%, taking into account participants who used more than one platform). One of the shared tendencies among the participants who interacted on more than one platform was their understanding of the processes of format adaptation: "I see something funny on TikTok and make it fit into the format of Twitter, and then somebody takes a screenshot of it and sends it to the Instagram stories. It is slightly modified in each platform, yet the main idea goes through traveling" (Twitter user, age 23).

Cultural Translation responses were also the most notable amongst those who use multiple platforms (67%). These reactions characterized advanced knowledge of platform specific conventions: "Reddit seeks the witty allusion, twitter seeks the viral burn, Tik Tok seeks the image joke. Same joke, three variants of telling it" (Multi-platform user, age 26). Nevertheless, the interviewees observed that some cultural exchanges are not welcomed on the platform: "Some memes simply do not move when you want to transfer them. It is too different with the audience or the format does not fit" (Reddit user, age 24).

The most pronounced tendency in cross-platform users was the identification of memes as cultural commentary that cut across platforms. Indeed, multi-platform engagement prompted participants to develop a sophisticated understanding of digital folk culture processes. Two representative examples of cross-platform cultural awareness are reported below:

"Memes are how we process what is happening in the world. When something crazy happens in politics or culture, the memes help us figure out how to feel about it. They are like modern folk songs, but funnier and faster" (multi-platform user, age 28).

"The best memes become part of the internet's collective memory. They reference each other, build on each other. It is like watching culture create itself in real time" (Multi-platform user, age 25).

**Table 3**

*Frequency Of Occurrence for Each Folk Culture Recognition Code by Meme Type*

Meme Type	Folk Culture Recognition n (%)	Aesthetic Appreciation Only n (%)	No Clear Pattern n (%)
Political/Social Commentary	189 (78%)	41 (17%)	12 (5%)
Entertainment/Humor	78 (32%)	132 (55%)	32 (13%)

Note. The table reports the frequency count and the corresponding percentage of its occurrence in the data for each code (total number of meme evaluations = 484).

**Table 4**

*Descriptive statistics by folk culture recognition level*

Folk Culture Recognition Level	High Recognition	Moderate Recognition	Low Recognition
	M SD	M SD	M SD
Platform Engagement (hours/day)	2.4 1.1	1.8 0.9	1.2 0.7
Collective Creation Score	6.1 0.8	4.7 1.1	3.2 1.3
Cultural Transmission Score	5.9 0.9	4.5 1.2	3.0 1.4
Tradition Formation Score	5.8 1.0	4.6 1.3	3.1 1.5
Community Belonging Score	6.3 0.7	5.1 1.0	3.8 1.2

Note. High Recognition = top tertile (n = 114); Moderate Recognition = middle tertile (n = 114); Low Recognition = bottom tertile (n = 114).

**Table 5**

Logistic regression of platform type and creation behaviour on folk culture integration

	B (SE)	95% CI for odds ratio		
		LL	OR	UL
Intercept	-1.23 (0.34)	0.12	0.29	0.71
Platform: Reddit	0.72** (0.23)	1.27	2.05	3.31
Platform: TikTok	0.41* (0.21)	0.98	1.51	2.33
Creation Behavior	0.58*** (0.09)	1.50	1.79	2.14
Platform × Creation Interaction	0.34* (0.15)	1.04	1.40	1.89

$R^2 = .28$  (Hosmer-Lemeshow), .31 (Cox-Snell), .41 (Nagelkerke). Model  $\chi^2(4) = 127.84$ ,  $p < .001$

Note. CI = confidence interval; LL = lower limit; UL = upper limit; OR = odds ratio. The reference category for the platform is Twitter. \*\*\*  $p < .001$ , \*\*  $p < .01$ , \*  $p < .05$ .

### Discussion

This research explored and analyzed digital meme communities as folk culture systems in worlds of computational infrastructures and discussed how platforms, algorithmic governance and commercial imperatives transform the traditional folk culture practices. While 78% of participants understood the processes of collective creation, this folkloric awareness was created within the infrastructural conditions of specific platforms that change radically the mechanisms of folk culture and challenge traditional folklore theory.

#### *Folkloric Authority Infrastructural Transformation*

Computational opportunity distortions in folkloric power are apparent in the platform-specific taste such as Reddit with aesthetic complexity ( $M=6.1$ ), Twitter with cultural timeliness ( $M=6.3$ ), and Tik Tok with creative innovation ( $M=5.9$ ). Traditional folk culture has aesthetic criteria based on horizontal community validation (Dorson, 1976; Bronner, 2002). Platform-mediated meme culture functions under operations of algorithmic visibility where circulation of content is computational and normalized conventions are computational.

Active Memes creators had 79% higher Folk Culture Integration ( $OR=1.79$ ) than passive consumers, depending on the platform: highest on Reddit ( $b=.67$ ), moderate on TikTok ( $b=.52$ ), lowest on Twitter ( $b=.39$ ). Reddit's voting system results in stable hierarchies where good production attains authority through accumulations of validation. TikTok's virality-oriented algorithm permits for swift integration, but creates ephemeral power. Twitter's hierarchy of followers creates a visibility of high-follower accounts, which devalues the connection between participation and community integration.

Contemporary folkloric authority is exercised over a hybrid mechanism, which involves a necessary combination of peer validation and algorithmic amplification, where community aesthetic standards must be satisfied along with algorithmic visibility requirements at the same time.

#### *Algorithmic Cultural Transmission Mediation*

Digital Folk Culture Engagement correlated strongly with Meme Literacy Assessment ( $r=.72$ ) again showing complex understanding Negara but only of the classic level for folk culture literacy but transmission is markedly different. Traditional folk culture is based on extensive time in life in settled communities (Bascom, 1954); meme culture mediated by platforms liquidates time through prioritization of novelty algorithms.

Political/social commentary memes elicited greater Folk Culture Recognition (78%) compared to entertainment content (32%) and suggest the countervailing effect of cultural significance on the algorithmic ephemerality. Cross-platform exchange pattern (89% of users multi-platform change of formats) talking about algorithmic mediation just transforming the cultural diffusion into translation. Users are great accelerators of intermedia translation: Reddit desires the clever phrase, Twitter desires the virality, Tik Tok desires the photo effect... same joke, 3 times (Multi platform user, age 26).

This meta-cultural awareness is a qualitative change from the implicit norm internalization of traditional folk culture. Platform mediated folk culture demands both cultural production and algorithmic navigation at the same time, which results in computationally conscious folklore.

### ***Appropriation and Transformed Resistance in Commercial***

Highly engaged participants (62%) used cultural autonomy strategies which suggest continuity and transformation in the resistance functions of folk culture. Traditional folk culture is counterhegemonic space for marginalized communities (Howard, 2009). Platform mediated communities exhibit similar oppositional functions (47% using memes for political commentary) under completely different structural circumstances. Three mechanisms of resistance emerged: Aesthetic Authenticity Gatekeeping (78%), Platform Migration (43%), and Ironic Appropriation (65%) as an answer to the large cultural extraction capacity of platform capitalism. Platform infrastructure supports the near instantaneous appropriation of commercial actors who monitor for trending content by the same algorithmic feeds as all communities.

Aesthetic Authenticity Gatekeeping keeping boundaries through obscure or insider specific aesthetics, but working in algorithmic systems of reward for viral potential, creates tension between boundary maintenance and visibility. Platform Migration tries to escape using smaller platforms but monitoring continues. Ironic Appropriation is the misuse of commercialized formats, but algorithms cannot differentiate between sincere and ironic use, and may heighten both subversions and appropriations.

Platform-mediated folk culture works in an autonomically structurally compromised. Traditional folk culture's oppositional functions were based on relative invisibility to institutional power. Platform infrastructural does away with this protective obscurity making all cultural production computationally visible and extractable, requiring constant defensive work, not inherent autonomy.

### ***Reconceptualizing Folk Culture Under Computational Mediation.***

Platform specific engagement patterns--TikTok (M=2.8 hours daily) vs. Reddit (M=1.5 hours) and Twitter (M=1.2 hours), and Multivariate Platform Effects (Wilks'  $\lambda$ =.68,  $F(12,664)=12.47$ ,  $p<.001$ ,  $\eta^2=.18$ ) show that platform mediated folk culture is qualitatively different from traditional formations. Computational infrastructure is an active part of rather than a neutral host for folkloric mechanisms.

Traditional folklore focuses on bottom up emergence, organic transmission and community driven aesthetics through stable social structures (Dundes, 1965; Bronner, 2002). While there are still elements of folklore - collective creation, shared aesthetics, rules of insiders and outsiders - infrastructural conditions alter functional mechanisms. Platform-mediated folk culture is algorithmically-constituted folklore: formations, serving folkloric social functions, but operating through computational mediation restructuring the authority, temporality, transmission and autonomy.

The statistical evidence of the interaction effect between the platform type and creation behavior predicting Folk Culture Integration,  $b=.34$ ,  $p<.05$  Traditional theory is predicting consistent relationships between creative participation and community integration across contexts. The significant interaction shows these relationships to work qualitatively differently according to computational context, which challenges the universalist folk culture theory.

### ***Theoretical Implications***

These findings are contributing to digital folklore scholarship by showing how computational mediation brings about structural change that needs theoretical frameworks about how algorithmic systems actively transform rather than neutrally host folk cultural practices. Platform mediated folk culture is hybrid formation where the grassroots practices operated through computational systems designed to extract commercial value.

Three analytical principles are revealed. First, computational mediation works as constitutive force, not contextual factor, and actively structures folkloric mechanisms such as the formation of authority, temporal dynamics, and cultural transmission. Platform specific differences in how creative participation is correlated with community integration expose algorithmic architectures that fundamentally redefine relationships between individual agency and community belonging as defining traditional folk culture.

Second, platform specific divergence represents basic infrastructural divergence producing partially incompatible folk cultural logics rather than superficial variations. Divergent aesthetic preferences, patterns of engagement, and structures of authority in Reddit, Twitter, and TikTok show each platform gives rise to unique folkloric ecosystems with distinct mechanisms for cultural production, validation, and circulation that require thinking within each platform.

Third, folk cultural autonomy entails reconceptualization from assumed grassroots autonomy to contested negotiation in commercial systems. The movement away from embedded practice towards constant defensive work can be described as structural transformation in which cultural production takes place under the conditions of constant surveillance and potential extraction. This requires new analytical frameworks that take into account the ways that folk communities ensure cultural distinctiveness and oppositional functions in the context of infrastructures designed for commercial exploitation.

### Conclusions

This research shows that digital meme communities exhibit folkloric features, even though they operate according to computationally mediated mechanisms that alter the very nature of folk culture. In and through algorithmic structures of visibility and commercial imperatives, platform infrastructures do not offer neutral settings for folk cultural self-dispresentation but are actively involved in the making of cultural authority, the formation of traditions and the maintenance of autonomy by communities. The result is algorithmically constituted folklore: cultural formations which preserve the social functions and surface features of folk culture but which operate through infrastructurally altered mechanisms resulting in qualitatively transformed authority structures, compressed temporal dynamics, networked transmission processes and compromised autonomy conditions. Understanding these transformations requires a shift away from the recording of folkloric features in digital spaces towards an understanding of the transformation of folkloric mechanisms themselves as a result of the computational mediation of cultural processes, thereby generating cultural formations that, at the same time, show continuity with traditional folk culture and operate according to fundamentally altered infrastructural logics typical of platform capitalism.

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## **Effect of Pakistan GCC Bilateral Trade Agreement on Pakistani Stock Market: An Event Study Methodology**

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The goal of this study is to examine the intricate connections between industry-specific capital market responses in a developing country such as Pakistan. In particular, the analysis focuses on the Pakistan–GCC bilateral trade agreement and its impact across different sectors. Using an event study methodology, this article analyzes how the Pakistan-GCC Bilateral Trade Agreement (BTA) has affected the Pakistani share market. Pakistan's textile, food, and petroleum and oil industries all show positive responses, while other sectors react unfavorably. These findings induced an immediate reaction from chosen Pakistani industries. The positive reactions of the industries are encouraging for the economy as well as for shareholders. Therefore, the Pakistan Stock Exchange was susceptible to this incident. To the best of my knowledge, this paper is unique in a sense that it will assist the stockholders and decision makers of trade policy. Moreover, the sectoral focus of the analysis represents an important contribution. The study also examines the unique context of the Pakistan–GCC relationship, which has received limited attention in the existing literature .

**Keywords:** approach of event study, Pakistan-GCC bilateral trade agreement, Pakistani share market, abnormal returns

**JEL classification:** G14, F13, F14

Regional trade agreements (RTAs) have been a significant phenomena in the context of international trade throughout the past 20 years. As it is already well known, the quantity and scope of RTAs are rapidly growing. These trade agreements are comparatively legally binding on one another because they were signed at the national level. Therefore, the industries and individual businesses that are part of the parties to trade agreements are more affected. Despite the abundance of literature on RTA effectiveness, it is typically examined using statistics and theories pertaining to commerce. While it is generally believed that the financial market and international trade are closely related. Therefore, trade agreements that affect real economic activity can have both short-run and long-run repercussions for capital markets. This argument is supported by Ewing et al., (1999), who show that such agreements influence the markets in which the participating countries are active. However, there are very few studies that examine how trade agreements affect capital markets.

The Karachi Stock Exchange, founded in 1947, was later renamed the Pakistan Stock Exchange (PSX). This change occurred in January 2016 following the merger of the Lahore Stock Exchange and the Islamabad Stock Exchange. The integration is expected to reduce market fragmentation. Furthermore, it provides a strong case for attracting critical trading partners like China and Malaysia who are needed to provide technical help and expertise. In accordance with international norms, the transactions are entirely automated. As a result, foreign investors can conveniently complete their transactions online. The Shanghai Stock Exchange became a major shareholder in the PSX, with 40% share of the market. Pakistan's stock markets are now more easily accessible to about 154–155 Chinese investors. Through the China Connect Interface, PSX has integrated with the Chinese stock market. (PSX website)

Therefore, this study investigates the short-term relationship between international trade and financial markets. Specifically, it examines how stock markets respond to news related to trade agreements. It is anticipated that analyzing stock market responses will provide deeper insights for trade market analysis. This is because stock markets are highly sensitive to new information. For instance, stock market data can be used to examine investors' expectations regarding the effects of the BTA. However, it is still too early to determine the agreement's actual impact.

The peninsula is well-known for having substantial gas and crude oil deposits. The Gulf Cooperation Council (GCC) was established on May 25, 1981, in Riyadh, Saudi Arabia, to promote cooperation among member states based on shared strategic objectives, geographic proximity, and similar political structures. The GCC's total GDP was approximately US\$1.4 trillion in 2020, with Saudi Arabia and the UAE accounting for 49.4 percent and 25.3 percent of the bloc's total GDP, respectively (ITC, Trade Map).

Given its strategic location in South Asia, Pakistan has the potential to become one of the world's most economically significant nations. Its trade deficit is caused by high import prices. Pakistan's textile industry, among others, has a significant potential for revenue from exports. Therefore, the primary reasons the GCC nations, particularly the Kingdom of Saudi Arabia (KSA), are drawn to Pakistan are investment opportunities and trade prospects. The KSA also aims to establish strong commercial links with Pakistan by leveraging connections with China through Gwadar Port.

At its Ministerial Council meeting in June 2004, the Gulf Cooperation Council (GCC) decided to initiate BTA negotiations with Pakistan. The Council also considered the possibility of signing a Framework Agreement on Economic Cooperation between the GCC states and Pakistan. On August 24, 2004, the Composition of Agreement was signed in Islamabad. The GCC had declared its willingness to restart the BTA discussion between Pakistan and the GCC, which had stopped. The Ministry of Commerce Pakistan (MOC) is now working on preparations for the third round of negotiations. Pakistani exports to the GCC surged by US\$483.2 million between 2017 and 2020. However, Pakistani imports from the GCC dropped by US\$4.5 billion. Exports of Pakistan to the GCC were worth US\$2.0 billion in 2020, while its purchases from the GCC were worth US\$9.6 billion. GCC exports are more in line with Pakistan's purchases than with Pakistan's exports. Nevertheless, 42.0 percent of exports of GCC complement imports of Pakistan, 26.8 percent of Pakistan's exports do the same. The total trade imbalance between Pakistan and the GCC in services surged from US\$1.1 billion to US\$1.3 billion between Fiscal Year 2016 and Fiscal Year 2020. Pakistan exported services worth US\$886.6 million to the GCC. In FY 2020, it imported US\$2.1 billion worth of services from the GCC<sup>1</sup>.

For the reasons listed below, this paper examines the Pakistan-GCC Bilateral Trade Agreement (BTA). Firstly, this pact is the most important one for each nation's economic growth. Secondly, because GCC nations want to use Gwader Port to connect with China in order to forge strong business ties with Pakistan. Furthermore, because of its physical location, Pakistan is very important in the South-East Asian region. The Pakistan-GCC BTA's scope and contents are appropriate, wide-ranging, and rather substantial in this regard. Finally, because the stock market is highly sensitive to new information and Pakistan is an emerging open economy, examining the Pakistan-GCC BTA is expected to yield positive findings. This study aims to document these effects. The economies of the GCC nations are robust and prosperous. In this study, the following main question is addressed: What does the reaction of the Pakistani stock market to the anticipated changes to free trade in terms of industry and individual companies mean? Moreover, this article has significant implications for investors and trade policy makers.

In terms of the methodology, I have used an event study to estimate abnormal stock market returns related to the Pakistan-GCC BTA announcement date. Ex-post evaluation has been used in the majority of empirical research to date. However, this approach has drawbacks in that it is challenging to separate the

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<sup>1</sup> <https://oec.world/en/profile/bilateral-country/sau/partner/pak>

effects of changes in trade policy from a wide range of confounding variables, as discussed by Tybout (2003). The primary benefit of the event study approach over standard ex-post evaluation is that it reduces the amount of confounding factors by typically using event windows of one or two days.

This is how the remainder of the paper is structured. The second section examines relevant literature. The methodology is explained in Section 3. The empirical results are discussed in Section 4. This paper is briefly concluded in Section 5.

### **Literature Review**

Numerous earlier research have examined the impact of trade-enhancing agreements on countries' bilateral trade performance. Recent research, such as Huijuan et al., (2025), Khan et al., (2021), and Ahmad et al., (2022), have evaluated the economic effects of regional integration. However, the literature review is organized thematically into three strands as follows:

#### **Trade Agreements and Stock Market**

Nonetheless, a number of studies including Abumustafa (2008), Pradhan et al., (2014), have shown how crucial stock market development is to economic growth in emerging nations. Moreover, The relationship between BTAs and stock markets has been extensively studied by modern academics, such as Lan and Thao (2024), Andreas and Lisa (2023), Doowon (2020), Feng et al., (2021). In their 2019 study, Bouoiyour and Selmi examine how the blockade has affected the conditional volatility process of the stock markets in Qatar and the boycotting nations. They also investigate whether the Gulf crisis has made risk spillovers more severe throughout the region. According to their research, the stock markets in the United Arab Emirates, Saudi Arabia, and Qatar rose during the crisis, albeit the volatility was only temporary. The study by Lanouar and Refai (2019) looks at the volatility spillover and time-varying stock market reliance between Qatar and other GCC members. They come to the conclusion that while the blockade has lessened the degree of significant stock market reliance between Qatar and Saudi Arabia and the United Arab Emirates, it has not completely eliminated their stock market connections.

Moser and Rose (2014) use national stock returns to evaluate how regional trade agreements (RTAs) affect the well being of nations. The natural trading partner hypothesis, according to which stock markets rise faster when RTAs are negotiated between nations that already have substantial trade volumes, is strongly supported by their findings. Moreover, Breinlich (2014) investigates stock market responses to the Canada-United States BTA (1989) using heterogeneous company models. Abbas and Badshah (2017) examine the role of institutional investment in the Pakistan Stock Exchange and find that institutional shareholding significantly influences stock return volatility, underscoring the sensitivity of emerging equity markets to structural and policy-related factors. This evidence suggests that external economic developments—such as trade agreements—may have pronounced effects on stock market performance in emerging economies. Complementing this perspective, Khan et al., (2024) highlight the role of investor behavior, showing that financial knowledge and personality traits significantly shape stock market investment intentions in Pakistan, reflecting informational asymmetries common in emerging markets.

#### **Sectoral Heterogeneity in the Effects of Trade Agreements**

Investor expectations regarding the effects of the Canada-US Free Trade Agreement on Canadian manufacturing enterprises and industries are examined by Thompson (1993/1994). She came to the conclusion in October 1987 that abnormal returns at the industry level only correlate to one event. The findings show that, at the business level, investors' assessments of the effects of free trade agreements are significantly influenced by both comparative advantage and scale economies. Rodriguez (2003) builds on Thompson's research by analyzing investors' predictions regarding the impact of NAFTA on the profitability of industrial sectors in the United States, Canada, and Mexico. The primary conclusion is that the most important determinant of excess returns is factor intensity, which is the labor-capital ratio for the entire industry. However, the findings refute the notion that trade liberalization, industry production sizes in NAFTA nations, and profits are significantly correlated. The effect of the US-Singapore BTA on the value of companies listed on the Singapore Exchange is examined by Parinduri and Thangavelu (2013). They

discover that the worth of businesses in some industries increased by an average of 1–11% after the final barrier to the free trade agreement was removed in January 2003.

Klein (2001) clarified how NAFTA has had varying effects on different sectors of the Mexican Stock Exchange. He discovered that there were evidently positive abnormal returns, with significant effects on the electronics, iron, and paper sectors. The mining, insurance, and chemical industries, on the other hand, had less of a reaction, illustrating the diverse effects of BTA news on different businesses. Hamid et al., (1997) looked into how the Canada-US BTA affected a number of businesses. According to the study, the BTA announcement had a more noticeable effect on larger companies, particularly those in the computer, textile, and oil and gas industries. Furthermore, Parinduri and Thangavelu (2013) looked at the impact of the US-Singapore BTA on the stock price of companies listed on the Singapore Stock market and discovered that the market generally viewed the agreement favorably. In addition, Yilmaz and Aydin (2023) evidence from sector-level volatility analysis in comparable emerging markets indicates that stock price dynamics vary across industries, reinforcing the importance of sectoral heterogeneity when assessing market responses to economic or policy shocks.

### **Emerging Market Evidence to Strengthen the Theoretical Positioning**

A growing body of literature examines the effects of trade liberalization and regional trade agreements in emerging and developing markets, where institutional structures, market depth, and sectoral exposure often differ markedly from those in advanced economies. Unlike developed markets, emerging economies tend to exhibit higher sensitivity of stock prices to policy announcements due to greater information asymmetries, higher trade concentration, and limited risk-sharing mechanisms (Bekaert et al., 2005).

Several studies document that trade agreements can generate positive stock market reactions in emerging markets by improving export prospects, reducing uncertainty, and signaling commitment to economic reform (Henry, 2000). These effects are often heterogeneous across industries, reflecting differences in trade exposure and comparative advantage.

More recent work highlights that in emerging markets, sectoral stock market responses to trade agreements are shaped by structural characteristics such as reliance on foreign demand, tariff protection, and access to international capital (Topalova & Khandelwal, 2011; Fernandes, 2007). This strand of literature suggests that aggregate market reactions may mask important sector-level dynamics, underscoring the relevance of disaggregated analysis.

Despite this expanding evidence, empirical research on trade agreements and financial markets in South Asian and Middle Eastern contexts remains limited. In particular, the Pakistan–GCC relationship has received little attention, despite its strategic importance and strong sectoral trade linkages. Moreover, this study's technique is similar to that of the publications that were mentioned above, but the data collection is entirely new and large. Furthermore, the research is significant because it is the first attempt to examine the stock market's response to the conclusion of the trade deal between Pakistan and the GCC economies. It is also a thorough analysis employing event investigation. Addition to that, the study emphasizes how specific to sector of capital market responses and BTA information are intricately related, with industry type and economic climate having a significant influence. All of the findings demonstrate how important it is to consider sectoral variations when examining the broader economic effects of BTAs. This paper goal is to close this disparity by examining the intricate connections between industry-specific capital market responses in a developing country like Pakistan and Pakistan-GCC bilateral trade agreement data. Based on the discussion that is highlighted above, the following hypotheses have been developed.

H<sub>1</sub>: The PSX was significantly impacted by the announcement of the BTA between Pakistan and the GCC.

H<sub>2</sub>: Sectors listed on the PSX were significantly impacted by the announcement of the BTA between Pakistan and the GCC.

### Method

To find abnormal returns from the Pakistan Stock Exchange (PSX) following the news of the Pakistan-GCC (BTA), an event-study methodology is used. The study covers the period from January 1, 2004, to December 31, 2004, and includes 100 listed companies from a variety of PSX industries, such as textile, food, petroleum and gas, glass and ceramics, cables and electric products, the car industry, and cement. The data is collected from PSX website. The top 100 listed firms and sectors have been selected according to the KSE 100 Index selection criteria. Moreover, the top sectors of Pakistan, which are involved in exports and imports with GCC economies are than short listed for the analysis purpose. There is disagreement in the literature on the estimating window's duration. Nonetheless, it is typical for the estimation window to be approximately 11 days (-5, +5), which is commonly employed in event-study analyses to capture both information leakage prior to the announcement and delayed market reactions following the event, while minimizing contamination from unrelated news. This approach is consistent with standard practice in the event-study literature (e.g., MacKinlay, 1997; Kothari & Warner, 2007). I have selected an estimation window for this analysis that ran from August 17, 2004 to August 31, 2004, which was -5 days prior to the BTA's signing and +5 days thereafter. The most popular expected return model is Brown and Warner's (1985) proposed market model. The market model can be shown as follows for every stock market index  $i$ :

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \dots\dots\dots(1)$$

where  $R_{mt}$  indicates the index of KSE 100 return on day  $t$  of the same period, and  $R_{it}$  represents the return of companies listed on PSX  $i$  on day  $t$  of the estimation window. The market model's parameters are  $\alpha_i$  and  $\beta_i$ . Next, I have calculated the expected return  $E(R_i)$  as follows:

$$E(R_i) = \alpha_i + \beta_i R_{mt} \dots\dots\dots(2)$$

while;

$$AR_{it} = R_{it} - E(R_{it}) \dots\dots\dots(3)$$

where  $AR_{it}$  stands for any company's abnormal return on day  $t$ , which is inside the window of event.

I have measured a "cumulative abnormal return (CAR)" for all of the event window (-5, 0, +5) by adding up the individual abnormal returns in order to determine the overall impact of an event over a specific time period (referred to as the "event window"):

$$CAR_t = \sum AR_t \dots\dots\dots(4)$$

where, for  $t = -5, \dots + 5$ ,  $CAR_t$  = Cumulative Abnormal Return and  $AR_t$  = The Abnormal Return.

ARs have been used to quantify the effect of the news of the Pakistan-GCC BTA date of signing on stocks during the event time period, both before and after the event day. Every day's  $t$ -statistics are then measured to ascertain whether or not, in comparison to day 0, the ARs are significantly different throughout the occasion duration. For every AR value, the below mentioned equation is used to determine  $t$ -statistics :

$$t\text{-statistic (AR)} = AR / \text{Standard Error} \dots\dots\dots(5)$$

Where

AR = abnormal return

Following the determination of the CARs and ARs for the event window's days, daily averages of each company's AARs and CAARs of the window of event are measured. The average AAR and CAAR values are obtained using the formula below:

n

$$CAAR = \sum_{i=1}^n CAR_t / n \dots\dots\dots(6)$$

i=1

Where

CAAR = Cumulative Average Abnormal Return

CARs are measured to ascertain the impact on shares throughout the window of event pre and post of occasion day. To find out if the mean CAARs deviate considerably from day 0 over the duration of the occasion window, the t-statistics for the event window are measured following the mean CAARs are determined. The formula below is utilized to obtain the t-statistic for each mean value of CAR:

$$t\text{-"statistic"} \text{"(CAAR)} = \text{"CAAR } (\sigma/n)\text{"} \dots\dots\dots(7)$$

“while σ” = “the temporal series' SD.”

### Results

Although the examination of the event has tried to evaluate the impact of the news of the Pakistan-GCC BTA day of signing on the returns of PSX's 100 listed firms. The results of one company are presented here as a sample because the Textile industry of Pakistan is the top potential industry for exports to GCC countries. For the 250 trading days leading up to the five days before Ali Asghar Textile Mills Ltd.'s statement on August 24, 2004, the event window has been established. Ali Asghar Textile Mills Ltd. exhibited typical behavior throughout the estimation window, according to the regression's findings:

$$E(R_{Ali\ Asghar,t}) = 0.003485 + 0.111996 * R_{KSE100,t} \dots\dots\dots(8)$$

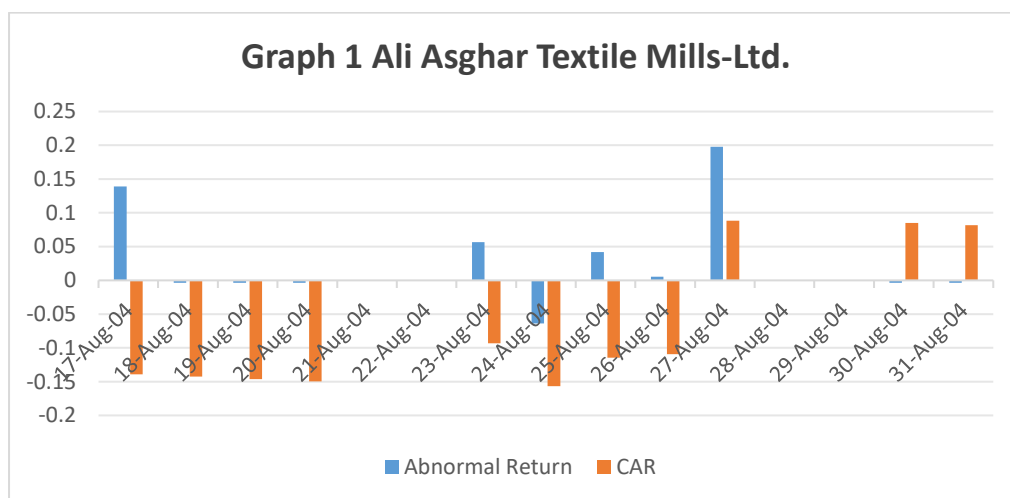
**Table-1**  
*Ali Asghar Textile Mills Ltd.*

Days	Dates	ER	Abnormal Return	CAR	t stat	Decision
-5	17-Aug-04	-0.010878973	0.139133308	-0.139133308	<b>2.334882413</b>	yes
-4	18-Aug-04	0.003485	-0.003485	-0.142618308	-0.058483948	no
-3	19-Aug-04	0.003485	-0.003485	-0.146103308	-0.058483948	no
-2	20-Aug-04	0.003485	-0.003485	-0.149588308	-0.058483948	no
-1	23-Aug-04	-0.002570313	0.056637534	-0.092950774	0.950469613	no
0	24-Aug-04	0.009540313	-0.063607534	-0.156558308	-1.06743751	no
1	25-Aug-04	-0.0010869	0.041908895	-0.114649413	0.703299176	no
2	26-Aug-04	0.002592597	0.005375573	-0.109273841	0.090210824	no
3	27-Aug-04	-0.016786044	0.197783974	0.088510133	<b>3.319135646</b>	yes
4	30-Aug-04	0.003485	-0.003485	0.085025133	-0.058483948	no
5	31-Aug-04	0.003485	-0.003485	0.081540133	-0.058483948	no

Source: Authors' own work.

The regression has been done to determine the standard error of the estimated y-values. Moreover, this value has been used to determine the significance of the event's abnormal returns. -5 days before and +5 days after the announcement was made during the event window. The market model has been used to calculate the effect of the news during the event time is mentioned in Equation 8. The results show that once the Pakistan-GCC BTA signing date was announced, Ali Asghar Textile Mills Ltd., saw a number of noteworthy abnormal returns over the event period. As antecedence stated, the significance of the abnormal returns is evaluated utilizing the regression forecast's standard error. Before and following the event days on August 17 and 27, 2004 respectively, Table-1 demonstrates the values of the t-statistic are significant.

If the t-statistic is larger than 1.96, the 95% confidence level is the significance level. According to Table 1, at the 95% confidence level, the abnormal return results on August 17 and 27, 2004, are noteworthy. Furthermore, the share returns depicts that the news of the signing day for the Pakistan-GCC Bilateral Trade Agreement had a positive impact on Ali Asghar Textile Mills Ltd.'s share returns.



Source: Authors' own work.

Abnormal Return (AR) after the occasion of August 17 and 27 is very significant, as seen in Graph 1. During the short-term of time covered by this window of event, shareholders of Ali Asghar Textile Mills Ltd. have seen positive wealth creators.

**Table 2**  
7 Sectors- Cumulative Abnormal Returns (CAR)

*Event Day*

Sectors	CAR	-5	-4	-3	-2	-1	0	1	2	3	4	5
Textile **		0.1322	0.0033	0.0000	-0.0078	0.0572	-0.0657	0.0405	0.0105	0.1997	0.0000	0.0035
Food**		0.0310	-0.0068	-0.0218	-0.0094	0.0270	-0.0698	0.0948	0.0231	0.1807	-0.0298	-0.0094
Petroleum and oils**		0.1016	-0.0631	0.0267	-0.0042	0.0224	-0.0767	0.0735	0.0182	0.1921	-0.0433	-0.0203
Glass and Ceramics		0.0888	0.0012	-0.0022	-0.0124	0.0550	-0.0678	0.0383	0.0084	0.1975	-0.0022	0.0013
Cables and Electric products		0.0370	0.0006	-0.0115	-0.0035	0.0287	-0.0698	0.0830	0.0193	0.1835	-0.0195	0.0008
Auto Industry		0.0672	-0.0335	0.0034	0.0006	0.0277	-0.0711	0.0873	0.0227	0.1873	-0.0356	-0.0139
Cement		0.0654	-0.0364	0.0015	-0.0057	0.0217	-0.0754	0.0811	0.0185	0.1855	-0.0375	-0.0158
	CAAR	0.0747	-0.0192	-0.0006	-0.0049	0.0343	-0.0709	0.0715	0.0172	0.1898	-0.0240	-0.0077
	T-Value	1.1645	-1.8455	-0.0467	-0.6878	1.3473	-3.0385	<b>3.0999</b>	<b>3.3137</b>	<b>2.5050</b>	-3.5634	-1.5009

Source: Authors' own work.

Table 2 reports the cumulative abnormal returns (CAARs) and their corresponding t-statistics for the 100 companies listed on the Pakistan Stock Exchange. The results indicate that, in the pre-event period, the

t-statistics for days  $-4$  to  $-2$  are negative but statistically insignificant. In contrast, the t-statistics on the first, second, and third days following the event are positive and statistically significant, suggesting a favorable market reaction. However, the fourth post-event day exhibits a negative effect. Overall, these findings demonstrate that CAARs vary significantly from the event day ( $t = 0$ ) across the event window.

The findings demonstrate how trade policy has changed, such as when BTAs have been adopted or modified. It then had a significant impact on the response of the capital market. Consequently, capital market is one of the most significant economic indicators, which show positive response in few sectors such as textile, food and Petroleum and oil lead towards economic sustainable development for Pakistan. Moreover, as Pakistani currency is weak against GCC economies. So the exporters can exploit this opportunity and increase their exports to GCC region and ultimately Pakistani foreign reserves will surge. Recently around the globe, the strategic significance of Pakistan has been improved due to natural resources as well as connectivity of trade with the world through gawader port. Therefore, the industry of natural resources can surge their exports to GCC countries. As a result, the findings support hypothesis  $H_1$  and are consistent with the research of researchers such Bouoiyour and Selmi (2019), Lanouar and Refai (2019), Moser and Rose (2014) and Breinlich (2014).

The empirical analysis of the relationship between bilateral trade agreements (BTAs) and firms' financial performance is grounded in Fama's (1970) Efficient Market Hypothesis. This posits that financial markets are informationally efficient and that security prices adjust rapidly to new information, such as the announcement of a Pakistan–GCC BTA. But according to theoretical aspects of behavioral finance, people who enter the stock market because of a representational bias perform like investors who either overreact or under-react to the most recent information. The study records these reactions five days before and after the episodes, estimating cumulative abnormal returns in accordance with previous research in the literature.

Automobiles, cables and electric products, cement, glass and ceramics, food, and petroleum and oils were the sectors that exhibited a statistically significant negative reaction on the fourth day following the announcement. This announcement marked the official signing of the Pakistan–GCC Bilateral Trade Agreement. The textile industry did, however, react favorably on the fourth day after this statement. Every industry responded quite well on Days 1, 2, and 3. Consequently, this serves as a standard illustration of the sector's ability to pass costs on to consumers. Thus it has been observed that export-oriented sectors such as textiles benefit more directly from enhanced market access and demand conditions in GCC countries. While domestically oriented sectors like cement and automobiles are less directly exposed to GCC trade flows and are therefore less responsive to trade-related announcements. It also has been noted that differences in import dependence, energy costs, and competitive exposure further contribute to heterogeneous sectoral reactions. These results are comparable to the analysis of Klein (2001), Hamid et al., (1997), Parinduri and Thangavelu (2013) and hypothesis  $H_2$  are also approved.

Therefore, the findings unequivocally suggest that, both prior to and immediately following the announcements, Pakistani stock markets demonstrated a high and extremely sensitivity to the Pakistan-GCC BTA event. Few businesses suffered as a result of consumers favoring foreign products over domestic ones, which reduces demand for domestic products. Nonetheless, the sectors that benefited from lower production costs welcomed the occurrence. Few sectors displayed cumulatively abnormally negative returns in the 2<sup>nd</sup>, 3<sup>rd</sup> and 4<sup>th</sup> days before to the news. The cumulative abnormal returns after the news revealed a range of outcomes. Furthermore, the results show that not every industry supported BTAs, which may increase rivalry for domestic enterprises from overseas firms. Hence, the results are regarded as satisfactory and are in line with both hypotheses ( $H_1$  and  $H_2$ ).

## Conclusion

It was expected that the signing of the BTA between Pakistan and the GCC in August 2004 would significantly boost Pakistan's economy. This paper examines the impact on the Pakistani Stock Exchange (PSX) of the events surrounding the BTA between Pakistan and the GCC. For this reason, the abnormal

returns are calculated surrounding the news events using established event methods. Several interesting results were obtained from measurements of the responses before and after the announcements.

First, the PSX demonstrated sensitivity that was both strong and statistically significant to the Pakistan-GCC BTA occasion both prior to and immediately following the news. Second, a few sectors suffered as a result of the news occurrence, and the investing community reacted negatively. The BTA between Pakistan and the GCC decreased demand for local brands and caused consumers to choose foreign ones. Nonetheless, the sectors that profited from decreased production costs welcomed the occurrence. Third, industrial performance around the events offered an interesting picture. The degree of competition in the industry changed as a result of shifting tariff arrangements, and the sectors were all affected to varying degrees by new market entry. The Pakistan-GCC BTA created a new degree of market risk that impacted all businesses and might have impacted investor risk premiums. Finally, on the second, third, and fourth days before the news, a few industries depicted cumulatively negative abnormal returns. Following to the announcement, the cumulative abnormal returns depicted varied results. Furthermore, the results depicts that not all sectors support BTAs, which means that local companies may face more competition from foreign firms.

The study's findings have significant implications for decision-makers and investors across a range of industries. First, future BTAs between Pakistan and GCC countries might be advantageous to investors. By doing this, businesses can invest more in sectors that stand to benefit from the BTAs and less, if any, in sectors where the BTAs could increase risk. Moreover, the investors can use information from trade agreement announcements to better assess sectoral exposure and reallocate portfolios in response to anticipated changes in trade conditions.

Second, the data from this study can be used to inform pertinent trade policy changes that will lessen any possible adverse effects on particular industries that may be more susceptible to the BTAs. It has been noted that all industries reacted favorably to the event on Days 1, 2, and 3, after the announcement date. Since a result, it is suggested that those in charge of trade policy assist these sectors in increasing their exports, since this could aid Pakistan's economy in reaching sustainable development objectives. Protecting the interests of possible export industries including food, textiles, and petroleum and oils requires special attention from policymakers at the time of negotiations with GCC countries. Another strong reason for trade policy makers to focus on natural resources and other above highlighted sectors is that contemporaneously around the globe, the strategic significance of Pakistan has been improved due to natural resources as well as connectivity of trade with the world through Gawader Port. For instance, it is recommended that the government lower import taxes on machinery and raw materials and offer inexpensive electricity in order to lower manufacturing costs and increase exports from the sectors that are mentioned above.

After examining Pakistan's economic circumstances throughout this time, it was determined that the BTA between the country and the GCC had been in effect for almost 21 years. Through the use of a computerized trading system, it has been discovered that the PSX has evolved and is supporting sustainable economic development. As a result, when excellent news was announced, investors reacted quickly and enthusiastically. Because of their potential for exports, the sectors that did well in the PSX helped the economy of Pakistan to grow. Potential top exports to the GCC, include textiles, food items (meat, cereals, fruits, vegetables, and fish), and petroleum and oils.

Future research might examine BTAs between Pakistan and specific GCC nations in light of the response of the Pakistan Stock Exchange. The findings might not apply in other nations due to the limitations of this study. Furthermore, even though the study made every attempt to separate the effects of the Pakistan-GCC BTA event on the Pakistan stock market, the results could still be affected by co-founding events that happened within the sample period. Furthermore, in future research, may be the study can include robustness checks and control for major external factors such as the economic impacts of COVID-19, and the influence of Pakistan's IMF programs.

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## **Financial Technology Adoption and Financial Performance: A Dynamic Panel Analysis of Banking Institutions in ASEAN Countries**

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Rapid digital transformation has reshaped banking systems worldwide, positioning financial technology adoption as a strategic driver of performance. This study investigates the impact of financial technology adoption on the financial performance of commercial banks in Association of Southeast Asian Nations economies. A quantitative research design is employed using an unbalanced bank-level panel dataset covering the period 2015–2023. The analysis applies a dynamic panel estimation framework based on the system generalized method of moments to address endogeneity, unobserved heterogeneity, and performance persistence. Financial technology adoption is operationalized through a composite index derived from digital service provision, mobile usage intensity, and technology investment. The empirical results demonstrate that greater adoption significantly improves profitability indicators while reducing operational inefficiency. These effects remain robust across alternative model specifications and diagnostic tests, indicating sustained performance gains associated with digital capability development. The findings support innovation diffusion arguments emphasizing efficiency, scalability, and observable performance benefits. Overall, financial technology adoption emerges as a critical mechanism for strengthening bank competitiveness and resilience in emerging financial systems. The study provides actionable insights for strategic investment prioritization and adaptive regulatory design aimed at fostering stable and inclusive digital financial ecosystems.

**Keywords:** financial technology adoption; bank performance; dynamic panel estimation; digital transformation; operational efficiency; emerging banking systems.

During the last decade, rapid digital progress has substantially transformed the global financial environment, with financial technology (FinTech) emerging as a pivotal driver of innovation in banking services and operational restructuring (Basdekis et al., 2022; Zuo et al., 2021). Innovations associated with FinTech, such as mobile banking platforms, digital payment infrastructures, blockchain applications, big data analytics, and artificial intelligence, aim to improve operational efficiency, expand financial inclusion, and reinforce institutional competitiveness within increasingly complex and digitally integrated markets (Anifa et al., 2022; Offiong et al., 2024; Sajid et al., 2023). Growing empirical findings also indicate that digital financial transformation contributes positively to bank-level performance and market valuation, particularly within emerging financial systems (Khan et al., 2023, 2026).

Across the ASEAN region, the pace of FinTech adoption has intensified markedly in recent years (ASEAN Statistical Yearbook, 2023), supported by widespread internet access, rising levels of digital capability, and enabling regulatory mechanisms, including the implementation of regulatory sandbox frameworks (Hamdan & Anshari, 2021; Warokka et al., 2025). Countries such as Indonesia, Singapore, and Malaysia have progressively established themselves as prominent regional centres for FinTech advancement, as reflected in increasing investment inflows and the deep integration of digital technologies into core banking operations (Alam et al., 2021; Anifa et al., 2022; Pradipta et al., 2023). In line with international evidence emphasizing the moderating influence of regulatory quality and digital governance on FinTech-related outcomes (Khan et al., 2023; Khan & Al-Harby, 2022), ASEAN economies exhibit diverse institutional characteristics that may shape the performance implications of digital adoption.

Despite the increasing prominence of FinTech, empirical studies examining its impact on bank performance in ASEAN remain limited, fragmented, and contextually inconsistent. Existing literature often neglects the region's structural heterogeneity, divergent regulatory environments, and the dynamic interplay between FinTech adoption and banking stability. Moreover, prior research presents conflicting evidence: while some studies highlight improvements in profitability, operational efficiency, and service accessibility (Li et al., 2022; Rashwan & Kassem, 2023; Awasthi, 2025), others emphasize trade-offs such as high implementation costs, cybersecurity risks, and organizational resistance transitions (Alexandri et al., 2023; Meyer & Okoli, 2023; Mustapha et al., 2023; Singhvi & Dadhich, 2023). Recent cross-country studies further indicate that the performance implications of FinTech adoption are not uniform, but instead differ according to bank size, capital strength, and the level of institutional development (Khan et al., 2026). This heterogeneity highlights the importance of conducting context-sensitive and methodologically rigorous investigations within ASEAN settings. Accordingly, the observed fragmentation and mixed empirical findings point to a significant research gap, namely the limited availability of robust, region-focused, and causally grounded evidence regarding the effects of FinTech adoption on bank performance in developing ASEAN economies.

To address this research gap, the present study seeks to deliver a comprehensive empirical evaluation of the nexus between FinTech adoption and banking performance across ASEAN economies. In particular, the analysis captures both short-run and long-run effects, while rigorously controlling for potential endogeneity, unobserved heterogeneity, and the persistence of profitability through the application of a dynamic panel system GMM estimator. Such a methodological framework is consistent with recent empirical approaches employed in advanced panel studies on digital finance and banking performance (Khan et al., 2026), thereby strengthening the robustness of causal interpretation and ensuring dynamic coherence of the estimated relationships.

This study contributes to the existing body of knowledge by directly linking FinTech adoption to measurable aspects of bank performance. It responds to the limited availability of regionally focused empirical research, enhances analytical rigor through the use of dynamic panel estimation methods, and helps reconcile mixed evidence regarding both the benefits and potential vulnerabilities associated with digital financial innovation. In this regard, the study both complements and expands upon recent findings from other emerging markets (Khan et al., 2023; Khan & Al-Harby, 2022) by offering dynamic evidence specific to the ASEAN context. In addition, the research provides practical implications for policymakers and banking industry practitioners, supporting more informed decision-making related to digital banking strategies, regulatory frameworks, and investment allocation aimed at fostering sustainable and inclusive financial development.

### **Literature Review**

Research on FinTech adoption and its impact on bank performance has grown significantly, reflecting the rapid digital transformation within the financial sector. Recent cross-country analyses indicate that digital financial transformation has a substantial effect on bank profitability, operational efficiency, and valuation, especially in emerging economies (Khan et al., 2023, 2026; Aduba et al., 2023). This study adopts

the Diffusion of Innovation (DOI) Theory (Rogers, 1995) as its central theoretical framework, while selectively integrating additional perspectives to address institutional and risk-related dimensions without overlapping explanatory mechanisms. By grounding the analysis in DOI theory, the study maintains theoretical coherence and parsimony in elucidating how FinTech adoption drives bank performance.

According to DOI theory, the adoption of innovations is influenced by five principal attributes: relative advantage, compatibility, complexity, trialability, and observability, which collectively determine organizational acceptance and institutionalization of new technologies (Rogers, 1995). In the banking sector, relative advantage pertains to efficiency improvements and revenue diversification; compatibility reflects alignment with existing operational and regulatory frameworks; complexity denotes implementation challenges; trialability allows for incremental testing; and observability enables performance benchmarking (Ismail, 2006; Jwaifell & Gasaymeh, 2020). This framework aligns with recent evidence highlighting that regulatory quality and digital governance can enhance or constrain the benefits of financial innovation (Khan et al., 2023; Khan & Al-Harby, 2022). Together, these attributes offer a cohesive theoretical perspective linking the intensity of FinTech adoption to dynamic bank performance outcomes.

Empirical research largely corroborates the diffusion of innovation perspective that the adoption of financial technology contributes positively to bank performance by enhancing operational efficiency and broadening service reach (Agustin, 2023; Issa et al., 2023; Nanda & Yunus, 2024; Dhanraj, 2024). In particular, process automation and digital distribution platforms are associated with lower transaction expenses, while advanced data analytics facilitate more accurate credit assessment and risk-based pricing, ultimately supporting higher profitability and improved cost-to-income efficiency. Evidence from extensive panel datasets also reveals that performance outcomes are not uniform across institutions, but instead vary according to factors such as capitalization levels, organizational scale, and the degree of institutional development (Khan et al., 2026). This heterogeneity underscores the diffusion of innovation argument that technologies demonstrating tangible relative advantages and visibility tend to produce observable improvements in performance metrics.

Nevertheless, the diffusion of innovation framework recognizes that technology adoption is accompanied by uncertainty and transitional costs. Existing scholarship highlights several potential drawbacks, including heightened exposure to cybersecurity threats, technological vulnerabilities, and internal resistance to organizational change (Cortellazzo et al., 2019; Saeed et al., 2023; Vaska et al., 2021). More recent empirical investigations further suggest that rapid digitalization can intensify operational and systemic risks in environments where governance structures and regulatory oversight remain insufficient (Khan et al., 2023). These issues reflect the complexity dimension within the diffusion of innovation theory, indicating that the performance implications of financial technology adoption are conditional upon organizational preparedness and the broader quality of institutional frameworks.

In emerging markets, bank performance is influenced by institutional and structural attributes, including scale, capital adequacy, and the quality of governance frameworks, as well as by prevailing macroeconomic dynamics (Khan et al., 2023). Within ASEAN, empirical findings on the FinTech–performance nexus remain fragmented, reflecting heterogeneity in regulatory maturity and digital infrastructure (Benny Alexandri et al., 2023; Low & Wong, 2021). Comparative evidence from other emerging markets highlights that institutional quality and financial intermediation structures critically mediate digital finance outcomes (Khan & Al-Harby, 2022; Shira, 2023), reinforcing the need for ASEAN-specific analysis.

Against this background, the current study offers three key contributions. First, it enriches Diffusion of Innovation theory by broadening its scope beyond adoption decisions toward dynamic financial performance, thereby connecting innovation characteristics with the persistence of profitability. Second, it delivers empirical evidence from multiple ASEAN countries through the application of a dynamic panel system Generalized Method of Moments methodology that rigorously accounts for endogeneity concerns

and adjustment processes. Third, by synthesizing insights from recent global empirical research (Khan et al., 2023, 2026), the analysis situates ASEAN-specific findings within wider emerging-market dynamics while maintaining sensitivity to regional institutional contexts.

Anchored in Diffusion of Innovation theory, the formulation of hypotheses builds upon the preceding literature review. FinTech adoption is defined as the depth and intensity of digital transformation rather than the implementation of discrete technological tools, reflecting the relative advantage and observability attributes highlighted within the theoretical framework. In line with recent panel-based evidence indicating economically meaningful impacts of digital transformation on firm performance (Khan et al., 2026), higher levels of adoption intensity are anticipated to generate improved profitability and operational efficiency, subject to firm-level and macroeconomic control factors.

H1: The adoption of financial technology, indicative of the degree of digital transformation, exerts a positive and statistically significant influence on the financial performance of banks within ASEAN nations.

The conceptual framework is formulated *ex ante* on the basis of Diffusion of Innovation theory, outlining the causal mechanisms through which FinTech adoption influences bank performance across ASEAN economies. FinTech adoption is proxied by three key dimensions: (1) the breadth of digital banking services offered, (2) the intensity of mobile banking utilization, and (3) the proportion of technology-related investment, reflecting relative advantage, trialability, and observability. Bank performance is evaluated using Return on Assets, Return on Equity, and the Cost-to-Income Ratio. To enhance the robustness of the dynamic specification, several control variables are incorporated, including bank size, capital structure, economic growth, and inflation. This modeling configuration is consistent with contemporary empirical approaches in digital banking studies (Khan et al., 2026) and captures the role of institutional heterogeneity highlighted in cross-country analyses (Khan & Al-Harby, 2022). Overall, the framework facilitates a systematic examination of the causal and intertemporal effects of FinTech adoption on banking performance.

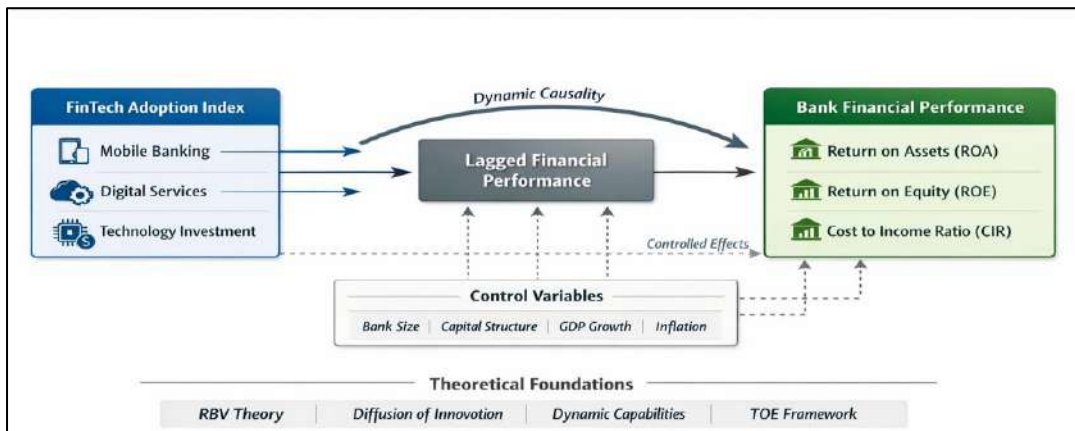


Figure 1. **Research Conceptual Framework**

## Method

This research adopts a quantitative framework based on a dynamic panel system Generalized Method of Moments estimation strategy (Blundell & Bond, 1998), which facilitates causal inference while systematically mitigating endogeneity concerns, controlling for unobserved bank-level heterogeneity, and capturing the intertemporal persistence of profitability within bank-specific panel observations.

### *Data Types and Sources*

This research employs secondary annual panel data spanning the period from 2015 to 2023, obtained from bank annual reports, the World Bank, the IMF, the ADB, and national financial regulatory authorities

across ASEAN. The unit of analysis consists of commercial banks operating within ASEAN member countries, thereby facilitating cross-country comparability.

### *Research Variables*

- Dependent variables represent bank financial performance, proxied by Return on Assets, Return on Equity, and the Cost-to-Income Ratio, which jointly capture dimensions of profitability and operational efficiency. Return on Assets serves as the primary dependent variable in the baseline system-GMM estimation, whereas Return on Equity and Cost-to-Income Ratio are incorporated in robustness tests to verify the stability of the estimated FinTech effects across alternative performance indicators.
- Independent variables proxy the intensity of FinTech adoption, operationalized through three dimensions: (i) the extent of digital banking service implementation, (ii) the rate of mobile banking utilization, and (iii) the proportion of technology-related investment relative to total assets. Collectively, these indicators reflect banks' digital transformation intensity across operational deployment, customer usage, and strategic investment domains.
- Control variables comprise bank size (measured by the logarithm of total assets), capital structure (proxied by the debt-to-equity ratio), as well as macroeconomic indicators such as GDP growth and annual inflation. These variables are included to ensure that the estimated impact of FinTech adoption on bank performance reflects its net effect, after accounting for relevant firm-specific and economic conditions.

FinTech adoption variables are integrated into a validated FinTech Adoption Index, which is developed through Principal Component Analysis and standardized aggregation procedures. Specifically, the first principal component is retained as it effectively represents the shared variation among the three FinTech indicators. This composite index is subsequently used as a single explanatory variable in the system-GMM estimation to mitigate multicollinearity and measurement error.

To evaluate the effect of FinTech adoption on bank performance within a dynamic framework, this study applies the system Generalized Method of Moments (system-GMM) estimator proposed by Blundell and Bond (1998). This technique is particularly appropriate for banking datasets because it accounts for performance persistence by incorporating lagged dependent variables, mitigates endogeneity concerns stemming from simultaneity and reverse causality, and controls for unobserved, time-invariant bank-specific characteristics. By simultaneously estimating equations in both first differences and levels with the use of internally constructed instruments, the system-GMM estimator yields consistent and efficient parameter estimates for dynamic panel data characterized by a large cross-sectional dimension and a moderate time span

Within this framework, bank performance is examined using three complementary dynamic specifications. The baseline specification utilizes return on assets as a proxy for overall managerial efficiency and the effectiveness of asset utilization. In addition, return on equity and the cost-to-income ratio are employed as alternative dependent variables to assess the robustness and the multidimensional characteristics of the relationship between FinTech adoption and bank performance.

The baseline model specification is:

- Baseline Dynamic Model: Bank Profitability (ROA)

$$ROA_{it} = \alpha_0 + \alpha_1 ROA_{i,t-1} + \beta_1 FTI_{it} + \beta_2 Size_{it} + \beta_3 DER_{it} + \beta_4 GDP_{it} + \beta_5 Inflation_{it} + \mu_1 + \varepsilon_{it} \quad (1)$$

To capture the effect of FinTech adoption on shareholder returns, the following alternative performance specification is estimated:

- Alternative Performance Model: Return on Equity (ROE)

$$ROE_{it} = \alpha_0 + \alpha_1 ROE_{i,t-1} + \beta_1 FTI_{it} + \beta_2 Size_{it} + \beta_3 DER_{it} + \beta_4 GDP_{it} + \beta_5 Inflation_{it} + \mu_1 + \varepsilon_{it} \quad (2)$$

Finally, to assess the implications of FinTech adoption for operational efficiency, bank performance is also evaluated using the cost-to-income ratio:

- Efficiency Model: Cost-to-Income Ratio (CIR)

$$CIR_{it} = \alpha_0 + \alpha_1 CIR_{i,t-1} + \beta_1 FTI_{it} + \beta_2 Size_{it} + \beta_3 DER_{it} + \beta_4 GDP_{it} + \beta_5 Inflation_{it} + \mu_1 + \varepsilon_{it} \quad (3)$$

Where:

- $i$  denotes bank  $i = 1, \dots, N$
- $t$  denotes year  $t = 2015, \dots, 2023$
- $ROA_{it}$ : Return on Assets of the bank  $i$  in the year  $t$
- $ROA_{it-1}$ : Return on Assets of the previous year (variable lag)
- $ROE_{it}$ : Return on Equity of the bank  $i$  in the year  $t$
- $ROE_{it-1}$ : Return on Equity of the previous year (variable lag)
- $CIR_{it}$ : cost-to-income ratio of the bank  $i$  in the year  $t$
- $CIR_{it-1}$ : cost-to-income ratio of the previous year (variable lag)
- $FTI_{it}$ : FinTech Adoption Index (FTI) derived from PCA of three FinTech indicators
- $Size_{it}$ : Bank size (total asset log)
- $DER_{it}$ : Debt-to-Equity Ratio
- $GDP_{it}$ : Growth of the Bank's Gross Domestic Product
- $Inflation_{it}$ : The country's annual inflation rate
- $\mu_1$ : Fixed individual effects (unobserved heterogeneity)
- $\varepsilon_{it}$ : Error term acak

### ***Model Validation and Statistical Testing***

The model in this study was estimated using a system-GMM estimator (Blundell & Bond, 1998), replacing the earlier difference-GMM specification to address endogeneity, instrument weakness, and profitability persistence more effectively:

- The Hansen test is applied to assess the validity of the instruments utilized in the system-GMM estimation. A p-value exceeding 0.05 suggests that the null hypothesis of instrument validity cannot be rejected, indicating the absence of overidentification problems and confirming that the instruments are statistically valid.
- The Arellano–Bond autocorrelation tests, specifically AR(1) and AR(2), are employed to identify the presence of serial correlation in the first-differenced residuals. Although first-order autocorrelation (AR(1)) is typically anticipated, the lack of second-order autocorrelation (AR(2)) constitutes a crucial requirement for ensuring the validity of the moment conditions underlying the system-GMM estimator

In addition to the main diagnostic tests, several additional tests were also performed to improve the reliability of the estimated results:

- The Variance Inflation Factor was utilized to evaluate potential multicollinearity among the explanatory variables, thereby confirming that the robustness and consistency of the coefficient estimates remained unaffected.
- Robust two-step GMM standard errors were applied to address heteroscedasticity and within-panel autocorrelation.
- Robustness checks included (i) alternative FinTech proxies, (ii) difference-GMM, and (iii) collapsed-instrument specification, all confirming coefficient stability.

The entire estimation and validation process is carried out using Stata 17 software, which has the complete capabilities to manage dynamic panel data and support various forms of GMM estimation, both academically and professionally.

## Results

### *Descriptive*

This study utilizes an unbalanced panel dataset consisting of 70 commercial banks operating across ASEAN countries during the period 2015–2023, resulting in a total of 630 bank–year observations. The data are sourced from banks’ annual reports, national financial regulatory authorities, and reputable international databases, including those maintained by the World Bank and the International Monetary Fund.

**Table 1**

*Descriptive Statistics of Research Variables*

Variable	N	Mean	Std. Dev.	Min	Max
ROA	630	1.26	0.87	-0.45	3.82
ROE	630	10.34	5.76	-2.11	24.90
Cost-to-Income Ratio	630	53.28	12.91	31.02	81.33
Mobile Banking Usage (%)	630	54.21	20.14	10.00	92.00
Digital Services Count	630	7.45	2.81	2.00	14.00
Technology Investment Ratio	630	2.63	1.09	0.50	6.80
Bank Size (log assets)	630	15.43	1.13	13.10	18.30
Capital Structure (DER)	630	5.64	2.49	2.20	11.90
GDP Growth (%)	630	4.82	1.38	1.32	7.01
Inflation (%)	630	3.11	1.47	0.48	6.90

Table 1 presents the descriptive statistics for all variables incorporated in the empirical investigation. The mean ROA of 1.26% reveals considerable heterogeneity in bank profitability, underscoring structural and operational disparities across ASEAN banking systems. This dispersion reinforces the suitability of employing a dynamic panel estimation approach and offers empirical support for examining the hypothesized FinTech-induced differences in performance. Furthermore, the three FinTech-related measures documented in the table serve as the foundational elements for developing the FinTech Adoption Index (FTI) through Principal Component Analysis (PCA), which is subsequently utilized in the multivariate regression framework.

### *Construction and Validation of the FinTech Adoption Index (FTI)*

The FinTech Adoption Index (FTI) is calculated for each bank–year observation using the first principal component (PC1) obtained from Principal Component Analysis (PCA). This procedure enables the index to capture the predominant shared variation among FinTech-related indicators while eliminating reliance on subjective weighting approaches. Consequently, the FTI serves as a theoretically impartial and empirically robust proxy for the degree of FinTech adoption, making it appropriate as the principal explanatory variable in dynamic panel analyses employing the system-GMM estimator.

In the empirical specification, the FTI functions as the key independent variable representing the extent of digital transformation at the bank level. The index is systematically derived from three indicators that reflect distinct yet complementary dimensions of FinTech adoption: (i) the number of digital banking services introduced by each bank, representing the operational dimension; (ii) the level of mobile banking usage, capturing the utilization dimension; and (iii) the proportion of technology investment relative to total assets, reflecting the investment dimension. This multidimensional construction ensures consistency between the empirical operationalization and the conceptual definition of FinTech adoption articulated in the hypothesis development. All indicators are measured at the bank–year level, allowing the FTI to account for both cross-sectional heterogeneity across banks and temporal variation in FinTech adoption.

Before constructing the index, all FinTech indicators are standardized using z-score normalization to ensure comparability across different measurement scales and to avoid any single indicator disproportionately influencing the composite measure. Missing observations, representing less than 5% of the dataset, are treated using bank–year linear interpolation in order to maintain panel consistency and reduce potential information loss. These data preprocessing steps help ensure that the estimated impact of FinTech is not biased by irregular data patterns or extreme values. Furthermore, potential outliers are controlled through winsorization at the 1st and 99th percentiles.

The principal component analysis (PCA) results show that the first principal component (PC1) has an eigenvalue of 2.17, surpassing the Kaiser criterion benchmark of 1, and accounts for 72.4% of the total variance among the three FinTech indicators. This substantial explanatory capacity indicates that PC1 effectively represents the underlying FinTech adoption dimension relevant for hypothesis evaluation. In contrast, the second and third principal components display eigenvalues below one and contribute only minimally to the overall variance; consequently, they are excluded from the index construction.

**Table 2***Construction, Validation, and Key Statistics of the FinTech Adoption Index (FTI)*

Testing Aspect	Method / Indicator	Statistical Value	Criteria / Interpretation
Unit of observation	Bank–year specific	70 banks × 2015–2023	Index varies across banks and over time
FTI component indicators	Number of digital banking services	–	Operational dimension
	Mobile banking usage intensity	–	Utilization dimension
	Technology investment ratio	–	Investment dimension
Data standardization	Z-score normalization	Mean = 0; SD = 1	Ensures comparability across indicators
Treatment of missing values	Linear interpolation	< 5% of observations	Preserves panel continuity
Outlier treatment	Winsorization	1st–99th percentile	Mitigates extreme-value distortion
Index construction method	Principal Component Analysis (PCA)	–	Dimensionality reduction without subjective weighting
Eigenvalue of PC1	Kaiser criterion	2.17	> 1 (retained)
Variance explained by PC1	Explained variance	72.4%	Dominant representation of FinTech variation
Eigenvalue of PC2	–	0.51	< 1 (not retained)
Eigenvalue of PC3	–	0.32	< 1 (not retained)
KMO measure	Sampling adequacy	0.71	> 0.60 (adequate)
Bartlett's test	Test of sphericity	$\chi^2 = 186.4$ ; $p < 0.001$	Significant inter-indicator correlations

Testing Aspect	Method / Indicator	Statistical Value	Criteria / Interpretation
Factor loadings (PC1)	Digital banking services	0.58	High contribution
	Mobile banking usage	0.62	Highest contribution
	Technology investment ratio	0.53	Significant contribution
Index score construction	PC1 scores	Weighted linear combination	Annual FTI score per bank
Robustness test	Single-indicator proxies	Consistent sign and significance	Index robust to alternative specifications

Additional diagnostic tests confirm the suitability of PCA. The Kaiser–Meyer–Olkin (KMO) further diagnostic assessments support the appropriateness of applying Principal Component Analysis (PCA). The Kaiser–Meyer–Olkin (KMO) statistic of 0.71 reflects satisfactory sampling adequacy, while Bartlett’s Test of Sphericity is highly significant ( $\chi^2 = 186.4$ ;  $p < 0.001$ ), thereby rejecting the null hypothesis that the correlation matrix is an identity matrix. Collectively, these findings indicate the existence of meaningful interrelationships among the FinTech indicators.

The weighting scheme for the index is determined endogenously using the factor loadings associated with the first principal component (PC1). Specifically, the relative contributions amount to 0.58 for digital banking services, 0.62 for mobile banking utilization, and 0.53 for the technology investment ratio. Accordingly, the FinTech Index (FTI) is constructed as a data-driven weighted linear composite, rather than being based on subjective or normative researcher judgments. This methodological approach enhances the credibility of the causal interpretation attributed to the FinTech coefficients obtained from the dynamic panel estimations.

The computed FTI values are generated for each bank–year observation and subsequently incorporated as a unified explanatory variable within the system-GMM framework. To further ensure robustness, alternative model specifications that include each FinTech indicator individually are also estimated. The results consistently demonstrate similar coefficient directions and levels of statistical significance, thereby reinforcing the validity and reliability of the FTI measure.

**Table 3**  
*Pearson Correlation Matrix*

Variable	ROA	ROE	CIR	FinTech Adoption Index
ROA	1	0.712	-0.653	0.511
ROE		1	-0.602	0.489
CIR			1	-0.435
FinTech Adoption Index				1

The correlation matrix reveals that the FTI is positively related to profitability indicators (ROA and ROE) and negatively related to the cost-to-income ratio, aligning with theoretical predictions. Although these correlations offer preliminary evidence in favor of the proposed hypotheses, they are inherently descriptive and do not establish causality, thus justifying the application of a dynamic system-GMM estimator.

**Table 4**  
*Coefficient of Determination ( $R^2$ ) from Linear Regression Models*

Model	R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Std. Error
FinTech vs ROA	0.611	0.373	0.368	0.687
FinTech vs ROE	0.587	0.345	0.339	4.130
FinTech vs CIR	0.523	0.273	0.268	9.121

The reported  $R^2$  statistics reflect initial correlations between FinTech adoption and bank performance; nevertheless, they do not account for potential endogeneity concerns or the presence of dynamic persistence. Therefore, these findings are not employed to validate the study's hypotheses but are presented exclusively as exploratory reference points. To derive consistent and causally meaningful estimates, the analysis subsequently applies the system-GMM estimation approach.

**Table 5***Dynamic System-GMM Estimation Results: ROA, ROE, and CIR*

Independent Variables	ROA	ROE	CIR
Lagged dependent variable	0.421*** (0.071)	0.387*** (0.083)	0.462*** (0.065)
FinTech Adoption Index	0.018** (0.007)	0.092** (0.041)	-0.156*** (0.049)
Bank Size	0.006 (0.004)	0.031* (0.018)	-0.087** (0.036)
DER	0.024** (0.011)	0.118*** (0.039)	-0.064* (0.034)
GDP Growth	0.013* (0.007)	0.067* (0.036)	-0.052 (0.041)
Inflation	-0.009 (0.006)	-0.041 (0.028)	0.073* (0.039)
Number of Banks (Groups)	112	112	112
Number of Observations	896	896	896
Number of Instruments	24	24	24
AR(1) p-value	0.000	0.000	0.000
AR(2) p-value	0.284	0.317	0.261
Hansen Test p-value	0.421	0.398	0.446

Notes: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$ .

Table 5 presents the dynamic system-GMM estimation outcomes for three alternative indicators of bank performance, namely return on assets (ROA), return on equity (ROE), and the cost-to-income ratio (CIR). These model specifications are deliberately constructed to examine the proposed hypotheses concerning the impact of FinTech adoption on bank profitability and efficiency. By incorporating multiple dependent variables, the analysis offers a comprehensive evaluation of the performance consequences of FinTech adoption, capturing dimensions of profitability, shareholder value creation, and operational efficiency within a single dynamic empirical framework.

Across all estimated specifications, the lagged dependent variables exhibit positive and highly statistically significant coefficients, with values of 0.421 for ROA, 0.387 for ROE, and 0.462 for CIR (all  $p < 0.01$ ). These estimates point to strong persistence in bank performance, suggesting that present profitability and operational efficiency are largely shaped by historical outcomes. Such evidence aligns with the predictions of dynamic banking theory and validates the suitability of the system-GMM approach for testing the proposed hypotheses.

The FinTech Adoption Index (FTI) demonstrates statistically significant and economically relevant effects across the three performance dimensions. In particular, FTI shows a positive association with ROA (coefficient = 0.018;  $p < 0.05$ ) and ROE (coefficient = 0.092;  $p < 0.05$ ), implying that greater adoption of financial technology contributes to improvements in both asset-based profitability and equity returns. These findings support the acceptance of the hypotheses that anticipate a beneficial influence of FinTech adoption on bank profitability. Conversely, FTI is found to be negatively and significantly related to CIR (coefficient = -0.156;  $p < 0.01$ ), indicating that digitalization enhances operational efficiency by lowering operating expenses relative to income, thereby corroborating the efficiency-enhancement hypothesis. The uniformity in both direction and statistical significance across different performance proxies underscores the robustness and multidimensional character of the performance improvements linked to FinTech adoption.

With respect to bank-level control variables, bank size exerts a positive and weakly significant effect on ROE (coefficient = 0.031;  $p < 0.10$ ), while showing a negative and statistically significant impact on CIR (coefficient =  $-0.087$ ;  $p < 0.05$ ). This pattern suggests that larger banking institutions are able to exploit scale economies that foster greater efficiency and enhance returns to shareholders. Furthermore, the debt-to-equity ratio (DER) enters the ROA and ROE models with positive and significant coefficients (0.024 and 0.118, respectively), while displaying a negative influence on CIR ( $-0.064$ ;  $p < 0.10$ ). These results emphasize the supportive role of financial structure in strengthening the performance benefits associated with FinTech adoption.

Macroeconomic factors likewise contribute to shaping banking performance. Economic growth, as proxied by GDP expansion, demonstrates a positive association with both ROA and ROE at the 10% significance threshold, underscoring the procyclical characteristics of bank profitability. In contrast, inflation shows a positive yet only marginally significant influence within the CIR specification, while its coefficients in the profitability models remain statistically insignificant. This pattern suggests that inflationary dynamics do not consistently lead to either improvements or deteriorations in bank profitability throughout the observed period.

The robustness of the system-GMM estimations is substantiated through a comprehensive set of diagnostic assessments. The Arellano–Bond tests reveal the expected presence of first-order serial correlation in the differenced residuals (AR(1) p-values = 0.000), which is typical in dynamic panel frameworks. Importantly, the absence of second-order serial correlation is verified by the statistically insignificant AR(2) test outcomes, with p-values ranging from 0.261 to 0.317. In addition, the Hansen tests for overidentifying restrictions generate p-values between 0.398 and 0.446, implying that the null hypothesis concerning the validity of the instrumental variables cannot be rejected.

Further transparency in the estimation process is achieved by explicitly disclosing the sample composition, including the number of banks (112) and the total number of instruments (24) employed in each model specification. The relatively limited instrument count, which remains substantially lower than the number of cross-sectional observations, helps alleviate potential concerns related to instrument proliferation and enhances confidence in the consistency of the estimated parameters.

Overall, the consistent empirical patterns observed across the ROA, ROE, and CIR models, coupled with satisfactory diagnostic indicators, offer compelling evidence that FinTech adoption constitutes an important determinant of sustainable banking performance. By clearly affirming hypothesis acceptance on the basis of statistically sound system-GMM results, this analysis establishes a coherent linkage between the theoretical propositions and the empirical evidence, thereby reinforcing the causal interpretation of FinTech-driven digital transformation as a performance-enhancing mechanism within the banking industry.

## Discussion

This study offers strong empirical evidence that the adoption of financial technology (FinTech) has a statistically significant and economically substantial effect on bank performance across ASEAN economies. In line with the system-GMM estimation outcomes, the FinTech Adoption Index (FTI) demonstrates a positive and significant relationship with profitability measures, namely return on assets (ROA) and return on equity (ROE), while exhibiting a negative association with the cost-to-income ratio (CIR). These results provide support for Hypothesis 1. The confirmation of this hypothesis is grounded in both the size and consistency of the estimated coefficients, which remain robust under alternative model specifications, alongside satisfactory diagnostic test results that validate the model, including the Hansen test and the Arellano–Bond serial correlation tests. Overall, the findings suggest that FinTech adoption improves bank profitability and operational efficiency after rigorously accounting for potential endogeneity concerns, unobserved firm-specific heterogeneity, and the dynamic persistence of performance.

From a theoretical standpoint, these findings are closely consistent with the Diffusion of Innovations (DOI) Theory (Rogers, 1995), which constitutes the central conceptual basis of this research. In the DOI perspective, FinTech adoption in the banking sector represents an innovation that delivers distinct relative advantages, particularly through enhanced cost efficiency and diversified revenue streams. It also demonstrates strong observability, reflected in quantifiable improvements in financial performance, as well as adequate compatibility with prevailing organizational practices and regulatory frameworks. The empirical evidence indicating sustained improvements in profitability and operational efficiency substantiates the functioning of these DOI mechanisms within the ASEAN banking environment. Furthermore, the identified positive and enduring impacts imply that banks in the ASEAN region have generally advanced beyond the experimental or pilot phases of adoption toward the routinized and institutionalized integration of digital technologies.

The empirical findings further align with the theoretical propositions of the Resource-Based View (RBV) (Barney, 1991). FinTech capabilities, measured through a composite indicator encompassing digital service delivery, the extent of mobile banking utilization, and the intensity of technology-related investments, may be viewed as strategic resources that possess value and remain, at least over the short to medium horizon, difficult for competitors to replicate. Banks that leverage these digital resources more extensively are better positioned to streamline operational processes, expand customer access, and achieve efficiency improvements, ultimately contributing to enhanced profitability. Diverging from earlier studies that report limited or inconclusive impacts of FinTech adoption, often constrained by initial adoption phases or geographically narrow samples, these findings underscore the performance significance of continuous and system-wide digital transformation.

A central empirical contribution of this study is the validation of profitability persistence within the ASEAN banking sector, demonstrated by the consistently positive and highly significant coefficients of the lagged dependent variables across all model specifications. This finding aligns with the Dynamic Capabilities framework (Teece et al., 1997) and corroborates existing banking literature that highlights the cumulative nature of competitive advantages and performance outcomes over time. Within this conceptualization, the adoption of FinTech enhances banks' capacity for dynamic adjustment, enabling digital investments to produce reinforcing, path-dependent performance effects. The reliability of this inference is further reinforced by the uniformity of results across alternative performance indicators, such as ROE and CIR.

With respect to bank-specific characteristics, the findings reveal that larger bank size is positively correlated with profitability and inversely related to operational inefficiency. This observation highlights the presence of economies of scale in digital transformation and aligns with the Structure–Conduct–Performance (SCP) framework. Larger banks are generally better equipped to absorb fixed technology expenditures, invest in specialized digital expertise, and implement FinTech solutions across business segments, thereby achieving enhanced efficiency outcomes. The reduced significance of leverage in explaining performance once FinTech adoption is accounted for suggests that digital capabilities may partially replace traditional balance-sheet-driven performance mechanisms.

Macroeconomic factors serve a complementary, albeit secondary, role in influencing bank performance. Positive GDP growth is associated with higher profitability, indicating that favorable macroeconomic conditions amplify the returns from FinTech investments by stimulating credit demand and transaction volumes. This interaction implies that FinTech adoption yields the greatest benefits when supported by a conducive macroeconomic environment. In contrast, inflation does not exhibit a statistically significant impact on profitability, suggesting that fluctuations in price levels are largely mitigated by banks' cost management strategies and regulatory measures.

A key contextual consideration pertains to regulatory heterogeneity across ASEAN countries. Although this study does not explicitly include regulatory indicators in the empirical model, incorporating bank-specific fixed effects within the system-GMM framework absorbs time-invariant institutional and

regulatory differences across nations. The stability and persistence of the estimated FinTech coefficients indicate that the primary performance effects of digital adoption remain robust despite regulatory diversity, although variations in regulatory frameworks may affect the pace, depth, and risk profile of digital transformation. This limitation highlights an avenue for future research to integrate regulatory quality indices or interaction effects to refine cross-country policy recommendations.

From a methodological perspective, employing the system-GMM estimator enhances the causal interpretation of the results by addressing simultaneity, reverse causality, and unobserved heterogeneity. The favorable outcomes of the Hansen test and the absence of second-order serial correlation in the Arellano–Bond tests validate the instrument set and support the dynamic model specification. Compared to static panel models or single-equation approaches used in parts of the existing literature, the dynamic framework applied in this study provides a more rigorous evaluation of the FinTech–performance relationship.

Overall, the evidence indicates that FinTech adoption acts as a strategic driver of bank performance rather than a reactive response to digitalization pressures. By systematically integrating hypothesis testing, dynamic estimation, and theoretical interpretation, this study offers a coherent explanation of how FinTech-driven digital transformation fosters sustainable profitability and operational efficiency in emerging banking systems.

### **Conclusion**

This study provides compelling dynamic-panel evidence that the adoption of financial technology (FinTech) positively influences bank performance across ASEAN countries. Employing a system-GMM methodology that addresses endogeneity, unobserved heterogeneity, and profitability persistence, the results indicate that increased FinTech adoption significantly enhances profitability (ROA and ROE) while simultaneously reducing operational inefficiencies (CIR). Consequently, the conclusion focuses on summarizing the key empirical findings rather than reiterating detailed discussion points.

From a theoretical standpoint, these results extend the Diffusion of Innovations framework by demonstrating a connection between FinTech adoption and sustained financial performance outcomes. The evidence further supports the Resource-Based View and Dynamic Capabilities perspectives, suggesting that the accumulation of digital capabilities yields enduring competitive advantages over time. These theoretical contributions are succinctly presented here, with comprehensive interpretation provided in the discussion section.

Empirically, this research contributes to the relatively sparse ASEAN-focused literature by delivering multi-country, bank-level evidence within a rigorous dynamic econometric framework. The confirmation of profitability persistence and consistent FinTech effects highlights the importance of dynamic analytical approaches for understanding digital innovation in the banking sector.

The findings offer clear implications for both practitioners and policymakers, though detailed managerial and policy recommendations are consolidated in Section 5.3 to preserve a focused and non-redundant conclusion.

### ***Implications of Research Results***

The findings of this study carry substantial theoretical, managerial, and policy-related implications for advancing the digital banking sector within the ASEAN region.

### ***Theoretical Implications***

This research contributes to the digital finance literature by offering rigorous empirical support that substantiates the Technology–Organization–Environment (TOE) framework and the Resource-Based View (RBV) as essential lenses for strategic digital capability development. By integrating the concept of dynamic

persistence, the study further advances these frameworks beyond traditional static adoption–performance relationships.

### ***Practical Implications***

For the banking sector, this study's findings indicate that deliberate and strategic investment in digital technologies substantially improves operational efficiency and profitability. Instead of recommending particular technologies, the results underscore the criticality of coherent and continuous development of digital capabilities in alignment with the strategic goals of banks.

### ***Policy Implications***

For regulators and policymakers, the results highlight the critical need to develop proactive and adaptable regulatory frameworks that effectively balance the promotion of digital innovation with strong prudential safeguards to maintain systemic stability. Considering the diversity of regulatory environments across ASEAN nations, approaches that are flexible and grounded in overarching principles may prove particularly effective. Consequently, the implications of this research are multifaceted, offering a solid empirical basis to inform strategic decision-making by banks, regulators, and other stakeholders within the broader financial ecosystem.

### ***Research Limitations***

This study has several limitations that should be noted. First, the assessment of FinTech adoption relies on observable indicators, which may not fully capture banks' latent digital capabilities and organizational readiness. Second, the analysis is confined to selected ASEAN countries, suggesting that future research could broaden the scope to include cross-country comparisons or other financial sectors. Third, the study period ends in 2023, potentially omitting recent FinTech innovations and regulatory changes. These limitations underscore the need for future studies to integrate more comprehensive institutional data, extend the temporal coverage, and explore alternative dynamic estimation methods.

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## The Evolution of Higher Religious Education in Türkiye: Historical Continuities, Contemporary Challenges, and Prospects for Reform

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Higher religious education in Türkiye has developed along a complex historical path, beginning with the *Suffa* and madrasas and later becoming institutionalized within Faculties of Theology. Across these stages, the mission has remained the preservation of Islamic knowledge, moral guidance, and cultural continuity. Despite repeated reforms, many structural and curricular problems identified in earlier eras persist. This study seeks to examine the historical evolution of higher religious education and identify its persistent structural deficiencies on Türkiye's transformation. The study uses comparative historical document analysis to examine key reform texts, including reports by Ali Fuat Başgil and Hamidullah (1969) alongside later works edited by Akyürek (2015) and Şeyma Altın (2021). AI-supported tools assisted in organizing and coding themes, while interpretation and validation remained the responsibility of the authors. The findings show persistent debates on curriculum design, academic formation, and theology's social function, demonstrating continuity over time. Nevertheless, recent discussions place stronger emphasis on digitalization, interdisciplinarity, and expanding professional roles. The study concludes that change in Türkiye's higher religious education largely occurs through reinterpretation of inherited frameworks rather than fundamental institutional breaks, contributing to international debates on continuity and transformation in specialized higher education.

**Keywords:** curriculum reform, interdisciplinary approach, religious education

Islamic education, which began in informal settings, gradually became institutionalized through structures such as the *Suffa* (Hamidullah, 2004). In the context of Türkiye, this trajectory produced a classical madrasa system and, in the modern period, continued through Faculties of Theology and Higher Islamic Institutes. These institutions have consistently sought to preserve religious knowledge, guide society, and maintain cultural continuity (Bruce, 2020). Yet forces such as globalization, digital transformation, and secularization now require reconsideration of traditional structures. A critical reading of the historical legacy therefore offers an essential basis for future strategy. This transformation has unfolded within Türkiye's distinctive socio-political setting, where relations among religion, state, and higher education have been repeatedly renegotiated from late Ottoman modernization to the Republican era (Dorroll, 2017). Consequently, institutional reforms must be understood within wider debates on secular governance, modernization, and public service.

During the Ottoman period, madrasas served as central institutions for religious, philosophical, and scientific education but gradually became unable to meet the demands of a changing era (Kazıcı, 2016; Turan, 2020). With modernization, they were replaced by new institutions such as the *Dârü'l-Fünûn*, where

higher religious education gained institutional form through the establishment of the *Ulûm-ı Âliye-i Dîniyye* branch under Sultan Abdulhamid II (Ayhan, 2000; Koç, 2025; Öcal, 1986). In the Republican period, religious education was reorganized by the 1924 Law on the Unification of Education (*Tevhid-i Tedrisat*), leading to the closure of the Faculty of Theology at Istanbul Dârülfünun in 1933. Higher religious education was reestablished with the founding of the Faculty of Theology at Ankara University in 1949 (Öcal, 2015), followed by subsequent institutional expansion and consolidation, culminating in significant quantitative growth after the 2000s (Altaş & Kaya, 2023; Altın, 2024; Koç, 2025).

Despite quantitative expansion, significant criticism persists concerning the lack of qualitative transformation. Comparable tensions between growth and improvement are widely noted in international scholarship on higher education reform, where increases in enrollment and institutional numbers often do not translate into advances in curricular integration, professional differentiation, or societal relevance. Reform efforts frequently confront institutional continuity, path dependency, and resistance rooted in established academic traditions (Hendek et al., 2022). Placing the Turkish experience within this broader framework shows that enduring debates on theology education are not national anomalies but part of a global challenge surrounding the modernization of faith-based higher education.

In this context, the reports prepared by Ali Fuat Başgil and Muhammed Hamidullah provide important insight into the condition of higher religious education in their period (Hamidullah & Başgil, 1969). Together with more recent volumes edited by Akyürek and Altın, these works mark two major waves of reform in the intellectual history of the field (Akyürek, 2015; Altın, 2021). The earlier wave unfolded amid efforts to secure legitimacy within a secular university framework, whereas the later reflects attempts to respond to globalization, diversification of employment opportunities, and digital transformation (Leirvik, 2018). Bringing these texts into dialogue contributes to comparative debates on how reform ideas travel across generations, how institutional memory shapes policy imagination, and why certain structural and curricular problems remain remarkably persistent despite repeated calls for change.

Higher religious education has experienced multiple institutional transformations in response to shifting historical demands (Genç, 2013). Yet many structural and curricular issues identified in the reports of Ali Fuat Başgil and Muhammed Hamidullah continue to reappear in new forms, suggesting that qualitative change remains incomplete. Recent developments in digital technologies, particularly artificial intelligence, open new possibilities for reassessing these persistent challenges. In this study, AI-assisted techniques were used to identify recurring themes (Jordan & Mitchell, 2015), conceptual shifts, and links between enduring problems and proposed reforms (Xu, 2024) (Jordan & Mitchell, 2015; Xu, 2024). Nevertheless, interpretive authority and final thematic judgments remained with the researchers.

In this study, historical continuity is understood not as institutional immobility but as the recurrence and reformulation of similar structural debates, curricular tensions, and role expectations across different periods. Related this background, the study concerning on: What persistent structural and qualitative problems of higher religious education in Türkiye can be identified across historical and contemporary sources, and what methodological shifts do they indicate?. The aim is to determine the extent to which concerns raised in the reports of Başgil and Hamidullah—such as methodological limitations, and weak societal engagement—continue to shape the field, and how these issues are reinterpreted in more recent works, particularly those edited by Akyürek and Altın.

This study contributes to both scholarly debate and the practical development of educational policy. While many works focus on specific reforms or institutional changes, the long-term persistence of problem formulations across successive waves of reform has received far less attention. A systematic comparison between early Republican critiques and contemporary evaluations therefore remains limited. By reading the reports of Başgil and Hamidullah alongside the later publications of Akyürek and Altın, the study clarifies how to identify these recurring patterns and re-assess earlier recommendations offers guidance for policymakers and curriculum designers seeking more responsive and sustainable strategies. Beyond Türkiye, the study informs international debates on how religious higher education navigates continuity and change

within secular universities. By showing how similar reform themes over decades, it illuminates enduring patterns relevant to other contexts balancing tradition, professionalization, and modernization.

### Literature Review

#### Turkiye's Higher Religious Education: Pre-Republic Period

Scholarship on the pre-Republican era largely examines how the madrasa system confronted modernization while maintaining its epistemological and institutional traditions (Bruce, 2020). Although reform efforts were undertaken, most studies highlight their limited structural impact. The Ottoman legacy strongly shaped the Republican experience, as madrasas had long served not only to reproduce scholarly authority but also to train personnel for religious, administrative, and judicial roles. Yet despite broader Westernization initiatives and the establishment of new educational models, comprehensive reform within the madrasa structure remained exclusive (Kazıcı, 2016).

During the reign of Sultan Abdülhamid II, while schools advanced and efforts were made to expand them nationwide, the madrasa system preserved its traditional pedagogical approach. Beyond the madrasas, initiatives were launched to identify or establish a higher religious education institution operating along Western's model. In 1884, plans were drawn up to found the *Ulum-ı Diniyye Mektebi* with the status of a higher school; however, the project did not come to well continued (Zengin, 2002, 2011). By the early 1900s, under Sultan Abdülhamid II, the first higher religious education institution outside the madrasa system—the *Ulûm-ı Âliye-i Dîniyye Şubesi*—was established within the Western-style *Darülfünun*. Although pioneering in location, its curriculum closely resembled that of the madrasas. Renamed *Ulûm-ı Şer'iyye* in 1912, the branch operated alongside broader madrasa reforms initiated in 1909, which sought to incorporate Western-style regulations. In 1914, the *Dârü'l-Hilâfeti'l-Âliye* madrasas introduced more substantial changes, and the *Ulûm-ı Şer'iyye* branch was closed in 1915 (Koç, 2025). The curriculum of the newly established madrasa likewise appeared to be “a continuation of the *Ulum-ı Şer'iyye* branch” (Öcal, 1986; Zengin, 2011). As a result, the higher religious education institution outside the madrasa system was closed, and responsibility reverted to the madrasas.

#### Turkiye's Higher Religious Education: Post-Republic Period

Post-Republican studies emphasize the redefinition of religion–state relations and the integration of higher religious education into a secular university framework. Debates often center on whether quantitative expansion has been matched by qualitative progress. Following the 1924 Law on the Unification of Education (*Tevhid-i Tedrisat*), the madrasas were closed and replaced by secondary-level Imam Hatip Schools to train personnel for religious services. A Faculty of Theology was also established to educate specialists in religious sciences. While the curriculum of the Darülfünun Higher Religious Sciences Branch (1900) mirrored that of the madrasas, the Faculty of Theology (1924) aimed to train “advanced specialists,” providing a more comprehensive representation of Islamic sciences, though its adequacy remains debated (Akyürek, 2015).

During the Republican period, the Darülfünun Faculty of Theology (closed in 1933) expanded its curriculum to include courses such as Sociology, Psychology, Philosophy of Religion, History of Turkish Beliefs, Ethnography of Islamic Societies, and Islamic Arts, while reducing emphasis on fiqh. This shift reflected a broader focus on social sciences and general culture rather than classical Islamic sciences (Hendek, 2019). After the faculty's closure, the Institute of Islamic Studies was established as a research body without student admission but was itself closed in 1936, effectively ending opportunities to train scholars in academic approaches to Islam or to educate highly qualified religious officials (Öcal, 2015).

Between the closure of the *Darülfünun* Faculty of Theology in 1933 and the opening of Ankara University's Faculty of Theology in 1949, no institution of higher religious education existed, as such establishments were prohibited under prevailing laws (Dorroll, 2017). Within the framework of secularism, the state either ignored religion or approached it restrictively, limiting formal religious education while allowing only minimal non-formal instruction. Post–World War II foreign relations and internal pressures for multi-party democracy prompted renewed interest in higher religious education. From 7 January 1946,

political party platforms began emphasizing the establishment of a Faculty of Theology, reflecting growing public and political recognition of its necessity (Öcal, 2015).

Ankara Faculty of Theology, inaugurated in 1949, began restructuring higher religious education after a sixteen-year interruption. Its founding committee included scholars from philosophy, law, and history but no theologians, and almost all early faculty appointments lacked expertise in religious sciences (Altın, 2024), resulting in a clear shortage of qualified teaching staff. To address the growing demand, the Istanbul Higher Islamic Institute was established in 1959 for Imam-Hatip graduates. By 1971, alongside Ankara and Istanbul, the Erzurum Faculty of Islamic Sciences was opened, further expanding the higher religious education landscape (Aşıkoğlu & Recai, 2012; Öcal, 1986).

A 1983 law brought all higher education institutions in Türkiye under university affiliation. In the 1983–1984 academic year, faculties of theology included the Departments of Tafsir and Hadith, Philosophy and Kalām, and Islamic Civilization and Religious Studies (Öcal, 2015). By 1991, the academic structure was reorganized into three main units: Basic Islamic Sciences (covering Tafsir, Hadith, Islamic Law, Kalām, History of Islamic Sects, Sufism, Arabic Language and Rhetoric); Philosophy and Religious Studies (including History of Philosophy, Islamic Philosophy, Philosophy of Religion, Logic, History of Religions, Sociology and Psychology of Religion, Religious Education); and Islamic History and Arts (covering Islamic History, History of Turkish-Islamic Arts, Turkish-Islamic Literature, and Turkish Religious Music) (Genç, 2013). This subject-centered configuration, largely disconnected from employment fields, remains in place in faculties of theology today (Ahmet Elnur, 2025).

In both the Ottoman and Republican periods, higher religious education was delivered through madrasas, Faculties of Theology, Higher Islamic Institutes, and Faculties of Islamic Sciences, which played a central role in producing, systematizing, and transmitting religious knowledge (Leirvik, 2016). Today, Faculties of Theology train personnel for more than thirty positions, including scholars, *Diyanet* staff, and teachers for the Ministry of National Education. Although these roles require distinct qualifications, a single program and diploma aim to prepare candidates for all, making the faculties de facto multi-purpose institutions (Van Bruinessen, 2018). Curricula, however, have not been designed with specific professional roles in mind; program development has largely involved adjusting courses or contact hours rather than aligning education with graduates' career needs.

Higher religious education in Türkiye reflects a continuous development from the Ottoman period to the present (Akyürek, 2015). Despite significant quantitative expansion, qualitative challenges remain, particularly concerning the purpose, structure, and capacity of institutions. As of 2025, over one hundred Faculties of Theology and Islamic Sciences operate, training personnel for formal and non-formal education as well as future academics. Whether these institutions can effectively fulfill such diverse roles has been a central and enduring debate. Aligning curricula with contemporary educational paradigms and achieving sustainable qualitative transformation remains critical (Altaş & Kaya, 2023; Altın, 2021). Although republican reforms introduced new administrative frameworks, persistent issues around curriculum relevance, academic staffing, and institutional identity echo longstanding concerns from the late Ottoman period.

## Method

This study employed a qualitative comparative design based on historical document analysis to trace patterns of continuity and change in problem definitions, reform proposals, and institutional imaginaries in higher religious education in Türkiye. The primary sources are four influential texts addressing structural and content-related issues: the reports of Ali Fuat Başgil and Muhammed Hamidullah (Hamidullah & Başgil, 1969), and the edited volumes by Akyürek (Akyürek, 2015) and Altın (Altın, 2021). The earlier works provide systematic critiques, while the latter reflect contemporary evaluations shaped by expansion, diversification, and globalization. Analysis followed Miles's reflexive thematic framework, emphasizing researcher interpretation (Miles et al., 2014). AI-supported tools (ChatGPT, version 5) assisted only with

data management, data retrieval, and preliminary clustering, while all coding, theme development, and interpretation remained under the researchers' authority.

The analytical process proceeded in three stages. First, documents were read holistically to establish historical and conceptual context. Second, preliminary codes were generated through iterative close reading, supported by AI-assisted text searches. Third, codes were grouped into broader themes, forming the basis for cross-period comparison. The unit of comparison comprised reform arguments in each document, particularly concerning curriculum, institutional organization, academic roles, and societal engagement (Huberman & Miles, 2002).

AI-assisted tools were employed to support the organization of thematic relationships, detect patterns, and suggest alternative categorizations. All AI-generated suggestions were systematically reviewed, revised, or rejected by the authors, who retained full interpretive authority. Contextual judgment always took precedence over algorithmic outputs. AI was therefore used to enhance reflexivity without replacing scholarly interpretation. Continuities were identified when similar problem definitions or reform expectations recurred across temporally distant sources, while reform prospects were derived from forward-looking recommendations. Finally, a SWOT framework was utilized to synthesize patterns, grouping internal characteristics and external conditions.

### **Findings**

Başgil–Hamidullah's reports and Akyürek–Altın's publication represent two significant milestones in the intellectual and institutional history of Türkiye's higher religious education. Although produced in different historical and socio-political contexts, both sets of works share a common objective: to evaluate the condition of religious education and to propose pathways for its renewal in light of evolving academic, and social realities. Offering a comprehensive understanding, the following three subsections present an interconnected analysis. Section 4.1 focuses on the current problems and structural requirements identified in both periods, highlighting the continuities and changes in perceived institutional challenges. Section 4.2 examines the future vision and reform proposals articulated in the reports, exploring how each reflects its historical educational philosophy and aspirations for progress. Section 4.3 analyzes the methodological and conceptual approaches, shedding light on the underlying intellectual frameworks and epistemological orientations that shaped their analyses.

### **Comparative Analysis in Terms of Current Problems**

Comparative reading shows that many criticisms voiced in the early 1960s persist in contemporary evaluations, though reform proposals have been adapted to new institutional contexts. This continuity indicates limited structural resolution despite decades of expansion. Curricular deficiencies are a central concern in both periods. Başgil and Hamidullah criticized the curriculum as overly rote-based and lacking intellectual coherence, proposing the inclusion of comparative religion to contextualize Islamic scholarship. Similarly, Akyürek and Altın identify a fragmented, discipline-centered curriculum that is insufficiently responsive to digital transformation and emerging social realities. Across both eras, the core issue is inadequate curricular integration: early critiques focused on memorization and coherence, while contemporary analyses highlight fragmentation and limited interdisciplinarity.

Concerning academic staff, both periods emphasize the decisive importance of faculty qualifications. Başgil and Hamidullah highlight the need for scholars competent in classical Islamic sciences as well as modern methodologies (Hamidullah & Başgil, 1969). Later studies extend this critique to include pedagogical and instructional limitations. Curricular coherence likewise remains a shared concern (Akyürek, 2015). Earlier reports criticized the dominance of rote learning and advocated comparative perspectives, whereas contemporary analyses describe fragmentation in terms of insufficient responsiveness to digitalization and specialization. This evolution signals a shift from debates over epistemic legitimacy toward pedagogical performance as the primary marker of academic quality.

Practical application represents another area of enduring concern, accompanied by gradual modification in proposed remedies. Başgil and Hamidullah argued that religious professionals—imams, preachers, and teachers—should complement theoretical training with field experience, emphasizing that theology must move beyond textual mastery toward social practice (Hamidullah, 2004; Hamidullah & Başgil, 1969). Akyürek and Altın reaffirm this demand but articulate it through more formalized, practice-oriented models, highlighting cooperation with public institutions and religious organizations (Akyürek, 2015). What appears as innovation in contemporary discourse can therefore be interpreted as the institutionalization of earlier expectations.

In the area of internationalization and interdisciplinary approach, both sets of analyses underscore the importance of expanding intellectual horizons beyond traditional disciplinary boundaries. The early reports advocate for compulsory foreign language education—particularly in Arabic and English—and the inclusion of philosophy, psychology, and sociology within the curriculum, signaling an early call for global and interdisciplinary awareness. The later publications, however, critique the persistent lack of multilingual capacity in the field, suggesting that progress in this area has been limited.

Thus, the evolution from both publications illustrates a shift from reformist critique rooted in modernization ideals to a comprehensive vision aimed at harmonizing tradition with contemporary academic and technological paradigms. The findings discussed above are synthesized and presented in Table 1.

**Table 1**

*Comparative Analysis in Terms of Curricular, Staff, Implementation and Its Approach*

<b>Criterion</b>	<b>Başgil &amp; Hamidullah's Reports</b>	<b>Akyürek &amp; Altın Publications</b>
Curricular Deficiencies	Rote learning; weak integration; limited comparative scope	Fragmentation; departmentalization; insufficient adaptation to digital & social change
Academic Staff	Need for scholars bridging classical & modern knowledge	Pedagogical limits; need for continuous development
Practical Formation	Insufficient field experience for religious service	Institutionalized practice models; internship expectations
Interdisciplinary Orientation	Foreign languages; inclusion of philosophy & social sciences	Limited global participation; call for cross-disciplinary projects

The table illustrates that while descriptive vocabulary changes, the diagnostic core remains comparable across periods.

**Comparative Analysis in Terms of Future Vision and Reform Proposals**

Reform imagination has shifted from centralized institutional design toward flexibility, diversification, and employability. A comparison of Başgil and Hamidullah with the later works of Akyürek and Altın reveals both continuity and transformation in higher religious education in Türkiye. While all share a reformist intent and the goal of aligning theology with contemporary academic and social demands, they differ in emphasis, methodological outlook, and sensitivity to their respective contexts.

Regarding the educational model, Başgil and Hamidullah envisioned a structured academy-type system grounded in hierarchy, deep specialization, and consolidated scholarly authority (Hamidullah & Başgil, 1969). In contrast, the works edited by Akyürek and Altın promote flexibility, modularity, and diversified student pathways, emphasizing adaptation to varied professional outcomes (Altın, 2021). Similar evolution appears in curriculum reform. The earlier reports called for adding comparative religion, contemporary ideologies, and modern scientific thought, whereas the later publications broaden this agenda toward interdisciplinary integration and ethical competencies such as critical thinking, human rights, and ethics.

Technological change also marks a shift in orientation. While Başgil and Hamidullah anticipated digital tools primarily as means of expanding access to knowledge, Akyürek and Altın, writing in a digitally mature environment, stress interactive content, distance education, and active learning as drivers of pedagogical effectiveness. Regarding societal engagement, Başgil and Hamidullah emphasize practical

training to enhance the communicative effectiveness of religious officials, reflecting a service-oriented and vocational approach. By contrast, Akyürek and Altın adopted a community-focused framework that prioritizes lifelong learning, counseling, and public outreach, signaling a shift toward a more inclusive understanding of the social role of religious education (Altın, 2021).

In summary, the comparative analysis demonstrates a historical evolution from the institutional modernization and intellectual defense to the flexibility, interdisciplinarity, and societal engagement of the contemporary period. To facilitate a clearer understanding of the comparative results, the findings have been systematically summarized in Table 2.

**Table 2**

*Comparative analysis in term of educational model, curriculum, and technology*

<b>Criterion</b>	<b>Başgil &amp; Hamidullah</b>	<b>Akyürek &amp; Altın</b>
<b>Educational Model</b>	Centralized academy structure; hierarchical specialization	Flexible, modular, career-oriented diversification
<b>Curriculum Reform</b>	Comparative religion; ideologies; philosophy	Critical thinking; ethics; human rights; hermeneutics
<b>Technological Transformation</b>	Expansion of materials; modernization of resources	Digital pedagogy; distance learning; interactive formats
<b>Social Engagement</b>	Strengthening communication with the public	Counseling, outreach, lifelong learning

### **Comparative Analysis of Methodological and Conceptual Approaches**

A comparative reading of Başgil–Hamidullah and Akyürek–Altın demonstrates a clear evolution in the reform logic of higher religious education in Türkiye. Writing in an era dominated by modernization, secularization, and institutional reorganization, Başgil and Hamidullah operated within a dual imperative: preserving classical Islamic scholarship while adapting it to modern academic norms. By contrast, Akyürek and Altın address a landscape shaped by digitalization, mass institutional expansion, and increasingly complex relations between religion and society.

In terms of orientation, Başgil and Hamidullah adopt a largely theoretical and institutional perspective, focusing on systemic design and organizational restructuring in order to secure a coherent place for theology within the university (Hamidullah & Başgil, 1969). By contrast, Akyürek and Altın advance a more pragmatic and application-driven approach, prioritizing flexibility, pedagogical innovation, and responsiveness to societal needs. Rather than advocating a single institutional model, they highlight conceptual plurality and adaptable program structures (Altın, 2021). Taken together, these positions trace a broader historical movement in Türkiye from structural adaptation toward epistemological expansion and social relevance. The comparative findings are summarized in Table 3.

**Table 3**

*Comparative analysis in term of time, focus of the approach and social impact*

<b>Criterion</b>	<b>Başgil &amp; Hamidullah</b>	<b>Akyürek &amp; Altın</b>
<b>Time and Context</b>	Produced during the religious-political transformation and modernization.	Characterized by digitalization and academic institutionalization
<b>Analytical Focus</b>	Emphasis is on system design and structural hierarchy	Emphasized on practical solutions, flexibility, and conceptual plurality.
<b>Social Impact</b>	The main focus on authority & communication of officials	Academic freedom; community engagement

### Discussion

The findings indicate that the reform trajectory of higher religious education in Türkiye is characterized by a striking combination of discursive change and structural persistence (Uğurlu & Çalal, 2019). Although the terminology of reform has evolved in response to shifting political, technological, and academic environments, core anxieties regarding curriculum design, academic formation, and societal relevance continue to recur across generations of critique. This pattern suggests that expansion and diversification have not automatically translated into deep institutional transformation.

The reports prepared by Başgil and Hamidullah in the 1960s primarily address higher religious education from the standpoint of institutional structure. They focus on curriculum deficiencies, shortcomings in academic staffing, and the quality of religious services. Notably, the reports recommend a systematic restructuring of classical Islamic sciences and the development of new institutional models inspired by Western university systems. In contrast, Akyürek and Altın's publication are shaped by more contemporary pedagogical frameworks. They advocate for the integration of classical Islamic sciences with modern social sciences, the application of critical thinking methodologies, and the adoption of student-centered. Nevertheless, clear differences in method and orientation are also apparent. While the Başgil–Hamidullah reports focus more on macro-level, systemic reforms and structural recommendations, the Akyürek–Altın works prioritize micro-level, applied solutions, pedagogical strategies, and societal value creation.

Comparable patterns appear in international research on higher education reform, where expansion and modernization often coexist with durable epistemic traditions. The Turkish case thus reflects a broader global challenge: translating reform discourse into lasting institutional practice, particularly in domains where intellectual heritage remains a key source of authority (Hughes, 2021). From the perspective of SWOT's configuration, it reflected as evidence of historical layering. Identified strengths—entrenched scholarly traditions, social legitimacy, and continuity of mission—generate stability and recognition, yet they may also hinder rapid change by sustaining established hierarchies and expectations. Continuity therefore functions at once as both resource and constraint.

**Table 4**

*SWOT Analysis – Strengths and Weaknesses*

Strengths	Weaknesses
A deep-rooted tradition of classical Islamic sciences	A fragmented and overly discipline-centered curriculum
A long-established historical legacy of higher religious education	Pedagogical and methodological deficiencies among academic staff
Strong linkage to socially relevant religious services	Lack of practical training and field experience
A tradition of critical reporting and reform-oriented proposals	Slow progress in internationalization, multilingualism, and digital transformation

As elaborated above, SWOT configuration suggests that higher religious education in Türkiye embodies a complex interplay between institutional durability and adaptive limitation. The strengths identified in the analysis predominantly stem from historically sedimented traditions of scholarship, entrenched organizational legitimacy, and sustained integration with public religious services. These characteristics contribute to continuity in knowledge production, professional formation, and societal recognition (Demir & Toprak, 2023). At the same time, significant structural weaknesses persist. A fragmented, discipline-centered curriculum restricts interdisciplinary engagement and hinders holistic perspectives on religion. Practical training and field experience remain insufficient, widening the gap between theory and application. Moreover, limited foreign language competence and weak participation in international academic networks continue to constrain global visibility and competitiveness.

In summary, while higher religious education in Türkiye benefits from its historical continuity, intellectual depth, and social relevance, it must address key pedagogical, structural, and technological shortcomings to strengthen its academic and societal impact in an increasingly interconnected and knowledge-driven world. Building upon the previously discussed strengths and weaknesses, it becomes evident that higher religious education in Türkiye stands at a both promising opportunities for significant challenges that could hinder progress if left unaddressed. By bridging theology with social sciences, higher

religious education can produce scholars equipped to interpret religious thought in light of modern realities, as mentioned in Table 5

**Table 5**

*SWOT Analysis: Opportunities and Threats*

Opportunities	Threats
Strengthening interdisciplinary integration (especially with the social sciences)	Resistance of traditional structures to reform
Integration of digital technologies into education	Frequent changes in education policy and institutional instability
Opportunities for collaboration with public institutions, and mosques	Risk of weak public perception of the societal value of religious education
International academic partnerships and multilingual education	Occasional narrowing of the space for academic freedom

The opportunity–threat constellation positions higher religious education in Türkiye within an increasingly complex matrix of academic, technological, and socio-political transformation. The opportunities reflected in the analyzed materials are primarily associated with expanding zones of interaction beyond traditional disciplinary and institutional boundaries (Demir & Toprak, 2023). Processes such as interdisciplinary engagement, digitalization of learning environments, and participation in transnational academic networks signal potential pathways toward functional diversification and enhanced epistemic exchange.

Simultaneously, the articulation of multiple threats indicates that movement toward these horizons is mediated by constraining variables embedded within governance traditions and organizational cultures. Enduring institutional path dependencies, recurrent shifts in regulatory frameworks, and debates surrounding public legitimacy collectively shape the conditions under which reform initiatives are pursued. References to the vulnerability of academic freedom further underscore that innovation operates within negotiated and sometimes fragile parameters.

The SWOT pattern revealed in the findings portrays a reform environment defined by the coexistence of accumulated authority and adaptive pressure. Strengths, weaknesses, opportunities, and threats do not operate as isolated variables; rather, they form an interconnected constellation produced by long-term institutional development. The recognized strengths—historical depth, continuity of scholarly traditions, and durable ties with public religious services—provide legitimacy and stabilize expectations concerning professional roles, curricular limits, and epistemic priorities. Yet these same foundations also delimit the scope of innovation. Reform is typically filtered through inherited norms and organizational routines, encouraging incremental modification rather than structural redesign.

The resulting trajectory is therefore best described as negotiated adaptation. This dynamic clarifies why reform themes persist across decades: problems are acknowledged, yet implementation remains mediated by governance logics that balance responsiveness with stability (Dag, 2022). From a comparative viewpoint, the Turkish experience aligns with broader patterns in higher education, where change commonly unfolds through layering and reinterpretation rather than rupture. Institutional durability is maintained even as expanding societal and technological expectations demand adjustment.

In conclusion, while higher religious education in Türkiye benefits from a wealth of opportunities—ranging from interdisciplinary innovation to technological and international collaboration—it must navigate these challenges with careful strategic planning. Overcoming institutional resistance, ensuring policy stability, enhancing public engagement, and safeguarding academic freedom are essential steps for transforming these opportunities into sustainable progress. When effectively managed, these dynamics can enable higher religious education to evolve into a field that is both intellectually vibrant and socially relevant, firmly rooted in tradition yet dynamically engaged with the realities of the modern world.

## Conclusion

This study has examined the evolution of higher religious education in Türkiye through a comparative reading of reform discourses produced in different historical moments. Higher religious education in Türkiye has taken shape through a continuity extending from the Ottoman era to the present and has played a central role in the country's religious, social, and cultural landscape. Faculties of theology have undergone continual transformation through institutional responses to shifting political, social, and scientific dynamics; at times these transformations have been driven by a desire to preserve tradition, and at other times by the need to adapt to contemporary scientific, pedagogical, and technological developments. The comparison between the Başgil–Hamidullah reports and the later contributions of Akyürek and Altın reveals a clear shift in emphasis. Whereas the earlier period was preoccupied with institutional legitimacy and the construction of a stable academic framework, contemporary discussions foreground flexibility, employability, and engagement with technological and global transformations. Yet these differences coexist with persistent structural dilemmas, particularly the challenge of reconciling multiple professional expectations within a unified educational model.

The findings suggest that qualitative limitations in higher religious education cannot be explained solely by deficiencies in curricular content. Rather, they are embedded in deeper organizational patterns that shape how knowledge, authority, and professional preparation are distributed. Recurrent criticisms of rote learning, insufficient interdisciplinarity, and weak practical integration point to the difficulty of translating reform aspirations into durable institutional arrangements. Within this perspective, the long-term sustainability and public relevance of higher religious education depend on the articulation of a renewed institutional vision capable of mediating between inherited scholarly traditions and the demands of contemporary knowledge societies. Tradition is not conceived as an obstacle to innovation; rather, it serves as a reservoir of intellectual resources whose reinterpretation can guide adaptation. Reform therefore requires mechanisms that enable translation between classical epistemologies and modern scientific, ethical, and pedagogical paradigms.

Beyond the national context, the Turkish experience provides an instructive example of how reform processes in tradition-based academic domains tend to proceed through reinterpretation, layering, and selective incorporation rather than through abrupt institutional rupture. Change rarely entails the displacement of inherited epistemic authorities; instead, new expectations are translated into already legitimate frameworks. In this sense, innovation operates through negotiation with continuity. Historical legacies, professional identities, and established organizational routines function simultaneously as enabling resources and limiting conditions, shaping not only what kinds of reforms become imaginable but also how far they can be implemented.

The case therefore foregrounds the dynamic interaction between stability and adaptation. While institutional durability supplies credibility, social trust, and normative orientation, it may also moderate the speed and depth of transformation by privileging incremental adjustment over structural redesign. Reform initiatives are filtered through accumulated patterns of governance, recruitment, and knowledge classification, which tend to preserve recognizable boundaries even when new discourses—such as digitalization, interdisciplinarity, or global competitiveness—gain prominence.

From a policy perspective, this observation underscores the necessity of long-term historical awareness. Evaluations that focus exclusively on immediate outputs or short-term performance indicators risk overlooking the deeper continuities that organize institutional behavior. Understanding how past reform vocabularies are reactivated, reformulated, and embedded within contemporary debates enables a more realistic appraisal of both the possibilities and the limits of change. The Turkish trajectory thus contributes to broader comparative discussions by demonstrating that sustainability in higher education reform often depends less on replacing tradition than on redefining its operational meaning within evolving societal contexts.

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## **Institutional Context Mapping in Needs Analysis for Flipped Genre-Based Writing Pedagogy: A Qualitative Inquiry**

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This study examines the institutional context that underpins English for Specific Purposes (ESP) teachers' readiness for implementing flipped, genre-based writing instruction in Pakistani higher education institutions. Grounded in (Dijk, 2005) Four Levels of Digital Divide: motivational, material, skills, and usage, it employs a qualitative exploratory-descriptive study design to map institutional access, infrastructure, and support structures across twelve universities. Data was collected through an open-ended questionnaire from ESP teachers. Deductive and inductive thematic analysis (Braun & Clarke, 2006) was conducted. Seven key dimensions emerged inductively through thematic analysis: technology infrastructure, policy support, professional development, administrative encouragement, curriculum flexibility, peer collaboration, teacher motivation and initiative. Findings reveal varied levels of institutional preparedness, with significant disparities in professional development opportunities, infrastructural support, and policy orientation towards blended or flipped learning. While some universities show promise in fostering teacher motivation and informal peer support, a lack of contextualised training and integrated digital policy limits the effective adoption of flipped genre-based pedagogy. The study highlights the importance of aligning institutional readiness with teachers' pedagogical and digital needs and offers recommendations for targeted teacher training, policy formulation, and resource allocation to bridge the digital divide in ESP writing instruction.

**Keywords:** context mapping, digital divide, thematic analysis, institutional readiness

The role of digital technologies in English language teaching (ELT) has fueled substantial pedagogical change, especially with English as a Specific Purpose (ESP) program, whereby the need to develop specialised academic and professional writing skills (Din, 2025) and competencies has been increasing. In this changing environment, flipped genre-based pedagogy as a new and plausible teaching model has also provided and linked the multi-faceted interactive and student-centred features inherent in flipped learning (Bahadur & Akhtar, 2021; Bauer-Ramazani et al., 2016; Cummings, 2016; Kostka, 2023; Kostka & Marshall, 2018), with the systematic scaffolding involved in genre-based writing pedagogies in the context of systemic functional linguistics (Adhami & Taghizadeh, 2024; Ghufroon & Nurdianingsih, 2021; Hyland, 2007). A hybrid solution allows learners to acquire genre features independently after the classroom and use classroom time to receive instructor feedback and work in groups. A number of studies point to the fact that its integration can lead to positive changes in the academic writing performance of the learners, especially in ESP environments (Teng et al., 2024).

Despite growing global interest, the uptake of flipped genre-based instruction across low- and middle-income countries (LMICs) including Pakistan, has been somewhat patchy and limited by structural inequalities. They are technological infrastructure gaps, scant professional development opportunities, and the lack of policy frameworks (Afridi & Chaudhry, 2019; Saeed & Rasul, 2023). Specifically, public universities have frequent structural constraint issues, outdated LMS environments, and heterogeneous institutional

support due to the lack of pedagogical consistency, which is also common in private universities, that they are usually more prepared to act digitally. This institutional heterogeneity will have serious implications for how teachers can positively and sustainably embrace and transform digitally mediated pedagogies.

In an attempt to gain a greater insight into the stratified character of these issues, scholars have increasingly turned to the Four Levels of Digital Divide Framework initially proposed by Dijk (2005, 2020), which conceives of digital inequality not as an issue of technological access, but rather as a series of motivational, material, skills-related, and usage-focused inequalities. Motivational access deals with the attitudes and intentions of the teachers to adopt technology; material access deals with the availability of devices, internet, digital tools; skills access mentions competencies required to effectively use digital resources; and usage access mentions the meaningful incorporation of these tools in the real classroom practice (Dijk, 2020; Wei et al., 2011). Such layers of access are strongly interwoven with institutional support systems, such as professional training, peer cooperation, and administrative support, as well as flexibility of curriculum (Ertmer & Ottenbreit-Leftwich, 2010; Howard et al., 2021).

Although flipped learning and genre-based pedagogy are increasingly popular in the academic world, the current body of literature is characterized by an evident lack of scope and analytical depth. Even though systematic reviews have been used to establish the benefits and challenges of flipped classes across different fields (e.g., student engagement, use of tools, and pedagogical activities), little research has been performed that directly addresses how institutional factors influence the ability of teachers to enact flipped pedagogy of writing using genre as a means of teaching writing in ESP. Studies of flipped learning tend to center on the results of the learners or single classroom-based intervention (e.g., reading/writing achievement) (Khosravi et al., 2023) or on the technology tool more generally, ignoring the institutional aspect of flipped learning, through support of leadership, policy frameworks, digital infrastructure and professional development systems that empower or limit teacher action. In addition, although the genre pedagogy has been discussed in the context of classroom instruction and writing assessment literacy, there is little evidence regarding how institutional preparedness leads to the incorporation of genre-based and flipped instructional paradigm by ESP teachers, particularly within several universities.

These constraints inform the necessity of studies that combine institutional and pedagogical approaches to offer more in-depth research on flipped genre-based writing pedagogy. In particular, it is possible to identify a gap in inter-institutional research that tracks the correspondence and/or discrepancy of contextual factors (e.g., digital ecosystem, administrative support, policy clarity, and teacher motivation) across the environment of higher education. Even though reviews of flipped classrooms focus on the use of technology and overall challenges (Baig & Yadegaridehkordi, 2023), and empirical studies on digital pedagogical preparedness focus on general professional developmental additions and systemic constraints (Yulin & Danso, 2025), there is an immediate demand to conduct empirically based and context-specific research that links institutional preparedness to the needs of teachers and the results of instruction in writing in ESP. This would also respond to more recent demands to undertake more subtle research in the flipped classroom in language learning and higher education.

Nevertheless, it is worth noting that, although the international literature acknowledges the importance of flipped instruction teacher readiness and institutional alignment (Al-Samarraie et al., 2020; Graham, 2013), a lack of empirical research studying institutional context mapping in South Asian location contexts has yet to gain additional attention. Where institutional policies are vague or absent, teachers are often left to navigate digital integration independently, leading to inconsistent implementation. Moreover, without targeted professional development on both technological tools and genre-based methods, teachers struggle to bridge theory and practice (Borg, 2015; Hrastinski, 2021). There is a lack of research that investigates systematically the relationships between the digital and pedagogical preparedness of ESP teachers based on their institutional environments such as policy support, leadership, and/or access to peer networks (Baig & Yadegaridehkordi, 2023; Basturkmen, 2014, 2019). Where the constraints of teacher agency in LMICs can be circumscribed by more fundamental structural obstacles, the practical utility of flipped genre-based models is restricted by a lack of contextualised inquiry.

To fill these research gaps, this research contributes to the discipline through a multi-institutional contextual mapping of the ESP teacher's preparedness to adopt flipped genre-based writing pedagogy within various higher education institutions in Pakistan. The study has a broad institution-level perspective, in contrast to other studies that emphasize classroom interventions or the impact of such interventions on students, which includes qualitative teacher narratives and quantified readiness profiles on seven dimensions based on the Van Dijk digital divide model. In such a way, it provides the initial systematic cross-university comparison of the interaction of material infrastructure, policy support, curricular flexibility, peer collaboration, and teacher motivation to influence the development of digital pedagogical practices in ESP writing. This allows the expression of specific needs and facilitated by an empirically grounded model, which can be used to inform institutional policy, professional development curriculum, and more extensive digital equity initiatives in language education - an innovation that has remained largely silent in the flipped and genre-based literature to date.

Responding directly to the previous research, this study addressed the guiding question how do ESP teachers' experiences and perceptions across various higher education institutions indicate the interplay between digital divide access levels (motivational, material, skills, usage) and institutional pedagogical support dimensions in the process of implementation of flipped genre-based writing pedagogy? The readiness-oriented analysis of several universities indicates that the willingness and the pedagogical awareness of teachers to implement the adapted forms of flipped genre-based do not mainly restrict the potential of adopting these strategies, but rather, it is the imbalance of institutional environments. The differences in digital infrastructure, clarity of policy, professional growth, administrative leadership, curricular flexibility, and collaboration with peers all mediate the teacher having motivational, material, skills, and usage related access to digital pedagogy. With supportive contextual conditions, teachers felt free to explore and apply flipped strategies and genre-based scaffolding more intentionally and effectively in the institutions where these conditions were created to support them. On the other hand, in low-resource or inadequately managed settings, pedagogical intention of teachers was often limited by structural constraints to which they had no control. This analysis places institutional context, as a core unit of analysis, in the spotlight as flipped learning and genre pedagogy have been previously analyzed through the prism of the classroom or a tool and proposes a multi-institutional mapping of the needs of ESP teachers. Through this, it offers empirical support that the systematic adoption of flipped genre-based writing teaching needs organized institutional investment as opposed to individual action and thus adds a context-specific framework of comprehending the digital pedagogical preparedness in ESP contexts.

## **Method**

### **Research Design**

The present study used a qualitative exploratory-descriptive research design (Merriam & Tisdell, 2016) to examine institutional readiness and contextual barriers that influenced the process of implementing flipped genre-based writing pedagogy in English for Specific Purposes (ESP) courses. This paper aimed at examining the enablers and constraints at the institutional level in particular through the theoretical lens of Four Levels of Digital Divide (motivational, material, skills, usage) proposed by Van Dijk (2020). The study employed a multi-site institutional context mapping to gain insights about differences within the Pakistani universities.

### **Research Context and Participants**

This study stems from a larger survey conducted for doctoral research. Whereas initial responses were received from 28 universities, the current study underscores data in 12 universities through a purposeful maximum variation sampling approach (Patton, 2015). This methodology was carefully selected to ensure balanced representation, as 8 institutions out of a total of 24 in Punjab were chosen purposefully to reflect the province's diverse landscape. Two of the other four institutions were from Sindh, one from Baluchistan and one from Khyber Pakhtunkhwa (KPK). These institutions were all public except one private university with diverse technological, curricular, and administrative settings. The participants were ESP teachers (N=43) on

access levels 1, 2, 3, and 4 purposively selected based on their engagement in teaching academic or professional writing in English and their willingness to adopt technology-enhanced instruction. These 12 universities offered a deep range of cases that contributed to establishing the opposing and complementary trends associated with ESP teachers' preparedness pertaining to genre-based flipped pedagogy. Table 1 identifies the main characteristics of the institutions and the number of participants in the study.

Also, data saturation was already achieved at the point of analysing responses given by these 12 institutions. Common themes were also recurring within this subset, which indicated that an extended set of data, gathered in the other institutions, would probably bring about redundant insights instead of new ones (Guest et al., 2006).

**Table 1**

*Information about Data Collection Institutions and the number of Participant Teachers*

Site code	Regional Location	Province	Geographical Location	City/Campus	Participant teachers
NSC1	North/South Central	Federal/Punjab	Urban	Islamabad/Multan	3
SC1	South-Central South	Punjab Sindh	Rural Urban but under- resourced area of Karachi	Chakwal Layari, Karachi	4 1
S1					
N1	North	Federal	Urban	Islamabad	3
N2	North	Federal	Urban	Islamabad	4
N3	North	Punjab	Urban	Rawalpindi	10
NE1	North-East	KPK	Semi-Urban	Risalpur	1
NEC1	North/East Central	Federal/ Punjab	Urban	Islamabad/Faisalabad	9
N4	North	Federal	Urban	Islamabad	4
N5	North	Punjab	Urban	Rawalpindi	2
W1	West	Baluchistan	Urban	Quetta	1
SE1	South-East	Sindh	Rural	Khairpur	1

### **Data Collection Tool**

We assess the institutional context by using open-ended questionnaire (Appendix A) developed on Google Forms, disseminated through various platforms. The instrument was designed around four key dimensions (motivational, material, digital, and usage) of the digital divide proposed by van Dijk (2005). Informed consent was obtained from all participants, and confidentiality and anonymity were assured by all participants. Institutional names are coded to ensure the confidentiality of the institutions. Data collection was preceded by ethical approval (Appendix B) by the concerned Institutional Review Board / Ethics Committee of the host university. No traditional psychometric validation and reliability testing (e.g., Cronbach's alpha) was done because the instrument was oriented to the qualitative exploration and not to the quantitative measurement. Rather, the research adhered to the guidelines of trustworthiness that should be used in qualitative research, such as credibility, dependability, confirmability, and transferability (Lincoln & Guba, 1985).

The questionnaire was created based on theory-informed and literature-driven process. Items were aligned with:

- (a) Van Dijk four levels of digital divide access (motivational, material, skills, and usage), and
- (b) Flipped classroom literature and ESP writing pedagogy.

Three subject specialists validate the questionnaire. Two were Assistant Professors and one was the Ph.D. Scholar. Colleagues, who were experts in their subject, were requested to check the reliability of the questionnaire. It is generally accepted that one of the most widely used approaches to confirming the validity of the content of educational research instruments is expert review (Cohen et al., 2018; Creswell, 2017). After

final revisions 23 open-ended questions were added to the questionnaire. According to their feedback, the redundant items were eliminated, the vague wording was narrowed down, and the coverage of construct was refined. Level 1 had five questions, level 2 four, 3 eight, and level 4 six questions. Analytical reliability was taken care of by systematic development of codebooks, iterative coding cycles, comparison between cases, keeping the record of audit trail of decisions of an analytic nature.

## Results

Thematic analysis of the data (Figure 1) was performed with deductive codes referring to the digital divide framework proposed by Van Dijk (2005, 2020) and the institutional dimensions as well as inductive coding to define the emergent themes (Braun & Clarke, 2006).

The questionnaire was framed based on four levels of digital divide: motivational, material, digital, and usage. Each of these becomes a deductive code. Responses were coded directly into pre-defined categories. Responses were further coded inductively to identify the themes for institutional context mapping.

### Process of coding

#### Familiarization

All the responses were read multiple times to become familiar and gain the overall sense of meaning.

#### Initial Coding

Codes were assigned to meaningful units for example:

*“Google classroom which I have been using is a bit challenging as the students are not trained”* - code: Internet dependency

*“The only solution is the institution may provide proper training, and this should on continuous base”* – code: Lack of training support

### Categorisation into themes

Similar codes were grouped. For example:

- Resource and Infrastructure Limitations (RIL), Technical and Infrastructure Issues (TII), Technical and Resource Challenges (TRC), Access and Infrastructure (AI), Use of Personal Devices and Mobile Data (UPD&MD) – **Technology Infrastructure**

According to van Dijk (2005), infrastructure forms the basis of any digital pedagogy. This theme was identified based on the teacher responses regarding the reliability of the internet, access to devices, power problems, LMS stability, and the physical infrastructure needed to support flipped classroom instruction.

- Lack of Support or Training (LST), Lack of administrative support (LAS), Lack of Institutional Support and Interventions (ISI), Institutional and Curriculum Changes (ICC), Addressing Practical Constraints (APC) – **Policy Support**

The freedom and framework in tech integration are often defined by institutional policies (Bećirović, 2023; Hrastinski, 2021). The dimension emerged when the teachers mentioned institutional or departmental requirements, the lack of official directions, or encouragement/ discouragement to utilize technology.

- No training (NT), Continuous Learning and Practice (CLP), Challenges with Specific Tools or Platforms (CSTP), Formal Training and Workshops (FTW), Continuous Learning and Practice (CLP) – **Professional Development**

Skills development is a core layer of digital divide (van Dijk, 2005). There was a mixed response highlighting access and preparedness for training. Some reported no training at all, while others praised workshops on genre or flipped models.

- Adequacy in Meeting Teaching Needs (AMTN), Lack of Sufficient Resources (LSR), Institutional and Personal Challenges (IPC), Lack of Training and Support (LTS), Resource Availability and Support (RAS) – **Administrative Support**

The leadership support influences pedagogical change adoption (Firmansyah & Juansah, 2025; Khoso et al., 2025). Teachers remarked on the correlation of their management being innovative or simply imposing performance and workload.

- Balancing Technology and Traditional Methods (BTTM), Pre-class Preparation and Material Sharing (PP&MS), Asynchronous and Offline Resources (A&OR), Adaptive Strategies and Workarounds (AS&W), Curriculum-related: Learning Outcomes (CLO) –

- **Curriculum Design**

It was noted by some teachers that prescriptive syllabus did not give them freedom to implement digital technologies and genre-based approaches, whereas others mentioned that they had freedom to alter content and add technology-enriched activities. This implies different experiences of curriculum framework and flexibility in different institutions. Curriculum design also plays an important role in influencing the extent and way teachers are able to implement flipped genre-based writing pedagogy. Curriculum that is flexible and responds to the context encourages teacher agency and helps to incorporate digital innovations, thereby promoting equal use of technology in the learning process (Corpus et al., 2022; Rodrigues, 2020).

- Collaboration and Community (CC), Positive Outcomes from Collaboration (POC), Few tech-savvy colleagues (FTSC), Lack of sharing (LOS), Motivation from tech-savvy colleagues (MTSC) – **Peer Collaboration**

Teachers mentioned the presence of tech-savvy peers who shared tools or absence of peer sharing or competition. Skill development is shaped by informal peer learning networks (Dijk, 2005; Warschauer, 2004).

- Challenges and Intimidation (CI), Negative Sentiment (NS), Lack of awareness (LA), Complete Rejection of digital technology (CRDT), Psychological and Motivational Impact (PMI) - **Teacher Motivation and Initiative**

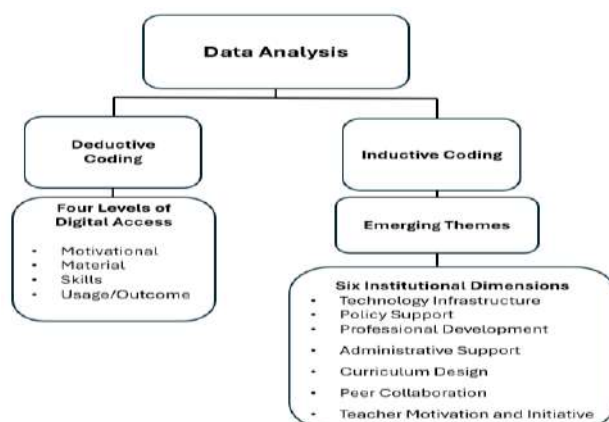
The motivational aspect came out strongly, particularly where the teachers talked about self-learning, interest, or fear. This aligns with the first level of digital divide: motivational access (Dijk, 2005).

### Mapping to Frameworks

The themes were then linked with research focus. At this level, it is found that themes are congruent with institutional context dimensions, which were used to develop contextual mapping model.

**Figure 1**

*Thematic Coding Framework for Data Analysis*



Illustrative quotes were selected to support interpretation and saturation toward a thematic end. University-wise institutional preparedness was compared in matrix displays and visualisations (e.g., heatmaps, radar charts). Reliability of coding was assured by inter-coder reliability and peer debriefing (Miles et al., 2020).

### **Quantification for Visualisation**

To support cross-institutional comparison and enable visual clarity, qualitative data were quantified using a 0–10 scale for the heatmap and a 0-5 scale for the radar map and bar chart. This process is commonly known as quantitative content analysis (Indulska et al., 2012). Each institution's response set was assessed for each dimension according to the depth, frequency, clarity, and strength of evidence in the teacher narratives (See Appendix A).

### **Scoring and Visualization Protocol**

A score of 0 meant not mentioned or total absence of the dimension, whereas a score of 5 and 10 meant consistently abundant, explicit evidence across responses. These scores were based on the content analysis of open-ended responses, and their contextual meaning was preserved, providing the possibility of the comparative visualization of the bar charts across institutions. Through this process, it was possible to compare institutional strengths and gaps clearly and, on a data, informed basis. Quantification of the data preserved the richness of the qualitative data and allowed for development of comparative visuals. The readiness matrix was analytically aggregated by taking the teacher-reported scores and qualitative indicators of seven institutional dimensions based on the digital divide framework by Van Dijk. Site-level synthesis of dimension-level ratings was done, and institutions were then categorized into high, mid, or low readiness based on cross-dimensional patterns recurring as opposed to numerical thresholds. This pattern-based classification made the analysis of needs sensitive to the institution and did not involve reductive ranking.

### **Findings**

The use of flipped genre-based writing pedagogy in ESP classes is guided by aspects specific to the institution. This section presents the findings and discussion comparing how different institutions stand on access levels, teachers' perspectives against four levels of digital divide across six pedagogical dimensions, and high and low readiness of the institutions.

#### **Positioning of institutions on Access Levels**

##### **Motivational Access (Interest, Willingness, Attitudes)**

Results showed (Figure 2) considerable inconsistency in teachers' intrinsic motivation to use digital tools to support writing instruction. On motivational access, institutions in the Northern regions like N5 (score 5), N3 (score 4) and NEC1 (score 3), federally administered universities, despite one of its branches which participated in this study located in Multan (East central region), had high motivational access where faculty were always enthusiastic, highly motivated, and proactive towards technological innovation. *"It is exciting and enriching..."* a teacher at N5 said. Another from N3 commented, *"Yes, I find it extremely exciting to use digital technology... engages the audience well."* These are positive attitudes, and they signal pedagogical inclinations moving towards flipped genre-based models. The flipped model demands that teachers take proactive activities to curate and deliver instructional materials in digital formats before a lesson, and it has been suggested that a high level of enthusiasm toward technology reflects precursor preparedness toward these models. These motivation markers align well with the model proposed by Rose and Martin (2012), according to which a genre-based writing should be well introduced in scaffolded nature, student-focused, and digitally enhanced teaching/learning environment.

On the other hand, access with low motivational relevance was noticed in the case of SE1 (score 2), SC1 (score 3) and W1 (score 2) (see heatmap, same column). In this instance, teachers voiced scepticism, disinterest, or wariness about the overuse of technology. For example, as one faculty member from SE1 said *"It is exciting but boring at the same time if used so frequently,"* and another faculty member from SC1 said frankly, *"I don't find it very useful. I prefer teaching through discussion."* These attitudes represent

apprehensions that underline the way in which pedagogical innovation may be impeded. This reluctance challenges the paradigm of the flipped classroom where pre-class digital interactions are key, and undermines the success of genre-based instruction, which makes use of repeated cycles of guided writing using a variety of genres, many of which are more effectively covered online (Hyland, 2007). The pedagogical power of genre-based instruction in flipped formats will not be achieved without motivational buy-in.

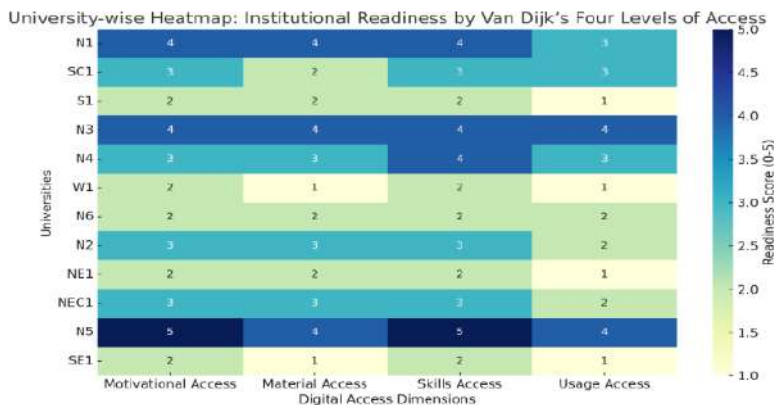
### Material Access (Infrastructure, Devices, Internet, LMS)

Another major area of divergence was material access, that is, LMS platforms, devices and stable internet. A relatively higher level of infrastructural support was reported by teachers of institutions like N2 (score 2), N5 (score 4), and N6 (score 2). According to a respondent from N5, “*We use LMS, Google Forms, QR codes quite frequently*”, which tends to be conducive to blended and flipped teaching models. Such an infrastructure will straightforwardly facilitate the flipped classroom environment where the learners are supposed to access the materials asynchronously before the class through LMS or any other software. In addition to this, these tools enable their explicit genre-based writing instruction, as it is possible to perform scaffolded genre modelling, process-based writing cycles as well as work with multimodal texts. When institutional infrastructure assists such tools, the teachers can be better placed to design and make implementations of lessons that align with the Teaching and Learning Cycle (TLC) that is central to genre-based pedagogy (Martin & Rose, 2012). The Deconstruction, Joint Construction steps of the TLC can be provided in the flipped environments with the help of videos, model texts and collaborative writing activities provided in the LMS. Such a combination of the flipped and genre-a-timed instruction is premised on sustained access to materials, enabling the learner to revise content, explore genre characteristics at a time pace, and get personalised feedback, which are the central principles of exemplary genre teaching (Hyland, 2007).

On the contrary, educators from W1 (score 1), SE1 (score 1), and SC1 (score 2) expressed substantial material access barriers. It was very common to hear reports of poor connectivity, and very little institutional support. W1 participant lamented: “*The university does not support digital tools, and the internet doesn’t work properly*,”. What this highlights is the infrastructural inequality that many such peripheral institutions cope with. These lapses subvert the very feasibility of flipped delivery, in which pre-class learning relies on uninhibited access to digital content. Regarding genre-based writing instruction, the absence of access to projectors, smart boards and digital writing tools will highly limit the possibilities of collaborative genre analyses, modelling and in digital drafting, hence, undermining the pedagogical robustness of the approach.

### Figure 2

University-Wise Institutional Readiness Scores Across Van Dijk’s Four Levels of Digital Access



Note: Readiness scores (1 = very low, 5 = very high) provided by ESP teachers in 11 institutions across Pakistan are reported through this heatmap. Scores represent the institutional status on four digital access dimensions, Motivational, Material, Skill, and Usage Access (from Van Dijk, 2005 the model of the digital divide).

### Skills Access (Operational, Formal, and Strategic Skills)

Prominently, variability in operational, formal and strategic digital skills surfaced. In the case of NEC1 (score 3), N4 (score 4), and N5 (score 5), teachers showed a high level of digital proficiency and were ready to undertake self-directed learning. A teacher at N4 said, *“I normally consult YouTube videos for learning and troubleshooting”*. N5 shared, *“I’ve received training to use LMS for creating interactive content.”* These responses are not only about operational competence, but also an initial strategic engagement in digital pedagogy. These skills form the basis when applying the concept of flipped instruction, in which teachers have to prepare, select and distribute learning materials asynchronously with multiple digital resources. Additionally, genre-based pedagogy, grounded in modelling and scaffolding genres’ attributes at various writing phases is dependent on digital presentation tools, collaborative writing programs, and feedback processes, which implies some wealth of formal and strategic digital literacy.

However, digital literacy was low at SE1 (score 2), SC1 (score 3) and W1 (score 2). Others insisted on traditional methods and refused to dive into digital platforms. For example, one of the SE1 teachers told us that *“I rarely use educational apps; they just waste time”*, and the SC1 teacher said, *“I don’t know how to use many tools. I rely on basic methods.”* These responses indicate a great urgency in the need to build targeted capacity with digital pedagogical skills. In the flipped classroom, the inability to work and plan the effective use of digital tools restrains the ability of teachers to take the direct instruction out of the classroom. Likewise, confidence in multimodal delivery and digital scaffolding is needed to teach discourse structures, provide examples, and stages of learning in a genre-based instruction.

### **Usage/Outcome Access (Effective Integration, Pedagogical Outcomes)**

Lastly, there was a wide variation in the extent to which digital tools are successfully integrated into classroom practice (usage access). Results from institutions such as N3 (score 4), NEC1 (score 3) and N5 (score 4) revealed mixed outcomes, promising results in terms of teacher reports about students’ engagement in learning and quality instruction. ‘A N5 teacher said, *“Students get very excited whenever I incorporate technology into lectures,”* and ‘A N3 teacher said, *“Technology enhances both student learning and teacher performance.”* These insights again validate that outcome-level benefits begin to materialise when other access levels are achieved. They also demonstrate the fundamental rule of flipped learning interaction with higher-order activity in the classroom higher because of pre-class exposure to content, which enhances participation and performance. Likewise, genre-based teaching may profitably employ classroom time by enabling joint and independent construction activity, and delivering foundational input (e.g., genre model, structure analysis) out of the classroom by digital means.

However, we find weak or inconsistent use of technology in actual teaching practice by various institutions including W1 (score 1), SE1 (score 1), and S1 (score 1). Moreover, there was poor student receptivity along with minimal pedagogical gains reported by the teachers. For instance, W1 teacher described, *“Students don’t take it seriously when I use digital tools,”* and S1 teacher commented, *“Not much use. Sometimes I try, but students get distracted.”* Thus, these outcomes imply that motivational and infrastructural gaps may also translate into concomitant limited pedagogical impact. This can be highly counterproductive to flipped genre-based pedagogy, where there is a great need to maintain instructional coherence and student responsibility. Genre modelling, scaffolding, and subsequent writing performance are greatly diminished without a pre-class preparation structure and follow-up tasks.

Teachers could experiment with flipped approaches in institutions such as NEC1 and N3, which offered curricular autonomy and digital policies that were integrated. *“Our assessments and resource uploading are integrated across platforms, making it easy to plan flipped tasks.”*

Tondeur et al., (2017) model that ties together institutional vision, leadership and curricular frameworks with digital pedagogy reform sustainability is supported by this dichotomy. When there is alignment in policy, structural provision, and autonomy by the institutions, pedagogical initiatives like flipped genre-based writing instruction are a possibility. In situations where these do not align, even a motivated teacher has systemic constraints to give significant achievements.

**Institutional Readiness across Seven Core Dimensions**

Institutional contextual factors analysis across diverse Pakistani universities indicated stark differences between ESP teachers’ readiness to implement flipped genre-based writing pedagogy. The difference among these groups was mapped along seven core dimensions, which were aligned with Van Dijk’s digital divide framework.

Table 2 is a cross-institutional readiness matrix that overlaid twelve higher education sites on seven institutional dimensions applicable to the implementation of flipped genre-based writing pedagogy (ESP-FGBP). The high-readiness (NSC1, N1, N2, N4, NEC1) institutions had good technological infrastructure, administrative support and teacher motivation, but formal policy support and long-term professional growth were only average. The institutions with mid-readiness (N3, N5, SC1, NE1) showed an uneven readiness pattern, which was characterized by moderate infrastructure and motivation due to the poor policy framework, training opportunities, and peer collaboration. Conversely, low-ready institutions (S1, W1, SE1) recorded systematic shortages in all seven dimensions, which means that structural and contextual constraints significantly restrict the ability of ESP teachers to introduce flipped genre-based writing pedagogy.

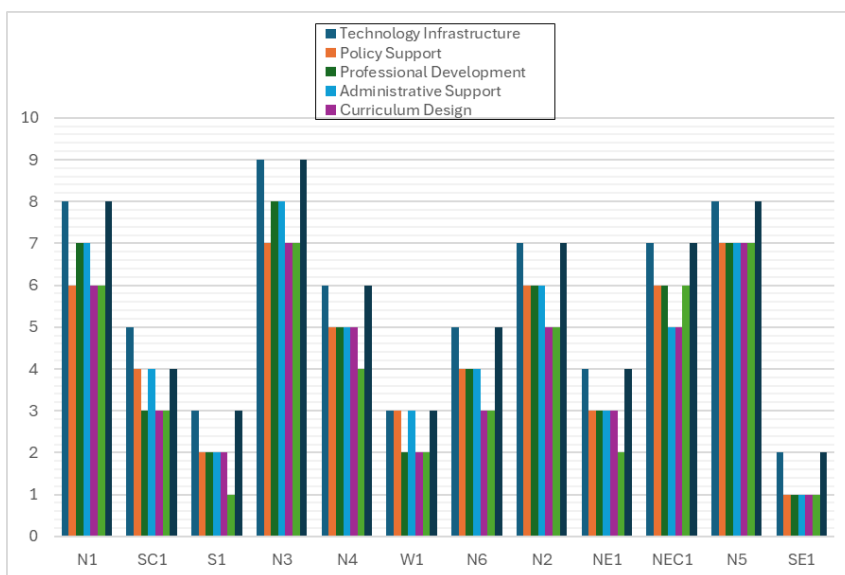
**Table 2**  
*Institutional Context Mapping across Seven Dimensions*

Readiness Group	Institution Codes	Tech Infrastructure	Policy Support	Professional Development	Administrative Support	Curriculum Flexibility	Peer Collaboration	Teacher Motivation
High Readiness	NSC1, N1, N2, N4, NEC1	High	Medium	Medium	High	Medium	Medium	High
Mid Readiness	N3, N5, SC1, NE1	Medium	Low	Low	Medium	Low	Low	Medium
Low Readiness	S1, W1, SE1	Low	Low	Low	Low	Low	Low	Low

Figure 3 (Bar Graph of Institutional Readiness Scores) quantitatively illustrates the patterns of these narratives, with qualitative evidence below:

**Figure 3**

*Supportive Institutional Dimensions for Flipped Genre-Based Writing Pedagogy Implementation Across Universities*



*Note:* Institutional support levels reported by ESP teachers across five dimensions (Technology Infrastructure, Policy Support, Professional Development, Administrative Support, and Curriculum Design) are all shown in

a bar graph. During the pre-training needs analysis phase data were collected from 11 universities in Pakistan. The scores range from 1 to 10 (very low to very high).

### **Technology Infrastructure**

Variation of infrastructure readiness for the sampled institutions was wide and correlated with the geographical locations and institutional funding. Among the better equipped campuses and strong digital infrastructure, urban universities including the N3, N1, and N5 were the most well equipped. In saying this, one of the teachers at N3 added, *“We have LMS which is quite modern, and... we have support for the digital integration.”* N1 and N5 claimed that they made frequent use of learning management systems (LMS), Google Forms, and QR codes, for the purpose of instruction. Nonetheless, at N5, a teacher said that *“LMS at our institution is really clunky and hard to access...”*

On the other hand, staff of S1 and W1 complained of severe infrastructural deprivation as labs were nonfunctional, and internet connectivity was unavailable. However, for less resourced institutions or in rural, peripheral settings like SE1, the focus of concerns went beyond access and extended to the ethical risks of open platforms, particularly one teacher’s worries, *“I feel that somebody may not post anything obscene on the screen.”*

### **Policy Support**

Principles of policy are important to the institutionalisation of the flipped models of learning which relies on the flexibility of delivery and assessment. Furthermore, the writing pedagogy relied on genres must have curricular accommodation and institutional sanction to integrate scaffolded writing cycles and genre models into institutional teaching. Across the dataset institutional policies to support digital pedagogy were generally absent or vague. Institutions such as N5 and N1 were seen to have exhibited some informal encouragement towards the technology integration; however, none of the respondents cited very robust or formal policy frameworks to incentivise or encourage institutions towards this practice. However, regarding N2, N4, and N6, teachers completely lack a structured policy and training as well as digital adoption taking place on an ad hoc basis. The lack of awareness was especially stark for more marginalised institutions such as S1 and SE1, where, when they inquired about the existence of institutional policies, they answered with a *“I don’t know!”*.

### **Professional Development**

Flipped genre-based pedagogy requires ongoing practical professional development that can teach teachers the skills of interactive content creation, active learning facilitation, and genre-specific approaches such as TLC and scaffolding skills that are not taught in typical tech trainings. Overall, most of the teacher training and PD opportunities were focused on tool-specific sessions—most often around LMS platforms—rather than pedagogical integration. *“We received LMS training, but only after we insisted on hands-on application.”* N5 respondent said. According to teachers from N1, NEC1, and N4, they only recalled attending isolated webinars and there were no continued efforts aimed at PD on flipped instruction or genre pedagogy. Teachers at W1 and SE1 based on self-initiated learning from the platforms like YouTube, *“No training received... only self-learning from YouTube.”*

### **Administrative Support**

The administration plays a pivotal role in the implementation of the flipped genre-based pedagogy through providing the structure such as flexibility in the scheduling and the use of the LMS, and the willingness of their leadership to include the genre-related objectives in the curriculum and assessment. Instead of being strategic or proactive, most administrative support was reactive. However, to N3, teachers noted its uniqueness in terms of being supportive and encouraging the culture of innovation, while teachers from NEC1 and N2 reported poor engagement, confined only to status quo monitoring. One of the extreme comments about institutional neglect that were expressed by many of the participants in N6 and SE1 includes: *“We are left to figure out things ourselves.”* Secondly, there was a lack of consistent leadership, which

worsened the situation of teachers feeling isolated and retarded the process of embracing digital teaching methods.

### **Curriculum Design**

Both flipped and genre pedagogies benefit from a fully flexible curriculum to facilitate preliminary out-of-class involvement, engaged in-class training, and recurring writing cycles that are responsive to the interests of the students within their field of study. A second barrier to flipped genre-based pedagogy was rigid, and outdated curricular structures. Institutions such as the N5, N4 and N6, teachers voiced their dissatisfaction with the inflexible syllabi, which emphasise contact hours and performance metrics to the detriment of innovation. According to N5, one respondent argued that while “*Traditional and neo-liberalist learning environments... prioritize performativity over innovation.*”, they are ‘*inherently exclusive, hierarchical and tumbled*’, but are nonetheless ‘*inclusive, adaptive, and interactive*’ that reproduce themselves. Also, a teacher from SE1 responded that they rarely used apps, “*as student -teacher interaction gets minimised*”.

### **Peer Support and Collaboration**

Another significant finding was the lack of peer collaboration in adopting tech-integrated pedagogies. In both flipped instruction and genre-based pedagogy, peer interaction is the driving force of success strategies (Tenenbaum et al., 2020), co-created teaching materials, and reflective learning leading to greater digitisation and scaffold of student writing. The work cultures in most institutions were characterized by strong individualistic stances, with teachers rarely communicating digital practices, or collaborating to learn new tools. In relatively advanced settings, like in N5 and N3, peer support was described as unpredictable and dependent on personal initiative. Collaboration was virtually absent in institutions like S1, W1 and SE1, and therein “*No. My personal disinterest.*” was the common refrain. The result agrees with Ertmer & Ottenbreit-Leftwich (2010), suggesting that supportive networks and incentives from institutions help bring about learning changes.

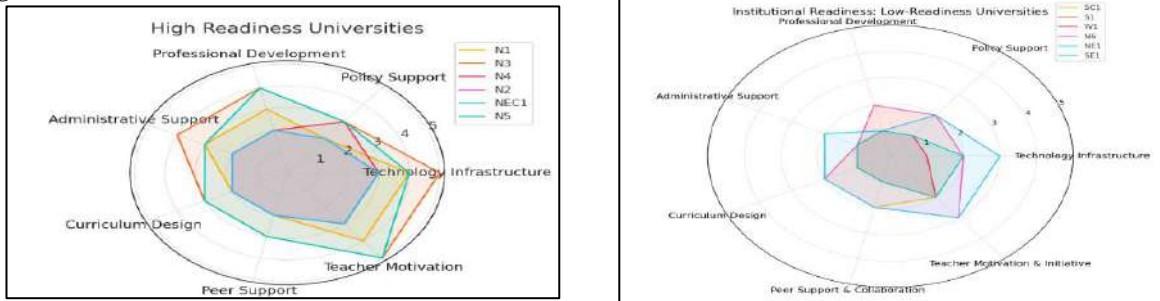
### **Teacher Motivation and Initiative**

Both flipped learning and genre-based writing rely on intrinsic teacher motivation to promote innovation, self-generated content, and self-initiated student-centred, scaffolded teaching delivery methods (Challob, 2021; Hamman-Ortiz et al., 2023). While structural barriers often proved to confound and impede the successful integration of computers at the school level, it was individual teacher motivation that had potential as a key enabler, especially in the case of institutions with some aspects of digital readiness in place. Those teachers at N3, N1 and N5 exhibited their willingness to explore digital tools; “*I’m a good learner and keen to use innovations.*” It was noted that teachers from N4 and N2 had moderate levels of motivation although oftentimes inhibited by insufficient institutional support. Teachers from S1, W1, and SE1, particularly from under-resourced campuses, reported low levels of confidence coextensively with limited exposure to professional spaces and opportunities, citing both feelings of anxiety and disconnect (disengagement), “*Sometimes ... but mostly indifferent.*”

The following radar charts (Figure 4) display the high and low digital readiness of universities implementing flipped genre-based writing pedagogy. Radar charts were used to represent the multidimensional institutional readiness profiles in the seven contextual dimensions. The readiness scores of each dimension were plotted as the means to represent the relative strengths and weaknesses across and within the institutions. The charts are not a statistical comparison but rather an interpretive synthesis of qualitative patterns, allowing the readers to visually compare the profile of institutions as a whole.

The results found in this study underscore the need for substantial capacity-building at both macro and micro institutional levels in to realise pedagogical change in low readiness contexts (Dijk, 2005; González-Lloret & Ortega, 2014).

**Figure 4**  
*High and low readiness universities*



*Note:* The left and right radar charts highlight the high and low readiness respectively (ranging between 1-5) across seven dimensions

## Discussion

The current study indicates that institutional contextual factors are decisive in defining the needs of ESP teachers in adopting a flipped genre-based writing pedagogy. In particular, inequality in digitization, policy clarity, professional growth and further development, administrative support, curricular flexibility, peer collaboration and teacher motivation leads to unequal readiness levels across institutions. The pedagogical needs of teachers are not therefore individual-based but produced structurally and need differentiated institutional responses as opposed to standardized training interventions. The study confirms the central role of institutional contextual factors, especially infrastructure, leadership, curriculum flexibility, and policy support as strong determinants of the ESP teacher preparedness and changing needs towards applying a flipped genre-based writing pedagogy.

Flip depends closely on easy access to online platforms and tools that facilitate out-of-class activities and delivery of course material (Bergmann & Sams, 2012). Arguably, genre-based pedagogy in digital environments needs consistency and an effective technology framework that supports students to engage with model texts, scaffolded work, and multi-modal input (Batool et al., 2025; Hyland, 2007). The infrastructural inequalities are indicative of the notion of material access put forward by van Dijk (2020) to exemplify how educational possibilities are systematically determined by unequal technological statuses. The same results can be found in other multi-institutional studies of digital readiness in higher education (Lai & Bower, 2020; Tondeur et al., 2017), where access disparities were reflected in limited instructional innovation.

There are better performing institutions like N5, N3 and N4 where the favorability of access to technology, organised professional development, and underpinning cultures of collaboration with peers made it possible to correctly incorporate the pre-class digital materials and internalisation genre supports. These environments facilitated digital and pedagogical competence of the teachers, which is in accordance with the needs of flipped and genre-based models that presuppose flexibility of schedule, use of LMS, and genre-sensitive instructional design (Hsiao et al., 2023; Hyland, 2007). There were not only such institutional ecosystems that promoted digital experimentation but also promoted active student engagement and writing development, which confirms the importance of contextual readiness in the innovation of ESP.

In contrast, low-readiness institutions such as SE1, S1, and W1 demonstrated an ongoing barrier in every dimension of the digital divide described by Van Dijk (2020), consisting of low motivation, insufficient infrastructure, and the absence of professional and administrative support. In the above settings, teachers had an organisational limitation that compromised the use of digital tools, as well as the need to teach a genre approach to teaching, regardless of the individual desire or effort. These constraints were further exacerbated

by the lack of curriculum flexibility, peer-to-peer collaboration, and specific training, which was characteristic of the necessity to reform institutions and develop local capacity (Ertmer & Ottenbreit-Leftwich, 2010; Hrastinski, 2021).

Overall, the study demonstrates that the institutional ecosystems of ESP teachers profoundly shape their needs for flipped genre-based instructions. The capacity of a teacher to practice flipped genre-based pedagogy is not determined only by personal motivation, but is ingrained in institutional organisations, professional cultures, and digital environments (Arshad et al., 2025). As represented by the seven dimensions in this study, institutional readiness acts both as a facilitator and inhibitor of the capacity that a teacher has towards reconciliation of theory and practice in ESP writing pedagogies. Addressing these gaps with targeted policy transformation, investments in digital infrastructure, and genre-sensitive pedagogical professional development is essential for scaling the innovation of instructional models in under-resourced classrooms.

### **Conclusion**

This research aimed to investigate the influence of institutional contextual issues in defining the needs of ESP teachers in adopting flipped genre-based writing pedagogy. The results indicate that the willingness of teachers is not a personal factor but a product of the structure that is formed through the institutional infrastructure, the policy orientation, the leadership practices, the structure of the curriculum, the culture of peers, and the opportunities of professional development. The mapping of these factors in several higher education institutions, the study shows that there are deep rooted inequalities which have a direct impact in the ability of teachers to embrace innovative pedagogies.

The most important implication of this study is the development of institutional context mapping as new needs analysis model of ESP-FGBP. This model preempts institutional preparedness as the key unit of analysis, unlike the traditional needs analysis that evaluates the skills of teachers or the shortcomings of learners. The study operationalizes Van Dijk digital divide framework in seven pedagogical dimensions to apply the digital divide theory to ESP writing pedagogy, and how motivational, material, skills, and usage access interacts within institutional ecosystems. This reimbursement provides a more holistic and ethically based method of understanding pedagogical adoption in unequal higher education conditions.

### **Actionable Recommendations**

According to the results, the following recommendations are provided in the study:

**Policy and Leadership:** University administrations ought to establish institutional policies, which justify flipped and gender-based pedagogy, backed by leadership-driven implementation models, instead of haphazard digital projects.

**Targeted Professional Development:** The teacher training programs must not be based on tool-based training but offer long-lasting and practical training on how to combine genre pedagogy with flipped instructional design.

**Curriculum Reform:** ESP curriculum needs to be brought to be more flexible as it will enable teachers to restructure learning sequences and not be bound by a strict credit-hour or assessment-based system.

**Institutional Support Systems:** Universities need to create special digital-pedagogy support units offering continuous technical and pedagogical support, which does not depend on the resilience of individual teachers.

### **Implications for Practice, Policy, and Research**

To practitioners, the results indicate that pedagogical innovation must be aligned with the institutional realities as opposed to individual experimentation. To policymakers, the research highlights the importance of institutional inequities as a requirement to achieve any significant digital transformation. To researchers, the suggested institutional mapping model provides a generalizable analytical framework in which to explore pedagogical preparedness in other ESP, EAP, or discipline-specific settings.

### **Future Research Directions**

Future studies must consider longitudinal designs to study the institutional readiness changes following specific interventions. It would also be useful to conduct mixed-method research to connect institutional readiness profiles with student writing performance to provide more explanatory power to the model. An experimental or design-based study that involves the deployment of flipped genre-based training programs in diverse institutional settings would also be of use on sustainability and scalability.

To sum up, this paper redefines the development of ESP teachers as an organizational but not an individual issue. Making institutional context mapping a formidable needs analysis model, it provides a theoretical development and a roadmap to facilitate equitable, sustainable application of flipped genre-based writing pedagogy in higher education.

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## Appendix A

## Pre-training Questionnaire

The questionnaire was designed as one but due to its length, it was administered in four different steps.

<b>1<sup>st</sup> L</b>	<b>Motivational/Mental/Psychological Access</b>	<b>Lack of digital experience caused by psychological barriers, lack of interest and willingness to use technology</b>
	<b>i.</b>	Can you describe your personal attitude towards using digital technology for teaching purposes? Do you find it exciting, intimidating, or something else?
	<b>ii.</b>	Have you ever encountered any fears or concerns related to using computers or digital devices for teaching? If yes, could you elaborate on what aspects make you apprehensive?
	<b>iii.</b>	Have you received any support or training to overcome any anxieties related to using technology? If yes, please share your experience and the impact it had on your perception of digital tools.
	<b>iv.</b>	How do you perceive the overall attractiveness of new digital technology in the context of English language teaching? Are there any particular aspects that discourage your engagement with it?
	<b>v.</b>	Are there any particular resources, training programs, or strategies that you believe could help alleviate your concerns and make digital technology more appealing for your teaching?
<b>2<sup>nd</sup> L</b>	<b>Material/ Physical Access</b>	<b>Lack of possession of devices, network connections and software</b>
	<b>i.</b>	Please share your access to personal computers or digital devices that you can use for teaching purposes. If you do not have access, what challenges do you face in this regard?
	<b>ii.</b>	Are there any institutional resources, support, interventions available for you to access computers or digital devices? If yes, how accessible are these resources and do they meet your teaching needs adequately?
	<b>iii.</b>	Could you describe your access to a stable and reliable network connection for using digital tools and resources in your teaching? How does the availability or lack of network connectivity affect your instructional activities?
	<b>iv.</b>	Have you explored any alternatives or strategies to cope with the lack of personal devices or network connections for teaching? If yes, what are these strategies and how effective have they been in maintaining instructional continuity?
<b>3<sup>rd</sup> L</b>	<b>Digital Skills Access</b>	<b>Lack of digital skills caused by insufficient user-friendliness and inadequate education or social support</b>
	<b>i.</b>	How confident do you feel in using digital tools and technologies for teaching purposes? Are there specific tools or platforms that you find challenging to navigate? Please explain.
	<b>ii.</b>	Have you received any training or professional development related to integrating technology into your English language teaching? If yes, how effective was this training in enhancing your digital skills? If not, do you think such training would be benefic
	<b>iii.</b>	Are there any specific areas of technology use that you feel less comfortable with, such as creating online materials, using educational apps, or facilitating online discussions? Could you provide examples of these challenges?
	<b>iv.</b>	How do you usually seek support or guidance when you encounter difficulties while using digital tools for teaching? Do you have access to sufficient resources or colleagues who can assist you in overcoming these challenges?

	v.	Do you think the level of user-friendliness of digital tools affects your willingness to integrate them into your teaching? Could you provide examples of tools that you consider user-friendly or not, and explain how this impacts your teaching practices?
	vi.	In your opinion, how can educational institutions or professional development programs better support you in improving your digital skills? Are there specific types of training or resources that you believe would be effective in addressing these challenge
	vii.	Have you observed any colleagues who excel in using digital tools for teaching? If so, what strategies do they employ to enhance their digital skills? Are there any lessons you can learn from their experiences?
	viii.	How do you perceive the role of social support, such as collaboration with colleagues or online communities, in overcoming challenges related to digital skills? Have you experienced any positive outcomes from seeking help or sharing experiences with other
4th h L	<b>Usage/Outcome Access</b>	<b>Lack of significant usage opportunities</b>
	i.	How frequently do you have the chance to use digital tools or technology in your English language teaching?
	ii.	Are there any institutional/other barriers or constraints that hinder your ability to incorporate digital tools into your lessons?
	iii.	In what ways do you perceive a shortage of opportunities for digital usage affecting your students' learning experiences? Have you observed any differences in engagement or outcomes when you have been able to use digital tools effectively?
	iv.	Are there any successful instances where you were able to overcome challenges related to usage opportunities and effectively integrate technology into your teaching? What strategies did you employ to create these opportunities?
	v.	How do you envision the ideal learning environment in terms of digital usage opportunities? What changes or improvements would you like to see within your institution to facilitate greater integration of technology into your teaching practices?
	vi.	Do you believe that creating more opportunities for technology usage could lead to enhanced student engagement and learning outcomes?

## Appendix B

### Approval of Ethics Committee

#### AU Human Research Ethics Committee

The AU Human Research Ethics Committee of Air University Islamabad Campus examined the Research Proposal submitted by:

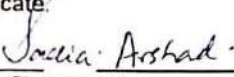


#### Details of Researcher(s)

S.No.	Name(s) of Researcher(s)	Designation at AU
1.	Sadia Arshad	PhD Scholar
2.		

Title of Research: *Exploring Digitally Inclusive Genre-based Instruction in English Language Obuchenic: Learning beyond access* May 2022/Jul 2024

#### Dates of Research (Beginning/Ending):

I/we, as Researchers named above, hereby undertake to abide by the Term of this Certificate.

Signature 1                      Signature 2

It is certified that the Researchers named above, undertake to ensure that the proposed research is in harmony with the broad guidelines stated in the Air University Policy on Ethical Principles for Medical Research.

It is further certified that Researchers will ensure adherence with the World Medical Association Declaration of Helsinki cited above and will ensure that Participant's consent is obtained in writing.

The Committee hereby specifies the following mechanism for regular monitoring of the Research Project:

*Research is being carried out under the supervision of Dr Sadia Irshad, Assistant Professor, Department of English, Faculty of Social Sciences, Air University.*

The Researchers will apply for grant of approval for any publication arising out of the research carried out for which a Final Report must be submitted by the researchers, and subsequently publicized through viable media.

Dated: 21<sup>st</sup> December 2023  
Pakistan. [www.au.edu.pk](http://www.au.edu.pk)

  
 Air University, E-9, Islamabad 44000,  
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## Appendix C

### Quantification for Visualization

<b>Heat Map</b>		<b>Bar chart &amp; Radar map</b>	
<b>Scale</b>	<b>Interpretation</b>	<b>Scale</b>	<b>Interpretation</b>
<b>0</b>	Theme is not mentioned	<b>0</b>	Access, support, motivation, or skills are not indicated
<b>1–3</b>	References are vague, minimal, unclear or anecdotal	<b>1</b>	Mentions are minimal, isolated without depth or consistency
<b>4–6</b>	Evidence is moderate, some instances or examples are clear	<b>2</b>	Evidence of some support or usage without any depth, training, or institutional integration
<b>7–9</b>	Mentions are strong and recurring with detail and contextual relevance	<b>3</b>	Evidence of regular use, with some technical and administration etc. challenges
<b>10</b>	Clear and extensive evidence across multiple responses within institution	<b>4</b>	Evidence of integration is clear, with positive perception, and active usage
		<b>5</b>	Systemic support, proactive engagement, teacher initiative, and sustainability

## **Unveiling the Relationship between Self-Esteem and Listening Comprehension of Iraqi EFL University Students**

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Although previous studies have successfully established generalizable evidence related to the relationship between EFL undergraduate students' self-esteem and their listening comprehension, they often fail to explore the lived, nuanced experiences of learners related to the factors resulted from students' self-esteem that influence EFL undergraduate students' listening comprehension. Accordingly, the current study provides a contribution not only in quantifying the correlation between the two targeted variables but also delves into the qualitative "how" and "why" behind it. The current study aims at identifying and investigating the relationship between EFL university students' self-esteem and their listening comprehension. The study also explores the factors that cultivate students' performance in listening comprehension as they are resulted from their self-esteem. The sample of the study is represented by 80 EFL university students who were randomly selected from the Department of English-College of Education for Humanities- University of Anbar. A mixed modes explanatory correlational design was used aided by a self-esteem questionnaire, a listening comprehension test, and a semi-structured interview to gather information. Quantitative and qualitative analysis procedures were used to analyse the collected data. The findings found a statistically significant correlation between EFL university students' self-esteem and their performance in listening comprehension. As evidenced by the positive Pearson correlation coefficient between the two variables. Besides, the interview findings were also in consistent with the quantitative results as they revealed that certain factors helped in promoting students' performance in listening comprehension due to their high level of self-esteem. These factors are; self-esteem cultivates students' motivation and self-confidence, increases mental readiness, helps students overcome listening anxiety, and helps students' avoid boredom and impatience. **Keywords:** self-esteem, listening comprehension, EFL, CSEI.

Iraqi students are required to study English. From elementary school through college, language proficiency is assessed based on the following four skills: listening, speaking, reading, and writing. Out of the four language skills in English, listening is the most important in people's lives. The listening skill is a crucial component of communication and language acquisition, as it is one of the receptive skills. According to

Mendelsohn (1994), “the majority of individuals allocate approximately 40-50% of their daily communication time to listening, while only dedicating 25-30% to speaking, 11-16% to reading, and 9% to writing”. Vandergrift and Goh (2012) argue that language learners can improve their comprehension and processing of information by developing their listening skills, which in turn facilitates the development of additional language abilities. Moreover, as Rost (quoted in Nunan & Carter, 2001) points out, the key difference between high- and low-proficiency language learners lies in their ability to use listening effectively as a means of acquiring the target language.

Although listening is a crucial language skill, it is frequently perceived as a difficult one, evoking anxiety in language learners as a result of its complex characteristics (Ahmed et al., 2024; Mendelsohn, 1994; Nasim et al., 2022). According to Vandergrift (1999), listening is a complex form of language proficiency requiring the simultaneous and immediate processing of multiple types of information—vocabulary, background knowledge, grammatical structure, and sounds. According to Underwood (1989), there are seven barriers to effective auditory comprehension. These barriers include an inability to control speaking speed, a lack of repetition in auditory material, a restricted vocabulary, an inability to recognize speech cues, a lack of contextual knowledge, difficulty concentrating, and a tendency to translate every word while listening.

Furthermore, during a listening test, a variety of factors can affect learners' performance. Both linguistic and non-linguistic elements can have an impact on various aspects of language learning, particularly listening skills. According to Yan (2012, p. 18), some students tend to solely rely on translating words instead of actively listening and comprehending on their own. This phenomenon frequently arises from an individual's inadequate self-assurance regarding their English listening capabilities, resulting in decreased intrinsic motivation. Consequently, many students may feel inclined to give up when they are unable to understand the speaker. Self-esteem, a prevalent concern that significantly impacts language learning, particularly in the area of listening comprehension, intimately links this issue to psychological aspects.

Self-esteem is a complex set of emotions that impact attitudes, inspire individuals and shape conduct (Dedmond, 2009; Shagufta & Nazir, 2021). Acharya and Deshmukh (2012) states that self-esteem as a judgement of one's own ability and worth based on specific values, which includes both psychological and social components. According to the definitions provided above, self-esteem is a person's level of self-respect and self-evaluation, which has a substantial impact on their psychology, behaviour, emotions, and motivation.

An informal interview with teachers and numerous university students studying English as a Foreign Language (EFL) revealed that most students do not realize the benefits of self-confidence in their learning. The students were unaware that self-esteem plays a crucial role in their performance in learning English, particularly in the area of listening comprehension. The teacher was unaware of their students' self-esteem while they were learning. Consequently, the majority of students fail to recognise their own self-worth. During the listening comprehension exercises, the students encountered challenges in comprehending the speaker's discussion on the English language. During the listening exercise, they struggled to focus and understand the details. At times, the learners were less enthusiastic about listening to English because they could not understand the basic terms used in the conversation. One of the factors cited was their lack of self-confidence, which is a psychological factor.

The importance of the relationship between students' self-esteem and their English listening skills has been a fruitful area of study for many researchers in the fields of applied linguistics and educational psychology. Hence, several previous studies have been conducted quantitatively to empirically confirm the importance of such a correlation in the students' listening skill in English language (Hayati & Ostadian, 2008; Bakhtiarvand, 2012; Nourelahi et al., 2021; Palo, 2013; Itzchakov & Weinstein, 2021; Yu & Abdullah, 2025). These studies have used quantitative, correlational research designs that produce statistical data to proof the strength and direction of the correlation between students' self-esteem and their listening skill. Although these previous studies have successfully established generalizable evidence, they often fail to explore the lived, nuanced experiences of learners related to the factors resulted from students' self-esteem that influence EFL university students' listening comprehension by using a mixed mode research paradigm. Accordingly, the current study provides a contribution not only in quantifying the correlation between the two targeted variables but also delves

into the qualitative "how" and "why" behind it, exploring learners' perceptions, experiences, anxieties, and motivational shifts during listening tasks. By integrating quantitative and qualitative in-depth analysis, the current study affords a more holistic and contextualized understanding of the self-esteem/listening comprehension correlation—a perspective that remains underexplored.

Hence, the objectives of this study is to unveil the relationship between students' self-esteem and their listening comprehension.

In accordance with the purpose of this research, the following questions are answered:

1. What are the EFL university student's level of self-esteem?
2. What are the EFL university student's level of listening comprehension?
3. Is there any significant correlation between Iraqi EFL university students' self-esteem and their listening comprehension?
4. What are the factors resulted from students' self-esteem that influence EFL university students' listening comprehension?

This study may provide valuable insights for English language teachers to understand students' self-esteem, which is a significant factor in students' academic performance. Self-esteem is a psychological factor that significantly influences students' academic performance, particularly in the listening domain. The study's findings can also motivate students by offering support to boost their confidence, especially in English listening skills, which can lead to improved listening comprehension results. Students are anticipated to acquire new knowledge through listening, which can enhance their self-esteem abilities. The results of this study are expected to provide additional insights that will serve as a foundation for future research, particularly in the areas of students' self-esteem and auditory comprehension.

## **Literature Review**

### **Self-Esteem**

In recent years, psychologists have shown a marked increase in interest in the topic of self-esteem. The study of self-esteem has a long and fruitful history in psychology. Self-esteem is a fundamental concept in clinical psychology, developmental psychology, personality psychology, and social psychology. In fact, researchers have been examining its impact on psychological functioning for almost a century (Greenier et al., 1995). People often overestimate the importance of self-esteem, attributing all negative outcomes to low self-esteem and linking all positive outcomes to high self-esteem (Manning et al., 2006). Moreover, Hewitt (2002) argued that the traditional method of studying self-esteem has resulted in a vast and extensive body of research that is difficult to condense. Hence, the objective of this chapter was to elucidate the primary subjects within the extensive body of literature on self-esteem. It is imperative for every individual to prioritise self-love, either above or at least on par with any other person or object. This elucidates the fundamental principle prevalent in the majority of religions, which is to "love others as you love yourself." The convergence of all cultures and religions in embracing the fundamental principle of treating and loving people as one would like to be treated and loved is quite astonishing (Dolan, 2007).

Sedikides and Gress (2003) define self-esteem as an individual's self-assessment of their own worth, which encompasses feelings of self-respect and self-confidence, as well as positive or negative attitudes toward the self. Self-esteem is associated with an individual's personal convictions regarding their skills, abilities, and social connections. Murphy et al., (2005) define self-esteem as a holistic construct that includes both cognitive evaluations of an individual's intrinsic value and affective responses to these assessments. In a similar vein, Wang and Ollendick (2001) argue that self-esteem is the reciprocal relationship between an emotive reaction to oneself and the self-evaluation process. Prevalent conceptualizations and definitions of self-esteem incorporate both affective and evaluative elements. In their study, Brown et al., (2001) identified three distinct applications of the phrase "self-esteem." (a) "Global or trait self-esteem refers to an individual's inherent disposition towards themselves, including feelings of fondness for oneself." b) The process of self-evaluation is how people judge their own skills and qualities. c) Feelings of self-esteem are linked to short-term emotional states. For example, someone might say they feel more confident after getting a big raise, or they might say they feel less confident after getting divorced.

According to Branden (1969), self-esteem consists of two components: (a) viewing oneself as competent, and believing in one's ability to think, learn, make wise decisions, overcome obstacles, and bring about change; and (b) self-worth, a sense of confidence in one's right to happiness, and a belief in one's worthiness of respect, love, and personal fulfillment. Abdel-Khalek (2016) has recently proposed that self-esteem consists of two separate dimensions: competence and worth. Based on these two elements, he defines self-esteem as "the perception of having the ability to overcome life's difficulties and being deserving of happiness." The field of personality psychology encompasses a widely recognised differentiation between traits and states (Spielberger et al., 1983). Some researchers distinguish between "self-esteem as a personality trait," which remains stable over time due to its intrinsic link to an individual's personality, and "self-esteem as a temporary state," which is more dynamic in nature and is susceptible to being influenced by various events, situations, and emotions (Gilovich et al., 2006).

Some researchers studying self-esteem have distinguished between explicit self-esteem, which is measured through questionnaires, and implicit self-esteem. The influence of an individual's attitude toward themselves on their evaluation of self-related and non-self-related objects—which they may not be aware of or may misidentify—is known as implicit self-esteem (Greenwald & Banaji, 1995).

### **Listening Comprehension**

The act of listening consists of perceiving, comprehending, and responding to the speaker. An adept auditor possesses the capacity to fully comprehend the speaker's discourse and provide responses that are suitable for the given context. People are required to understand and respond to what their interlocutors say. Meaningful communication is dependent on the capacity to attend effectively (Moghadam et al., 2023). Listening, according to Jyun (2009), is a key method of absorbing linguistic information, and hence an essential component of foreign language learning. Students must be able to listen carefully when interacting with others in order to comprehend debates. According to Pascal and Bertram (2009), there is a common perception that listening is a supplementary skill to speaking, reading, and writing. This perception stems from the assumption that learners will naturally develop their listening ability while devoting effort to improving their speaking, reading, and writing abilities. Nevertheless, attentiveness is not merely a skill that facilitates the development of language learning components; it is also an independent skill.

Alderson et al., (2005) assert that despite its complexity in listening, the capacity to comprehend spoken texts has received considerably less scholarly attention. Moreover, according to Hidayati et al., (2020), listening is a process in which recipients and decoders of speech signals engage in comprehension. Audience members occupy a comparatively passive position in contrast to those involved in speaking, writing, and translating. Furthermore, the rapid, uninterrupted, and transient nature of speech signals necessitates that students maintain a constant state of mental acuity and a substantial psychological burden.

In contrast, listening comprehension is defined by Afriani (2017) as the ability to comprehend discourse in a foreign or second language. Listening comprehension is the cognitive process that perceives information and stimuli. Listening comprehension may be defined as the process of matching the speaker's orally transmitted information with the recipient's understanding. As stated by Tyagi (2013), the ability to observe is critical for effectively receiving messages. The speaker's words are perceived auditorily as well as emotionally. It consists of three elements: a sender, a message and a recipient. It is the mental mechanism through which people listen, react, and derive the meaning to verbal or nonverbal messages. According to Brown and Smith (2007), listening is not a unidirectional process of receiving audio symbols but rather a multidirectional activity. The psychomotor process, which entails the reception of sound waves through the ear and the subsequent transmission of brain signals.

The significance of listening comprehension According to Hogan et al., (2014), communicative methods of language teaching place significant emphasis on listening at all stages of language learning. The level of listening competency has a significant impact on other language skills, including speaking and reading. Proficient listening skills are crucial for effective communication in all contexts (Ross, 2006). Students who possess proficient listening comprehension abilities are more likely to engage in communicative situations with

greater effectiveness. Listening comprehension is beneficial for EFL students because it helps them understand the information and facilitates their learning process.

According to the findings of a study by Padang et al., (2022), there is a statistically significant relationship between listening comprehension skills and the ability to improve various language skills, including speaking, reading, and writing. In order to achieve better results of the listening instruction process and create awareness of the students about the significance of the listening comprehension in the acquisition of English language, teachers should actively conduct research on the character and mechanism of the listening comprehension. This involves learning the process of listening comprehension and rehearsing the same.

## Methods

### Research Design

The current study used a mixed-methods explanatory correlational research design, which integrates both quantitative and qualitative data collection techniques, to achieve the study's goal and answer its research questions. This allows for the triangulation of multiple data collection sources that enrich the findings of the study (Creswell, 2014). Emphasising this fact, Gay et al., (2009) argue that combining quantitative and qualitative methodologies enhances the interconnectedness and robustness between them, leading to a more comprehensive understanding of events. Furthermore, the mixed-method facilitates comprehension and exploration of the many facets of the investigated phenomenon from multiple viewpoints (Denzin & Lincoln, 2018). As a result, researchers can simultaneously present statistical trends and amplify participants' perspectives. Thus, the current study used a self-esteem questionnaire and listening comprehension test as tools for collecting quantitative data, and semi-structured interviews with focus groups as tools for collecting qualitative data.

### Participants

The study population consisted of all third-year students majoring in English as a Foreign Language who were enrolled in the English Department at the College of Education and Humanities at Anbar University during the second semester of the 2023–2024 academic year. The population totalled 126 students. A priori power analysis was run with the help of G\*Power 3.1 to identify the correct sample size to use in the quantitative analysis. Since the research design was explanatory correlational, the analysis would be prepared to two tailed test of correlation with an expected medium effect value ( $r = 0.30$ ), an alpha level of 0.05, and the desired statistical power of 0.80. The description of the power analysis showed that a significant effect, in case it exists, should be detected in a minimum of 84 participants. The study sought to ensure that a sample that was close to this threshold was recruited in order to consider possible incomplete or invalid responses. A randomly selected sample of 80 EFL undergraduate students in Iraq was used to take part in the quantitative part of the research. This random sampling has been done through giving each of the 126 students a definite number and taken the 80 participants through random number generator and then invited them on the basis of their willingness and consent to participate. The criteria on the inclusion were very rigid in that they required the respondent to be a third year, officially enrolled student within the department; no respondents were excluded on the basis of age or to be a male or female to ensure that the sample was representative of the target population. These 80 students were the main sample and were requested to respond to the questionnaire of self-esteem and listening comprehension test.

Moreover, from this main sample described above, a sub-sample of 20 students was selected randomly by the same randomization technique (random number generator) and invited to answer the questions of the semi-structured focus group interview. Those students were divided into four groups; each consists of five students. The sample was composed of all participants with similar educational and language backgrounds, and their age was between 19 and 21 years. There were strict ethical principles adhered to during the research. The University of Anbar has a departmental committee that gave official permission to carry out the study. All the 80 main sample participants were well informed about the nature of the research, the voluntary nature of the study, and their freedom to withdraw without any penalty before data collection. Each participant including the sub-sample of 20 students who participated in the interviews was then asked to give their informed consent in writing. They were cautious of the privacy of the data and all personal identifiers were deleted, and the data was

anonymized through unique participant codes (questionnaires and interview responses). The data given by the respondents was utilized in the context of this study and was kept in a safe place to ensure that it safeguarded their privacy.

### **Data collection Instruments**

The triangulation of mixed-mode research instruments was used to gather data as follows:

#### **1- Quantitative research instruments:**

The quantitative data collection instruments used in the current study were a five-point Likert self-esteem questionnaire and a listening comprehension test. In order to measure self-esteem, the researchers adopted 55-item questionnaire on which Coopersmith Self-Esteem Inventory (CSEI) was modified into a version by Ryden (1978). The initial 58-item CSEI was adjusted to form a five-domain format, namely: “general self-esteem (23 items)”, “social self-esteem (8 items)”, “family self-esteem (8 items)”, “academic self-esteem (8 items)” and a “lie scale self-esteem (8 items)”, leading to the elimination of 3 original items. A five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was in place of the dichotomous response format of CSEI to increase sensitivity. Some items were inverted to counter the bias of response before analysing. The general, social, family, and academic domains cumulative scores are higher which means more positive self-esteem, whereas the lie scale evaluates social desirability response biasness.

Furthermore, the questionnaire items were translated into the native language of the students (Arabic) to guarantee the accuracy and easy understanding of the concepts in every item by the students. To confirm the appropriateness of the translation, a translation and back translation procedure was conducted by asking two experts in the field of English linguistics and translation. They both confirmed the appropriateness and clarity of the translation with a high agreement percentage.

As for the listening comprehension test, it is developed based on TOEFL listening comprehension test and includes the following domains; listening comprehension (10 items), short conversation (15 items), and academic listening (15 items).

To establish the face and content validity of the listening comprehension test and questionnaire, the researchers were exposed to tested by committee of five experts. The experts' suggestions led to some amendments to the questionnaire items. Lastly, the items in questionnaires were piloted so that their construct validity, language clarity, accuracy, practicality and reliability would be ensured. Construct validity is essential in any quality assessment. Construct validity is used whenever a specific attribute must be measured because it is the most applicable form of validity for assessing measurements (Creswell, 2012; Al-Jumaily & Alazzawi, 2025). The construct validity of all instruments is established through item analysis, which includes examining the differences between items, the relationship between item scores and the total test score, the relationship between item scores and their corresponding factors, and internal correlation matrices. A two-sample t-test is used to determine the significance of the difference between the two groups after calculating the mean scores and standard deviation. The calculated t-value for all items is higher than the critical value of 1.96, at 78 degrees of freedom and a significance level of 0.05, indicating that all items are statistically significant. The reason is to establish the internal consistency of the questionnaire items that is, the relationship between the scores of individual items and the overall test score that is assumed to measure the validity of the test. Based on this, the correlation coefficient of Pearson was employed to establish the level of correlation between scores on the items and the total score of the 80 respondents. The items were subjected to statistical analysis, which showed that all the correlation coefficient values are statistically significant in as compared to the critical level of 0.217; that is, 79 degrees of freedom and significance level of 0.05. In addition, the difficulty scores of the test items vary between 0.32 and 0.67 whereas the discrimination indices vary between 0.38 and 0.71.

As far as scoring the Lie Scale is concerned, it should be explained that it was considered as a validity check and not as a part of the overall self-esteem score. In line with traditional procedures of the CSEI, the eight items of the Lie Scale were given to determine the level of responding to which the participants could answer social desirability. As a result, they were not used in the computation of the total self-esteem score in order to achieve

the construct validity of the measure since the scale is supposed to measure the self-esteem and not social desirability.

Hair et al., (2017) recommend that the Alpha values must be more than 0.70. In this case, the reliability value for the questionnaire (excluding the Lie Scale) is 0.85, while the reliability value for listening comprehension is 0.83. The aforementioned figures indicate a good level of reliability for both tests.

### **Qualitative research instruments:**

Concerning the qualitative research tool, a focus group semi-structured interview was applicable due to the privacy of triangulating the combined qualitative and quantitative data, which enables the conjoint validation of the data. To do this, the interview questions are designed to explore genuine, and detailed data related to students' experiences and perception parallel to the various aspects of the self-esteem questionnaire including; "general self-esteem, social self-esteem, family self-esteem, academic self-esteem, and the self-esteem" factors that promote the EFL students' listening comprehension. Examples of these questions are: (*When you sit down to do a listening exercise in English, what general thoughts or feelings about yourself come to mind?, How do you feel when you are in a group of people, and you need to understand something they are saying in English?, When you are at home and you hear English in a movie, song, or a family member uses it, how do you feel about your own ability to understand it?, Compared to other skills in English (like reading, writing, or speaking), how would you rate your listening ability? Why do you think that is?, How does believing in yourself help you when you are trying to understand a difficult English audio or conversation).*

The prompts of the interview in their original form were sent out to a review committee of experts to determine their validity and appropriateness in supporting the current study with rich data and responding to research questions of the study. The experts confirmed the suitability and validity of the interview content and suggested some modifications, which the researchers took into account. The researchers then piloted the interview with a group of five students to confirm its clarity and suitability for the study's selected sample. The results of this pilot interview administration confirmed that the interview prompts were clear and suitable for the interviewees, as they answered all of them comfortably and easily.

It is worth mentioning that the interview was done in the form of group sessions with four groups of students each comprising of five students. Based on their choice and their convenient time, they were asked to attend in a calm and comfortable place for the purpose of creative answers and discussion. Based on this, the interview sessions were all conducted in the department of English laboratory. Each interview session took around 30-45 minutes duration and the students in the four groups were all creative in their answers, and comfortable in their discussion.

### **Data Analysis Procedures**

Since the current study employed mixed modes data collection methodology, the collected data were analyzed using both quantitative and qualitative data analysis processes.

As for the data collected by the self-esteem questionnaire and listening comprehension test, quantitative data analysis procedures were followed via the use of numerical statistical analysis with the use of the "Statistical Package for the Social Sciences (SPSS), Version 21." As a result, the significant difference between the mean scores of the self esteem of the students and the theoretic mean scores was determined through a t-test with one sample which was used to determine the level of the students in terms of self esteem. On the same note, a one-sample t-test was the tool employed to establish the significant difference between the mean score of the students in their listening comprehension and the theoretical mean in order to determine the level of listening comprehension of students. Besides, one-way analysis of variance was used to find out the EFL university students' performance in listening comprehension domains: listening comprehension, short conversation, and academic listening. Finally, in order to find out the correlation between students' self-esteem and their performance in listening comprehension, the Pearson correlation coefficient is utilised.

The data derived from the semi-structured interviews conducted with the focus groups were subjected to qualitative analysis using the thematic analysis method developed by Creswell (2012). These steps are: “preparing and organising the data; exploring and coding the data; describing findings and forming themes; representing and reporting findings; interpreting the meaning of the findings; and ensuring credibility and trustworthiness of the findings” (p. 238). Thus, the interview recordings of the four focus group interviews were all transcribed verbatim and were prepared, organized, and saved in Microsoft Words files to be ready for qualitative deep analysis. Then, the researchers read the interview transcribed content for three times highlighting the essential words, and expressions that refer to the main constructs and themes related to the students’ self-esteem feelings. After that, they re-read these highlighted parts and grouped them together based on their ideas, meanings and arranged them into themes as they support and parallel to the main aspects of the self-esteem questionnaire. At this stage, the themes as well as the extracts that reflect these themes were ready for reporting the findings of the study and their interpretations and justifications.

To confirm the objectivity and authenticity of the qualitative findings and in accordance with Denzin and Lincoln (2018) procedures, two main procedures were followed. These are data triangulations and reviews by an external auditor. The researchers employed multiple data collection sources and tools to make sure that they have triangulation, which is a guarantee of the accuracy and compatibility of the findings that can be obtained after the study. With regard to the second step, which is the external review, an applied linguistic expert with a long-term experience in the sphere was invited to review the initial draft of the qualitative analysis of the findings critically and thoroughly, discussing all of its key and sub-themes. The external reviewer then ensured that the results of the analysis were scientifically valid and true. These two steps will make sure that the researchers made an unprejudiced and scientifically adequate analysis (AbdulGhafoor & Challob, 2021; Ali & Tariq, 2025).

### Findings of the Study

The subsequent sections provide an exhaustive summary of the study's findings as they pertain to the research questions that were previously presented.

#### Students’ level of self-esteem as it is Reflected in the Questionnaire

As shown in Table 1, the students' self-esteem mean scores are 152.42, and the theoretical mean is 141, with a standard deviation of 17.53. The T-test formula for one sample is utilised to ensure the level of students’ self-esteem. The calculated t-value of 5.828 surpasses the tabulated t-value of 1.994 at the 0.05 level of significance, particularly when the degree of freedom is 79. This indicates that there is a statistically significant difference between the student’s theoretical mean and the self-esteem mean scores, and it is in favour of the self-esteem scale. Thus, according to these results, the students at Anbar University have a good level of self-esteem.

**Table 1**

*Students’ Level of Self-Esteem as it is Reflected in the Questionnaire Items*

Group	No. of students	Mean	SD.	Theoretical Mean	T-Value		Level of Significance
					Calculated	Tabulated	
Self-esteem	80	152.42	17.53	141	5.828	1.994	0.05

The qualitative findings gathered through interviews were consistent with the quantitative findings mentioned above, indicating that students have a high level of self-esteem across various aspects of self-esteem. To further explain this fact, when interview excerpts were analyzed, it was observed that students have given their overall self-assessment as indicated in Table 2 below:

**Table 2**

*Interview Extracts Indicating Students' Reference to "General Self-Esteem".*

Participant	Interview Extracts
S3	<i>I feel that I can understand my everyday plans and I can do it by myself.</i>
S6	<i>ummm.I think that I can easily be familiar with the new life and educational experiences specifically the good things</i>
S10	<i>As related to me, I think that I am a successful person in my life.</i>
S17	<i>It is easy to be an independent person when you clearly understand what to do and how to do it .</i>
S19	<i>I feel that I look nice as seen by people around me.</i>

Besides, social self- esteem is also reflected in the students' responses to the interview questions. Table 3 below introduces examples from the interview extracts that reveal the students' social self-esteem.

**Table 3**

*Interview Extracts Indicating Students' Reference to "Social Self-Esteem".*

Participant	Interview Extracts
S1	<i>Based on my everyday behavior, I think that I am famous among my colleagues having the same age of my.</i>
S3	<i>I always feel that I am an exciting person with people around me.</i>
S4	<i>As I deal with in everyday lif activities, I think that friends used to depend on my points of view and follow me confidently..</i>
S7	<i>I always would like to be with people irrespective of their ages .</i>
S12	<i>People around me used to depend on me in critical situations.</i>

As related to family self- esteem, students also revealed this kind of self-esteem in their interview responses as shown in Table 4 below:

**Table 4**

*Interview Extracts Indicating Students' Reference to "Family Self-Esteem".*

Participant	Interview Extracts
S6	<i>My Parents usually encourage me to be a good model to my friends.</i>
S8	<i>I like the way my family look at my plans and understand all of them.</i>
S11	<i>My parents encourage me to do my best to attain my goals.</i>
S13	<i>Family members used to respect the way I behave and think .</i>
S118	<i>My family respect my feelings towards the thinks and activities that I like much.</i>

Moreover, students also clearly reflected signs of their academic self-esteem in their interview responses as shown in Table 5 below:

**Table 5**

*Interview Extracts Reflecting the reference to the "Academic Self-Esteem".*

Participant	Interview Extracts
S2	<i>My teacher always encourages me to do best in my educational activities.</i>
S5	<i>I am sure that I can do well inside and outside of my class as related to my study activities.</i>
S9	<i>I always feel proud about by learning experiences and performance.</i>
S16	<i>I used to be easy going and collaborative in group based learning activities.</i>
S20	<i>I feel comfortable to act as a learning model in front of my group mates.mm, It is easy for me to do this</i>

### **Students' performance in listening comprehension**

As far as the performance of the students in the listening comprehension is concerned, the average performance of the students is 56.70 with a standard deviation of 9.48 and the performance ought to be 50 theoretically. The T-test formula for one sample is used to identify students' listening comprehension performance. As shown in Table 6 below, the calculated t-value is 6.317, which is higher than the critical t-value of 1.994 at a significance level of 0.05 and 79 degrees of freedom. This suggests that there is a statistically significant difference, favouring the listening comprehension test, between the theoretical mean of the students and the mean of their performance. Thus, according to these results, the students at Anbar University have a good level of listening comprehension (see Table 6 below).

**Table 6**  
*Students' Performance in Listening Comprehension*

Group	No. of students	Mean	SD.	Theoretical Mean	T-Value		Level of Significance
listening comprehension	80	56.70	9.48	50	Calculated	Tabulated	0.05
					6.317	1.994	

### Comparison among Iraqi EFL university students' performance in listening comprehension domains

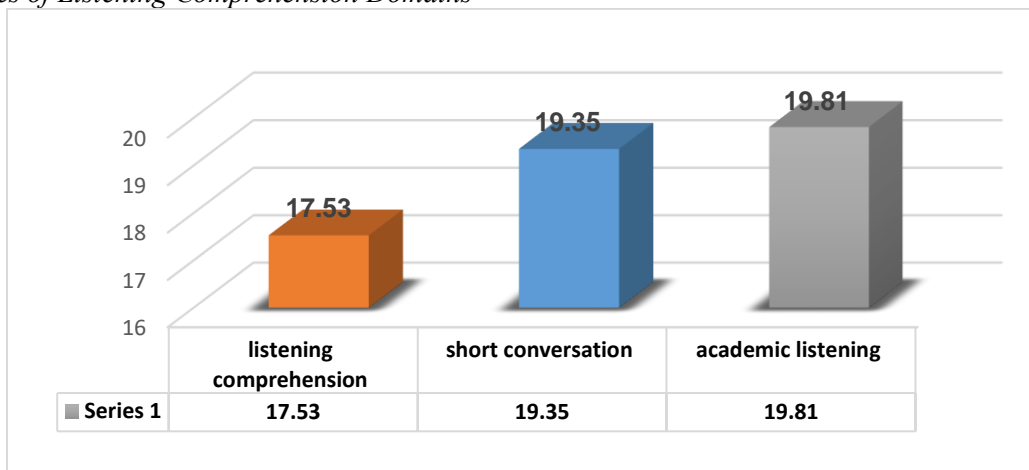
To determine comparison between listening comprehension domains performance of Iraqi EFL university students in performance of listening comprehension. The results represent a sample participant (N=80) EFL university students. The mean score and standard deviation were calculated in order to assess students' performance in the three domains of listening comprehension: "Listening Comprehension," "Short Conversation," and "Academic Listening." According to the means of three domains obtained, listening comprehension mean score is 17.53, short conversation 19.35, and academic listening 19.81. A repeated-measures ANOVA was performed to assess the statistical significance of the changes among the three domains of listening comprehension. Mauchly's Test of Sphericity indicated that the assumption of sphericity had not been violated  $P= 0.558$ . The partial eta squared (partial  $\eta^2$ ) was calculated to assess the variance in listening comprehension scores attributable to the three domains, as illustrated in Table 7.

**Table 7**  
*Within-Subjects Effects Tests (Sphericity Assumed)*

	Source	Type III Sum of Squares	Df	Mean Square	F	Sig.	Partial Eta Squared
<b>Listening (Listening)</b>	Sphericity Assumed	233.606	2	116.803	7.324	.001	0.085
	Error	2519.894	158	15.949			

According to Table 7, a repeated-measures one-way ANOVA indicated that there was a significant difference in the number of three domains of listening comprehension given,  $F(2, 158) = 7.324$ , ( $p < .001$ ). The obtained partial eta squared was 0.085. The percentage of variance in the three domains of listening comprehension is positively influenced, indicating that there is as significant differences among three domains of listening comprehension. The analysis involved conducting three post hoc t-tests. This phase of the analysis aimed to assess the differences among the three pairs of conditions: (*Listening Comprehension- Short Conversation*), (*Listening Comprehension- Academic Listening*), and (*Short Conversation-Academic Listening*). Post hoc comparisons between conditions were conducted using three paired sample t-tests. A paired sample analysis revealed a significant difference between Listening Comprehension-Short Conversation conditions,  $t(79) = 3.059$ ,  $p = 0.001$ . A second paired sample t-test revealed a significant difference between the (Listening Comprehension- Academic Listening),  $t(79) = 3.591$ ,  $p = 0.001$ . The third paired sample t-test revealed non-significant difference between the (Short Conversation- Academic Listening) conditions,  $t(79) = 0.709$ ,  $p = 0.480$ . All pairs showed a statistically significant difference at the  $p < 0.05$  level, except for the difference between (Short Conversation-Academic Listening) is non-significant. This was indicated by a substantial effect size,  $d = 1.00$ .

**Figure 1**  
*Mean Scores of Listening Comprehension Domains*



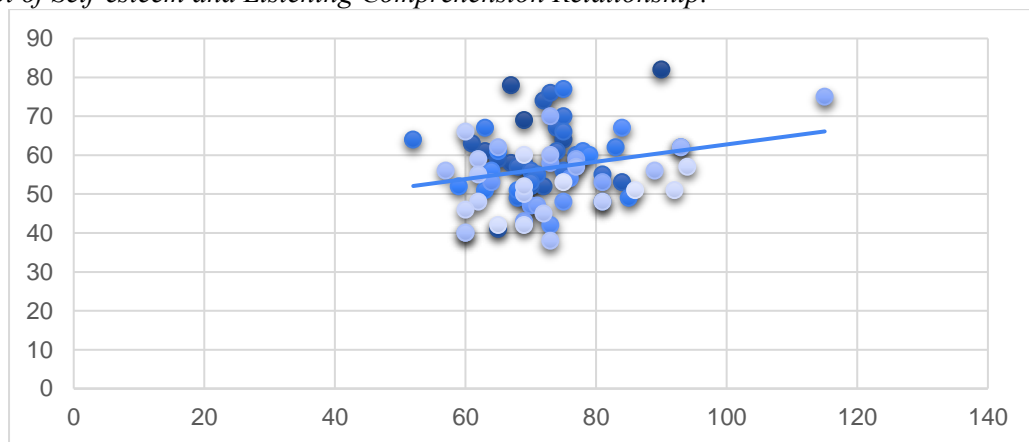
**The correlation between Iraqi EFL students' self-esteem and listening comprehension.**

Pearson's correlation coefficient is used to assess the relationship between students' self-esteem and their scores on the listening comprehension test. The findings indicate that the  $r$  value is 0.238 that is more than critical value of 0.182 at significance level of 0.05 and with a sample size of 80. This, therefore, implies that self-esteem of the Iraqi EFL university students has a positive correlation with their performance in terms of listening comprehension as demonstrated in Table 8.

**Table 8**  
*The Correlation between Students' Self-Esteem and their Performance in Listening Comprehension*

Sample Size	R- Value	Critical Value	Significance 0.05
80	0.238	0.182	significant

**Figure 2.**  
*Plot of Self-esteem and Listening Comprehension Relationship.*



Qualitative data, as evidenced by students' responses to interview questions, indicate a strong correlation between students' self-confidence and their performance in listening comprehension. As indicated in the analysis of the interview extracts, students clearly confirmed that there is a positive relationship between their level of self-esteem and listening comprehension performance in the English language. Students admitted that there are several factors that promote their listening comprehension, resulting from their high level of self-esteem, as explained in the next section.

### Self-Esteem Factors that Promote the EFL Students' Listening Comprehension

Students indicated that certain factors that promote listening comprehension, as explained below, are responsible for the positive correlation between their self-esteem and their listening comprehension performance. Table 9 illustrates the factors that the study's sample perceives as promoting students' listening comprehension, stemming from their high self-esteem.

**Table 9**

*Self-Esteem Factors that Promote the EFL Students' Listening Comprehension.*

No.	Factors	Frequency of Students (Out of 20 Students)	Examples from the Students' Interview Extracts
1	Self- Esteem Cultivates Students' Motivation and Self-Confidence	17	S2: I think that I feel highly motivated due to my high level of self-esteem. This helps me be good in listening skill. S6: Well, mmmm, I can say that I am good in listening comprehension as I feel so confidence in my English language ability to listen and understand. S12: I am so proud in my listening ability. hmmm, I feel that I am quite confidence in my language ability. This is why I am sure that I can perform well in listening test.
2	Self- Esteem Increases Mental Readiness	15	S5: I feel that I am perfectly prepared to attain good marks in the listening test. I am proud of this. S11: I think that feeling with high self- esteem helps me attain good marks in English listening since it prepares my mind to listen well and understand well and got good marks. S15: I feel that having high level of self-esteem increases my cognitive readiness to be a good listener in English language.
3	Self- Esteem Helps Students' Overcome Listening Anxiety	13	S4: I think that when I experience high self-esteem, I will no longer fear from English listening skill. I can attain good mark in English listening test. S13: If I have high self-esteem, my anxiety to the listening skill will be decreased and consequently I can perform well in listening test. 19: I did not feel anxious at all, when I asked to conduct the listening test. This is because I am sure of my language ability.
4	Self- Esteem Helps Students' Avoid Boredom and Impatience	12	S1: Due to my high self-esteem, I feel that I am a good and patient listener with any listening text in English. I can comprehend any listening text, short or long text, native or foreign speakers. S10: I feel that I can listen to any type of English text without feeling bored. This help me understand it well. S14: I have interest to listen and understand well any English text. This is because I feel that my English ability is good.

As shown in Table 9 above, students revealed in their interview responses that if they experience high self-esteem, they can gain good results in English listening comprehension. They justified this fact by admitting that having self-esteem increases their feeling of self-confidence and high motivation and makes them mentally ready for the listening skill. Besides, having high self-esteem helps them overcome internal barriers associated with the listening skill, such as feeling anxious, impatient, and bored while they are practicing the listening comprehension activities.

## Discussion

The results of the study are relevant to the existing literature on affective variables in second language acquisition because they ensure the statistically significant positive relationship between self-esteem and the listening comprehension among the students of Iraqi EFL university ( $r = 0.238$ ,  $p < 0.05$ ). This correlation, supported by both quantitative and qualitative evidence, places self-esteem as an important psychological factor that leads to L2 listening performance a skill that is commonly known as one of the most anxiety causing and cognitively challenging to language learners (Vandergrift, 1999).

### Theoretical Positioning

According to the frames of humanistic psychology and the educational psychology, these results are consistent with the conceptualization of self-esteem introduced by Branden (1969): self-esteem has two basic components: self-competence (belief in one cognitive capabilities) and self-worth (sense of personal value). These components are operationalized in the study by the qualitative data of students describing their experiences: the general self-esteem as the ability to comprehend the plans of the everyday life and navigate in new situations alone, and academic self-esteem as the ability to be proud of personal learning performance and collaborative skills in students. This duality underlies the argument by Abdel-Khalek (2016) that self-esteem is an interactive mechanism of perceived ability and entitlement to it.

In L2 listening comprehension context, these results can be theoretically placed in the Affective Filter Hypothesis of Krashen (1982), which holds that the affective variables (anxiety, motivation, self-confidence) can hinder or facilitate processing of comprehensible input. The qualitative themes described in this paper, namely, increased motivation and self-confidence, heightened mental preparedness, reduced listening anxiety, and being more resilient to boredom are literally the mechanisms that trigger the affective filter downward, thus allowing more effective phonological processing, lexical access and meaning construction during listening tasks. This theoretical framing goes beyond the correlation to the degree that it is used to explain the process by which self-esteem could lead to listening outcomes.

Moreover, the results also sound in the self-determination theory (Deci & Ryan, 1985) according to which competence, autonomy, and relatedness are the basic psychological needs that increase intrinsic motivation. The expressions of relatedness are needed in the form of social self-esteem (friends used to rely on my points of view) and the family self-esteem (my parents support me to do my best) as well as the competence need satisfaction in the form of academic self-esteem (I am sure that I can do well) demonstrate the satisfaction of the needs. Once these psychological needs are fulfilled, the learners show more autonomy in undertaking challenging tasks- in this case L2 listening- and do not give up due to lack of understanding.

The four mediating variables that self-esteem promotes listening comprehension are a new addition to the body of literature that will complement the prior quantitative studies (Hayati & Ostadian, 2008; Bakhtiarvand, 2012; Nourelahi et al., 2021; Palo, 2013; Itzchakov & Weinstein, 2021; Yu & Abdullah, 2025) with a deeper insight into the process through which the self-esteem promotes listening comprehension. These mediators, motivation/self-confidence, mental readiness, and patience/resilience, can be theorized as a series of affective and cognitive processes that include self-esteem leading to confidence, which subsequently leads to anxiety and more mental preparedness, which then prevents attention and patience in the real-time processing task of listening comprehension.

The differences in performance in the fields of listening comprehension where academic listening (19.81), short conversation (19.35), and basic listening comprehension (17.53) give the highest mean scores deserve theoretical attention. The considerable variations of basic listening comprehension with conversational and academic listening ( $p = 0.001$ ) imply that monitoring of self-esteem can make a dissimilar impact on listening activities according to their cognitive loads and familiarity with the settings. Although it is more complex, academic listening can be supported with metacognitive strategies and schema-based processing of students, and simple listening comprehension, that involves quick phonological decoding, may be at a disadvantage of affective interference.

### Theoretical Contributions

- This paper shows that self-esteem is a stable characteristic (using the CSEI) and a dynamic phenomenon (as evidenced by the contextualized responses of students in interviews), and hence the distinction made by Spielberg et al., (1983) is significantly supported and the study is extended to the L2 listening field.
- The qualitative determination of four mediating variables has an empirical basis to the process-oriented model of the role of self-esteem on listening comprehension where the earlier studies have determined that there is a correlation but not the mechanism behind it.
- The results apply the Western theories of self-esteem to the Iraqi educational setting, which proves cross-cultural generalizability and also shows culturally-specific variations (e.g., family self-esteem as a particular sphere).
- The mixed-method design, which combines the results of the questionnaires and the focus-group interviews, proves the importance of triangulation in the study of the affective variables, which can capture the strength of relations as well as the experiences behind the statistical trends.

### Practical Contributions

- Self-esteem assessment must be included in the diagnostic process of educational institutions that are looking to work out students who are at risk of having problems with listening comprehension so that it can be established early in their life before the affective barriers get established.
- EFL teacher training programs must also incorporate modules on affective variables, whereby training instructors should be trained to identify the indicators of low-self-esteem and introduce classroom activities that allow learners to have positive self-esteem (e.g., fair participation systems, attributional retraining).
- There should be progress of the level of listening assignments (i.e. high-structured, low-anxiety, such as supported academic listening with pre-teaching) to more challenging ones (i.e. authentic conversations) as listening self-esteem increases.

### Conclusion

This study confirms that self-esteem is an important psychological asset to the Iraqi EFL university students, which have a positive impact on listening comprehension through four mediating effects observed. The results contribute to the theoretical knowledge by locating the self-esteem under well-developed conceptualizations of affective filtering and self-determination, and they provide pedagogical practice with empirically-supported guidelines. The high self-esteem students show improved motivation, cognitive preparedness, anxiety management as well as persistence in the task, a factor necessary to success in the cognitively demanding task of L2 listening. As an educator, the results highlight the necessity of focusing not only on the development of linguistic competence but also the psychological conditions that facilitate the application of the knowledge that the learner possesses within the time limitations of the real-time processing of the listening comprehension. Future experimental studies must explore the potential to have measured improvements in listening performance through targeted interventions on self-esteem, which would allow building the causal relationships to the correlational ones found here.

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## **The Mediating Effect of Psychological Well-Being on the Relationship Between Ambidextrous Leadership and Workplace Ostracism**

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Workplace ostracism (WO) poses a critical challenge for organizations, undermining employee well-being and overall effectiveness. This study examines how ambidextrous leadership (AL), characterized by the balanced use of exploration and exploitation behaviors, reduces WO through the mediating function of psychological well-being (PW). The research is grounded in Leader-Member Exchange theory and Affective Events Theory, which emphasize the relational and emotional dynamics between leaders and employees and provide a foundation for understanding how leadership behaviors influence perceptions of inclusion and well-being. A quantitative research design was employed, drawing on survey data from 325 employees across various industries. Validated scales measuring AL, WO, and PW were administered through an online questionnaire. The results reveal a significant negative association between AL and WO, with PW appearing as a partial mediator. This suggests that AL not only directly reduces feelings of exclusion but also indirectly influences ostracism by fostering employee well-being. Overall, the study underlines the importance of AL in creating psychologically supportive work environments and contributes to organizational behavior literature by clarifying the mechanisms through which leadership can mitigate WO and enhance employee well-being.

**Keywords:** ambidextrous leadership; psychological well-being; workplace ostracism

**(JEL) Codes:** L21, M19, M12

Modern organizations operate in quickly changing and unpredictable environments. To survive in highly competitive markets, they rely not only on tangible assets such as buildings, machinery, materials, and investments but also on intangible resources like social capital. Social capital refers to employees who contribute skills and efforts toward organizational goals, making the attraction and retention of valuable individuals essential for success (Chams and García-Blandón, 2019; Crow, 2002). However, the fast-paced business atmosphere can exhaust employees, leading to unintended psychological and behavioral consequences.

Psychologically fatigued employees may exhibit negative outcomes such as turnover intention, workplace cynicism, or other counterproductive behaviors. At the group level, these effects damage relationships among employees, weakening organizational culture, climate, and perceived support. Interactions with colleagues also shape psychological states such as safety, job satisfaction, commitment, and resilience. Among negative workplace experiences, ostracism stands out as a critical issue.

Ostracism, defined as ignoring or excluding individuals from social interactions, is a well-documented social phenomenon (Williams, 2002). In the workplace, it refers to social exclusion and marginalization by peers or supervisors (Ferris, Chen, and Lim, 2017). Research shows its prevalence; for example, Fox and

Stallworth (2005) found that 66% of U.S. employees experienced ostracism during their careers. Antecedents include a lack of inclusion, weakened connections, and misinterpretations of behavior, intentional or not (Robinson, O'Reilly, & Wang, 2013). The consequences are seriously reduced teamwork, job satisfaction, and PW within organizations.

Understanding ostracism's mechanisms is vital for early intervention. Killworth and Bernard (1976) emphasized that misunderstandings and errors in judgment often trigger exclusion. These perceptions foster neglect and rejection, making ostracism a significant organizational issue. It harms employees' well-being, life satisfaction, work engagement, and performance, while also undermining organizational efficiency and innovation.

Ostracism arises from both individual characteristics, such as personality traits and cognitive dispositions, and organizational factors, including culture, climate, and leadership (Hitlan & Noel, 2009; Zhao, Xia, He, Sheard, & Wan, 2016). Ostracism is not merely an interpersonal issue rather it can be acknowledged as culturally embedded structural term shaped by organizational norms, values and rules of inclusion and exclusion. In this regard, organizational cultures that discourage employee voice and tolerate organizational silence, can implicitly permit ostracism by legitimizing ignoring and social withdrawal. Such cultures strengthen negative daily responses that increase employees' feelings to marginalization and undermine psychological well-being. On the contrary, participative cultures produce positive affective events mitigating ostracism. Addressing it therefore requires interventions on both cultural, organizational and personal levels. Initiatives such as diversity management, mentoring, and conflict resolution training reduce ostracism and strengthen employee identification with corporate values. Furthermore, promoting psychological safety (Edmondson & Lei, 2014), emotional labor strategies (Grandey, Fisk & Steiner, 2005), psychological capital (Luthans, Avolio, & Youssef, 2007), and employee well-being (Danna & Griffin, 1999) help mitigate its effects. Organizational culture (Schein, 2010), trust (Dirks & Ferrin, 2002), and perceived support (Eisenberger et al., 1986) also play central roles in reducing exclusion.

Among organizational variables, leadership styles are especially critical. Leaders guide strategy, allocate resources, and influence decision-making, thereby shaping environments that can prevent ostracism. While styles such as authentic, transformational, transactional, strategic visionary leadership, and exploitative leadership are effective in different ways (Gardner, Coglisier, Davis & Dickens, 2011; Kamran, Malik & Khan, 2025; Memon, Baloch & Irfai, 2024), AL is particularly relevant in today's volatile markets.

AL balances exploration and exploitation behaviors to enhance efficiency and adaptability. Exploration emphasizes innovation, experimentation, and learning, while exploitation concentrates on refining going on processes, ensuring consistency, and improving resource utilization (Birkinshaw & Gupta, 2013; O'Reilly & Tushman, 2013). Leaders switch between these behaviors depending on situational demands, making them highly effective in uncertain contexts (Gibson & Birkinshaw, 2004).

A defining feature of AL is strategic vision, which integrates employees into innovative goals while aligning individual contributions with organizational objectives (Andriopoulos & Lewis, 2009; O'Reilly and Tushman, 2016). By bridging departmental gaps, promoting knowledge sharing, and encouraging communication, these leaders foster positive culture (Adler, Goldoftas, & Levine, 1999). They empower employees through autonomy, morale building, and recognition, which reduces exclusion. They also manage conflicts effectively exploitation-oriented strategies resolve task conflicts, while exploration-oriented strategies turn relationship conflicts into opportunities for collaboration (Fernandez & Moldogaziev, 2013).

Thus, AL mitigates WO by strengthening communication, teamwork, and inclusivity. Beyond direct effects, mediating variables such as psychological safety, empowerment, and resilience explain how leadership reduces ostracism. Of these, PW is especially critical, encompassing autonomy, personal growth, purpose, positive relationships, and self-acceptance (Ryff & Keyes, 1995).

PW is linked to health, job performance, and social relationships. Employees with higher well-being have less tendency to engage in exclusionary behaviors, benefiting from the inclusive culture fostered by ambidextrous leaders. Therefore, PW can serve as a crucial mediating factor in the correlation between AL and WO

### **Conceptual grounding and development of research hypotheses**

#### *The association between ambidextrous leadership (AL) and workplace ostracism (WO)*

WO is conceptualized as “the degree to which a person recognizes being ignored or excluded by others at work” (Ferris, Brown, Berry, & Lian, 2008). It often manifests as neglect, avoidance, or mistreatment and has detrimental consequences for employees, including reduced effectiveness, increased negative behaviors, diminished PW, and higher stress levels (Duffy, Ganster, & Pagon, 2002; Hitlan & Noel, 2009). Ostracism may originate from colleagues, supervisors, or subordinates. Unlike overt bullying or harassment, it is marked by passive, covert behaviors, making it difficult to detect and address.

The term “ostracism” stems from the Greek *ostrakon*, referring to pottery shards used in Athens to exile disruptive individuals. This practice served as a democratic mechanism to preserve social and political stability by removing disruptive individuals. In workplaces though, exclusion occurs through informal, unstructured actions. Such behaviors undermine belonging and inclusivity, leading to loneliness, anxiety, reduced self-esteem, or depression. Over time, ostracized employees may display absenteeism, weakened organizational commitment, and higher turnover intentions.

Addressing WO is crucial, as it undermines employee attitudes and performance. Organizational interventions are necessary, and leadership plays a pivotal role. Several leadership types such as authentic leadership, transformational leadership or transactional leadership have been extensively examined in organizational behavior literature. Their effects on workplace ostracism can differ in scope and mechanism. In this regard, authentic leadership focuses on transparency, ethics and self-awareness, which in turn empowers employees’ well-being and resilience in the workplace. Nevertheless, this leadership approach does not clearly address leaders’ abilities to cope with organizational demands and stressors that interpersonal tensions and dynamics bring on. Alternatively, transactional leadership takes control, incentives and compliance as its focal point. It provides strong leadership structure but unfavorably reinforces rigid hierarchies and social distance that triggers perceptions of WO. Transformational leadership, on the other hand, prioritizes inspiration, vision and motivation. These aspects can support engagement and well-being of employees however they may be insufficient to highlight experienced forms of social exclusion resulting in ostracism. In contrast to these leadership styles, AL can offer a more comprehensive framework for understanding WO by simultaneously integrating stability and flexibility. The balance between exploration and exploitation-oriented behaviors can better explain WO which is subtle and context-dependent phenomenon. Rather than dismissing other leadership approaches, it can be argued that AL can offer an explanatory framework for WO with two-dimensional structure as reducing ambiguity and relational uncertainty which are two key antecedents of workplace ostracism. Unlike authentic, transformational or transactional leadership styles that prioritize relational and instrumental mechanisms, AL integrates both dimensions and offers more comprehensive understanding to reduce WO in dynamic organizational contexts.

Additionally, AL with its balance of exploration and exploitation is particularly effective. Exploration emphasizes innovation and adaptability, while exploitation focuses on stability, refinement, and efficiency. This duality enables leaders to create cultures valuing both adaptability and consistency (Birkinshaw & Gupta, 2013). Skilled in shifting between these behaviors, ambidextrous leaders foster inclusivity, open communication, and trust, thereby reducing misunderstandings and feelings of exclusion.

By aligning employee goals with organizational objectives, ambidextrous leaders build supportive atmospheres where employees feel valued and secure. Their exploitation-oriented approach ensures clarity and reliability, while their exploration orientation encourages collaboration, creativity, and problem-solving. This dual capacity helps organizations navigate change, strengthen teamwork, and reduce ostracism.

At this point, it is necessary to discuss the theoretical foundations of this study. Leader-Member Exchange theory (LMX) and Affective Events Theory (AET). LMX theory conceptualizes supervisor-employee relationships as reciprocal exchanges, where relationship quality affects performance, creativity, satisfaction, and commitment (Dansereau, Graen, & Haga, 1975). High-quality exchanges enhance supervisory support, promote security and job satisfaction.

Affective Events Theory emphasizes the role of emotional and psychological experiences in shaping behaviors. Workplace events trigger emotions that influence both immediate actions and long-term attitudes (Cropanzano, Dasborough, & Weiss, 2017). Positive leader behaviors can reduce alienation and increase satisfaction, while negative events may intensify exclusion. AL, by balancing exploration and exploitation, creates positive affective experiences that mitigate ostracism.

Empirical research also supports these arguments. Alghamdi (2018) demonstrated that AL enhances innovative performance. Wu, Wang, Estay, and Shen (2022) found it reduces role stress and silence. Wu, Wang, He, Estay, and Akram (2020) reported that AL strengthens affective commitment while reducing workplace deviance. In summary, AL plays a vital role in addressing WO. By combining innovation with stability, and fostering communication and support, ambidextrous leaders create inclusive and resilient organizational environments. Based on these discussions and prior research, the initial hypothesis of this research is formulated as below:

*H<sub>1</sub>: Ambidextrous leadership is inversely related to workplace ostracism.*

*The role of psychological well-being (PW) as a mediator between ambidextrous leadership (AL) and workplace ostracism (WO)*

In organizational behavior science, PW is defined as “the affective and purposive psychological state that people experience while they are at work” (Robertson and Flint-Taylor, 2009, p. 6). It represents a person’s ability to handle daily stress and challenges while working productively and contributing to society. PW is a core element of mental health and resilience, enabling employees to adapt to difficulties and maintain a positive outlook. It influences physical health, workplace performance, and social relationships by enhancing emotional resilience, satisfaction, and self-acceptance. Ryff (1989) conceptualized PW through six dimensions: autonomy, environmental mastery, personal growth, positive relationships, purpose in life, and self-acceptance. These factors guide individuals in navigating life, building connections, and developing self-acceptance. Autonomy reflects the ability to regulate emotions, thoughts, and behaviors independently. Environmental mastery involves adapting to and shaping one’s environment to achieve goals. Personal growth refers to continuous psychological development and self-actualization. Positive relationships emphasize creating meaningful social ties, while purpose in life provides direction and meaningful goals. Finally, self-acceptance reflects a positive self-image and emotional resilience, where individuals acknowledge strengths and weaknesses without harsh self-criticism.

PW is also explained through two overarching perspectives: hedonic and eudaimonic well-being (Boniwell & Henry, 2007; Fredrickson, 1998). Hedonic well-being concentrates on positive emotions, life satisfaction, and happiness. According to Fredrickson (1998), positive emotions expand attention and thinking, enabling the development of long-term psychological capital. In contrast, eudaimonic well-being emphasizes self-actualization, meaningful goals, and psychological growth. It promotes resilience, fulfillment, and self-realization beyond temporary happiness. Effective PW requires balancing hedonic and eudaimonic aspects combining emotional positivity with long-term purpose and growth.

The benefits of PW include enhanced motivation, job satisfaction, efficiency, and effectiveness. Research highlights the role of leadership in fostering this state. Wang et al., (2022) found that AL strengthens self-efficacy, self-awareness, and psychological empowerment, positively influencing task performance. Lindert et al., (2022) emphasized that transformational leadership enhances PW by fostering motivation and engagement, while Zeike, Bradbury, Lindert, and Pfaff (2019) showed similar effects from digital leadership.

AL is particularly significant in supporting PW. This style balances exploitation focused on clarity, consistency, and efficiency with exploration, which fosters innovation, creativity, and adaptability (Zacher & Rosing, 2015). By providing stability and innovation simultaneously, ambidextrous leaders help employees feel secure while encouraging engagement in dynamic processes (Gong, Liu, Rong & Fu, 2021). The leader-subordinate relationship under AL is underpinned by shared trust, emotional support, and a recognition of belonging (Martínez-Climent, Rodríguez-García, & Zeng, 2019). Leaders who provide guidance while seeking employee contributions foster psychological security and resilience (Yan, Lian, & He, 2024). Furthermore, granting autonomy and decision-making opportunities empowers employees, improving confidence, inclusion, and intrinsic motivation.

Developing PW through leadership is critical for preventing negative organizational outcomes. Factors such as social exclusion, job dissatisfaction, and turnover intention undermine effectiveness, while WO, being excluded or neglected by colleagues or supervisors, is one of the most damaging experiences. In this regard, PW functions as a buffer, mitigating ostracism's emotional and cognitive consequences through both hedonic and eudaimonic dimensions.

Lack of emotional support, inadequate supervision, or limited guidance from leaders can serve as antecedents of ostracism. AL, by balancing exploitative and explorative behaviors, provides employees with both stable structures and innovative opportunities. This duality fosters mutual benefit, reduces alienation, and increases group integration. Employees thus feel valued and motivated, while organizations benefit from a more resilient and committed workforce. Exploitation-oriented practices provide structured guidance, whereas exploration-oriented practices encourage creativity and autonomy, together creating a positive environment that nurtures PW.

Hedonic well-being helps maintain emotional stability and happiness, while eudaimonic well-being strengthens purpose and resilience. Together, they enhance motivation, self-worth, and the capacity to cope with ostracism. Studies also highlight that PW improves self-esteem, resilience, and workplace belonging, which mitigate exclusionary behaviors (Ardianto & Etlidawati, 2022; Li & Hasson, 2020). Employees who experience higher levels of well-being show stronger social involvement, form stronger interpersonal ties, and actively participate in organizational activities, thereby reducing ostracism.

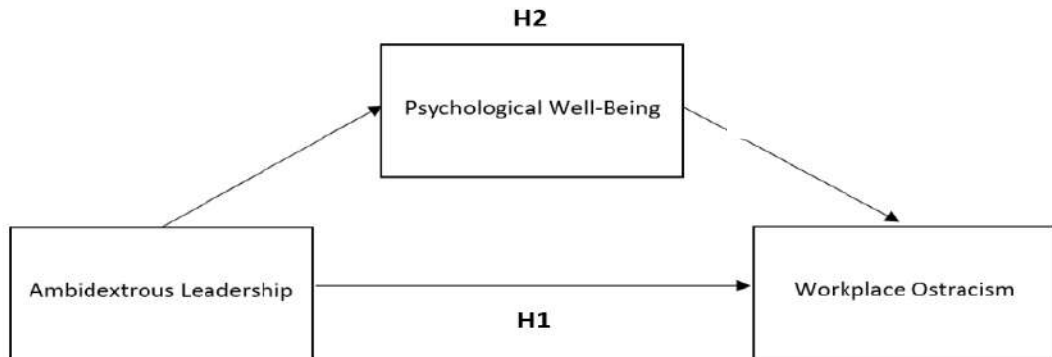
Expanding on the role of PW as mediating variable is crucial to capture underlying mechanism where AL behaviors influence complex workplace outcomes such as WO. Although direct-effect models often fail to fully explain the psychological processes that shape employees' cognitive and emotional responses, mediating variables provide more nuanced explanations by clarifying how and why leadership behaviors translate into employees' social experiences. In this regard, PW has been deliberately chosen as a mediating variable that comprehensively integrates emotional, cognitive and motivational dimensions. PW represents employees' capacity to cope with stress and a condition to maintain positive against failures and mistakes. Though other organizational variables such as trust, engagement or organizational identification focus on relational or attitudinal outcomes, PW captures resilience, emotional stability, and capacity to cope with social stressors. By positioning PW as a mediator, this study moves beyond simplistic leadership-ostracism research and provides mechanism-based explanation grounded in LMX and AET.

In sum, PW can be a critical mediator between leadership and workplace outcomes. Ambidextrous leaders foster well-being through open communication, recognition, and empowerment, creating supportive and dynamic environments. By strengthening employees' hedonic and eudaimonic states, they reduce the risks of ostracism and enhance organizational performance. Drawing on the aforementioned arguments, the following hypothesis is proposed:

*H<sub>2</sub>: Psychological well-being will mediate the association between ambidextrous leadership and workplace ostracism.*

Figure-1 displays the research model constructed in accordance with the hypotheses developed from the theoretical rationale discussed above.

**Figure 1** Conceptual Model of the Study



## Method

### *Participants and Sampling Procedure*

The present study involved actively employed individuals working in white-collar positions. A total of 450 individuals were invited to participate via e-mail, yielding 325 usable responses. Participants in this study were full-time employees working in sectors such as defense and industrial sectors, all positioned within Turkey. The questionnaire was conducted in the Turkish and the data collection period spanned from March 2025 to August 2025. The respondents' demographic summary showed a well-balanced gender ratio, with 50.5% male and 49.5% female participants. Regarding educational background, 64.6% of respondents held an undergraduate degree, while 35.4% possessed a postgraduate qualification. An examination of the respondents' marital status revealed that 55.1% were married and 44.9% were single. The largest proportion of participants was aged between 26 and 40, and most reported having between five and ten years of total work experience.

### *Research Measures and Scales*

In this research, three measurement scales; ambidextrous leadership; psychological well-being; workplace ostracism scales were employed. These methods were revised from their original versions and interpreted into Turkish by academicians in the accessible literature.

The AL Scale was originally developed by Rosing, Frese and Bausch (2011) and later converted into Turkish language by Kılıç (2018). The instrument is made up of 14 questions and measures two dimensions: leader's opening behaviors and leader's closing behaviors. It is administered using a six-point Likert measurement scale. The rating scale extends from 1 (Completely disagree) to 5 (Completely agree)

The PW Scale was initially developed by Diener (1984) to assess individuals' overall well-being and psychological health. In order to make the scale applicable in the Turkish context, it was later converted and adjusted by Telef (2013), who also conducted extensive validity and reliability tests. The instrument is based on a five-point Likert-type response scale, where respondents are requested to express their degree of agreement with each statement. The scale is anchored between 1 (Completely disagree) and 5 (Completely agree).

The WO Scale, originally developed by Ferris, Brown, Berry, and Lian (2008) and subsequently adapted into Turkish by Karakiraz, Uslu, and Özsoy (2023), was employed in this study. The measurement tool comprises 10 indicators and adopts a 7-point Likert-type response scale spanning from 1 (Completely disagree) to 7 (Completely agree)

**Results**

*Psychometric Properties and Model Fit*

The findings expose that all three variables as AL, WO and PW exhibit acceptable reliability, as indicated by Cronbach's Alpha values (CA) of .96, .95 and .93, correspondingly. The AL construct demonstrated strong fit across key indices, with GFI=.937, AGFI=.910, CFI=.982, and IFI=.982. The chi-square/df ratio was 1.98, indicating a very good fit, and the RMSEA=.055 (90%CI[.042-.068], PCLOSE=.249) remained within the acceptable limits. The PW model analysis indicated an acceptable-to-good model fit with  $\chi^2=22.2$ ,  $p=.220$ ,  $\chi^2/df=1.23$  reflecting an acceptable fit between the data and the proposed structure. Additional indices supported the adequacy of the model: GFI=.905, AGFI=.881, CFI=.945, TLI=.936, and IFI=.946. The RMSEA=.027 (90%CI[.055-.089], PCLOSE=.021) fell within the acceptable range, while the RMR value of .046 also indicated a reasonable fit. The WO model demonstrated a good overall fit, with  $\chi^2=56.53$ ,  $p<.01$ ,  $\chi^2/df=2.02$ . Fit indices were satisfactory, including GFI=.967, AGFI=.935, CFI=.990, and IFI=.990. The RMSEA=.056 (90%CI[.035-.077], PCLOSE=.295) also indicated an acceptable fit, while the RMR=.036 supported the adequacy of the model. Finally, AL, PW, and WO demonstrated strong reliability, with composite reliability (CR) values of .96, .93, and .95, in that order. In addition, the average variance extracted (AVE) values were 0.67 for AL, 0.62 for PW, and 0.66 for WO. Results indicate that the constructs exhibit robust reliability and satisfactory overall validity.

**Table 1** Validity, reliability and model goodness fit values

<i>Variables</i>	<i>CA</i>	<i>CMIN/SD</i>	<i>GFI</i>	<i>AGFI</i>	<i>CFI</i>	<i>NNFI</i>	<i>IFI</i>	<i>RMSEA</i>	$\chi^2$	<i>df</i>	<i>p</i>
<i>AL</i>	0,96	1,98	0,937	0,910	0,982	0,925	0,982	0,055	144,8	73	0,000
<i>PW</i>	0,95	1,23	0,905	0,881	0,945	0,935	0,946	0,027	22,2	18	0,020
<i>WO</i>	0,93	2,02	0,967	0,935	0,990	0,946	0,990	0,036	56,53	28	0,000

Notes: CMIN/DF (Minimum Discrepancy/Degrees of Freedom): Acceptable if  $3 \leq \chi^2/df \leq 5$ , good if  $\leq 3$ , GFI (Goodness of Fit Index): Acceptable if  $\geq 0.90$ , good if  $\geq 0.95$ , AGFI (Adjusted GFI): Acceptable if  $\geq 0.85$ , good if  $\geq 0.90$ , CFI (Comparative Fit Index): Acceptable if  $\geq 0.90$ , good if  $\geq 0.95$ , NNFI (Non-Normed Fit Index): Acceptable if  $\geq 0.90$ , good if  $\geq 0.95$ , IFI (Incremental Fit Index): Acceptable if  $\geq 0.90$ , good if  $\geq 0.95$ , RMSEA (Root Mean Square Error of Approximation): Acceptable if  $\leq 0.08$ , good if  $\leq 0.05$ ,  $\chi^2$  = Chi-Square Value, df = Degrees of Freedom, P = Significance level. Variables: AL = Ambidextrous Leadership, PW = Psychological Well-Being, WO = Work Ostracism, \*P < 0.05, \*\*P < 0.01

*Descriptive Statistics and Correlation Analysis*

Table 2 displays the descriptive statistics, reliability coefficients, and intercorrelations among the research variables. This examination was conducted to explore the differential effects of the variables analyzed. The findings indicate that the means and standard deviations are within the acceptable limits for normality. In addition, the bivariate correlations among the core variables of the model demonstrated to be statistically significant.

**Table 2** Means, Standard Deviation, Reliability and Correlations

	<i>Mean</i>	<i>SD</i>	<i>Gender</i>	<i>Mar. St.</i>	<i>Edu.</i>	<i>Age</i>	<i>AL</i>	<i>PW</i>	<i>WO</i>
<i>Gender</i>	1,50	,50	1						
<i>Mar.St.</i>	1,45	,49	,132*	1					
<i>Edu.</i>	2,49	,75	,137*	-,073	1				
<i>Age</i>	35,72	7,34	-,164**	-,345**	,002	1			
<i>AL</i>	3,51	1,13	-,015	,005	-,293**	-,049	1		
<i>PW</i>	3,45	,89	-,083	,015	-,300**	-,140*	,785**	1	
<i>WO</i>	2,69	1,17	,021	-,115*	,102	,007	-,566**	-,594**	1

Notes: Gender (1 = male, 2 = female), Marital Status (1=Married, 2=Single), Education (1 = diploma, 2 = bachelor, 3 = master, 4 = PhD), SD = Standard Deviation, AL = Ambidextrous Leadership, PW = Psychological Well-Being, WO = Work Ostracism, \*P < 0,05 and \*\*P < 0,01

### *Regression Analysis*

For the mediation analysis, IBM SPSS (version 26) alongside the PROCESS macro (version 3.5.3) developed by Hayes (2017) were employed. The PROCESS macro assists the testing of complicated mediation patterns by estimating both direct and indirect effects, and in this study, 5,000 bootstrap samples were generated for resampling.

It was proposed in Hypothesis 1 that AL would affect WO negatively. The analysis results displayed that AL accounted for 38% of the variance in WO. Both the regression coefficient of AL and the model constant demonstrated statistical significance. Specifically, AL was shown to be negatively linked to WO ( $\beta = -0.266$ ,  $p < .001$ ). Table 3 presents the entire analysis output for Hypothesis 1, confirming support for the hypothesis

**Table 3** Direct impact of ambidextrous leadership (AL) and workplace ostracism (WO)

<i>Coefficient</i>	<i>se</i>	<i>T</i>	<i>p</i>	<i>LLCI</i>	<i>ULCI</i>
-,266	,073	-3,65	,000	-,410	-,122

Secondly, Hypothesis 2 suggested that PW would mediate the association between AL and WO. The analyses confirmed that the indirect impact of AL on WO through PW was significant ( $\beta = -0.316$ ,  $LLCI = -0.452$ ,  $ULCI = -0.162$ ), as the confidence interval excluded zero. This indicates that PW functions as a significant mediator, given that AL positively influences PW ( $\beta = 0.616$ ,  $p < .001$ ), which therefore is inversely related to WO ( $\beta = -0.513$ ,  $p < .01$ ). Furthermore, the direct influence of AL on WO continued to be statistically significant ( $\beta = -0.266$ ,  $p < .001$ ), providing evidence of a partial mediation effect. See table 4.

**Table 4** Indirect impact of ambidextrous leadership (AL) and workplace ostracism (WO)

<i>Coefficient</i>	<i>se</i>	<i>T</i>	<i>p</i>	<i>LLCI</i>	<i>ULCI</i>
-,316	,074	-3,65	,000	-,452	-,162

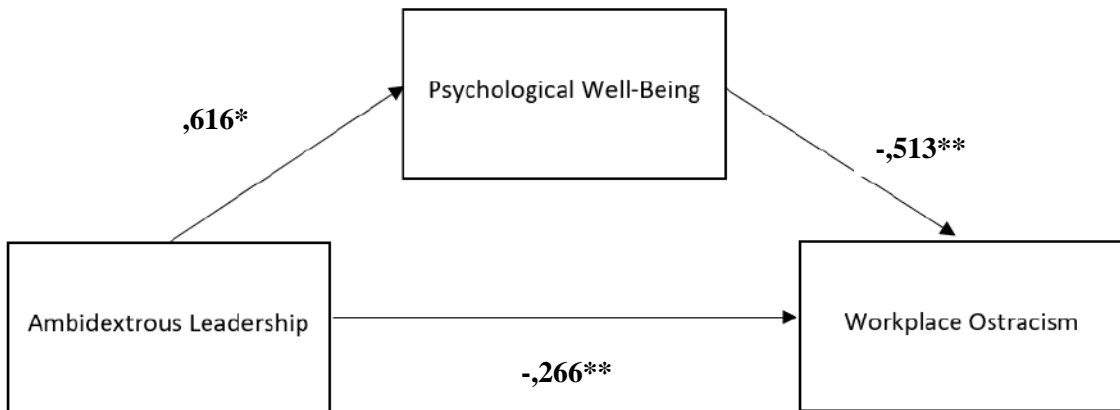
The total effect analysis indicated that AL had a significant adverse impact on WO ( $\beta = -0.582$ ,  $SE = 0.047$ ,  $t = -12.33$ ,  $p < .001$ ). The 95% confidence interval ( $LLCI = -0.675$ ,  $ULCI = -0.489$ ) did not include

zero, further confirming the robustness of this relationship. These results indicate that increased AL is linked to decreased levels of WO, when both direct and indirect effects are considered together. See table 5.

**Table 5 Total impact of ambidextrous leadership (AL) and workplace ostracism (WO)**

<i>Coefficient</i>	<i>se</i>	<i>T</i>	<i>p</i>	<i>LLCI</i>	<i>ULCI</i>
-,582	,047	-12,33	,000	-,675	-,489

**Figure 2 Results of the research**



**Critical Discussion of Findings**

The results of this study offer robust evidence that ambidextrous leadership plays a key role in reducing workplace ostracism by shaping both the social and psychological dynamics of the work environment. Leaders who successfully balance exploration and exploitation behaviors appear to create organizational contexts in which employees feel valued, included, and supported. This balance enables leaders to respond flexibly to changing demands while maintaining stability and clarity in roles and expectations, which in turn reduces employees’ perceptions of exclusion.

The adverse association between ambidextrous leadership and workplace ostracism can be elucidated through the leaders’ ability to manage job-related demands. Exploratory behaviors such as openness to new ideas, innovation, and flexibility signal respect for employee input and individuality, whereas exploitative behaviors such as consistency, goal clarity, and performance monitoring provide structure and predictability. Together, these behaviors reduce ambiguity and social uncertainty, which are often associated with feelings of exclusion. Employees working under ambidextrous leaders may therefore perceive their work environment as both psychologically safe and socially inclusive, lowering the likelihood of ostracism.

Moreover, the findings demonstrate that psychological well-being partially mediates the relationship between ambidextrous leadership and workplace ostracism. This result highlights the significance of employees’ internal psychological resources in understanding how leadership behaviors translate into social outcomes. Employees with higher levels of psychological well-being are more resilient, adaptive, and capable of coping with interpersonal stressors, which reduces their sensitivity to exclusionary cues. Psychological well-being thus functions as a protective mechanism that buffers employees against the negative social dynamics that may emerge in organizational settings.

The mediating role of psychological well-being also underscores its multidimensional nature. Components such as autonomy, personal growth, purpose in life, and self-acceptance contribute to employees’ ability to interpret workplace interactions more constructively and maintain a stable sense of self-worth.

Ambidextrous leaders may enhance these dimensions by empowering employees, encouraging learning, and providing both support and accountability. As a result, employees are better equipped to manage workplace challenges and less likely to perceive themselves as marginalized or ignored.

In addition to leadership behaviors, organizational culture can play a crucial role in determining workplace ostracism. In organizational cultures shaped by openness, trust and inclusion, AL can more effectively influence psychological well-being thereby reducing workplace ostracism. In contrast, silence-oriented and rigid hierarchical cultures may normalize exclusionary behaviors, that make WO less visible and more problematic to address. Alternatively, organizations where power distance is comparatively high, AL should actively balance authority and openness to encourage inclusion. In cultures with a strong power distance orientation, employees may be more sensitive to exclusionary behaviors and cannot tend to include in organizational voice. Therefore, organizational culture should be considered as contextual factor that shapes the perception of leadership behaviors (Zainab, Ahmad, Sheeraz, 2022).

Furthermore, this research offers various practical initiatives for organizations to reduce WO. For example, organizations should invest in leadership development programs to constitute AL attitudes. By these programs, leaders can be capable of combining exploration-oriented and exploitation-oriented practices such as encouraging open-dialogue and performance feedback. Learning two-dimensional leadership prioritizes flexibility and stability in the workplace that creates more inclusive environments. Second, corporations should generate mentoring and structured feedback mechanisms that are explicitly aligned with AL practices. To foster learning and autonomy, regular performance reviews with AL and conflict resolution practices supported by AL should be encouraged.

Drawing on existing literature, enhancing psychological safety and resilience among employees can be implemented through set of structured organizational practices. As psychological safety prioritizes leadership behaviors that encourage voice, correction of mistakes and reduce work-related risks, AL can be uniquely positioned to support this safety by combining openness with new ideas and inclusiveness of employees to decision-making processes. These exploration-oriented behaviors can support psychological safety of employees. Moreover, exploitation-oriented behaviors such as consistent feedback, role-clarity or fairness in decision-making can enable employees to express their concerns without fear of social exclusion. Thus, the balance of AL behaviors can trigger simultaneous feeling of stability and predictability that shapes psychological safety. In result, employee inclusivity can be enhanced where workplace ostracism can be diminished.

Nonetheless, resilience develops through experience of manageable challenges reinforced by emotional and cognitive resources (Rasheed, Saleem & Mahmood, 2016). From AL perspective, resilience can be fostered by encouraging flexibility and creativity as exploration behaviors provide. Whereas exploitation behaviors reinforce resilience with supportive feedback, clear work-roles and structural management practices. In other words, the balance of AL attitudes can enhance employees' psychological state, enabling employees to acknowledge workplace challenges more constructively. Consequently, organizations should insert AL practices to organizational processes which strengthen psychological safety and resilience that create inclusive work environments and mitigate ostracism feelings.

These findings extend existing literature by empirically validating the function of psychological well-being as an explanatory pathway in the leadership–ostracism relationship. While prior studies have conceptually suggested that leadership influences employee well-being and social experiences, empirical evidence integrating ambidextrous leadership, psychological well-being, and workplace ostracism has remained limited. By demonstrating this mediating pathway, the present research enhances our nuanced comprehension of the manner in which leadership behaviors affect not only performance-related outcomes but also employees' psychological and social functioning.

Overall, the discussion of findings suggests that reducing workplace ostracism requires more than formal policies or procedural interventions. Leadership behaviors that simultaneously support adaptability and

stability play a central role in shaping employees' psychological states and social perceptions. By enhancing psychological well-being, ambidextrous leaders indirectly mitigate exclusionary experiences and contribute to healthier, more inclusive organizational climates.

### Conclusion

This study concludes that ambidextrous leadership is a critical factor in reducing workplace ostracism, both directly and indirectly through psychological well-being. By balancing exploration and exploitation behaviors, ambidextrous leaders foster inclusive and adaptive work environments that support employees' psychological resources. In sum, the findings draw attention to the cruciality of leadership approaches that simultaneously promote flexibility, stability, and employee well-being in contemporary organizations.

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## **The Role of Grammarly in Saudi EFL Writing: Students' Perceptions of Its Effectiveness, Efficiency, and Overreliance**

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The rapid adoption of AI writing assistants such as Grammarly in education has influenced how English language learners approach writing tasks. By providing automated feedback on linguistic errors, including mechanics (spelling, punctuation, and capitalization), grammar, and style, these tools may help learners improve writing accuracy, reduce cognitive load, and write more efficiently. However, excessive reliance on such tools is a cause for concern. This study investigated Saudi male preparatory-year EFL students' perceptions of Grammarly at Prince Sattam bin Abdulaziz University (n = 61). A validated questionnaire was used in a cross-sectional design to collect data on perceived effectiveness in correcting writing mechanics (spelling, capitalization, and punctuation), perceived efficiency, limitations, and overreliance. The findings indicated that most students perceived Grammarly as useful in correcting writing mechanics, particularly spelling (85.2%), capitalization (78.7%), and punctuation (68.9%). In addition, 68.8% of students agreed that Grammarly saved time and effort. Responses regarding overreliance were mixed: 37.7% indicated high overreliance on Grammarly, whereas 62.3% reported low/no overreliance. Spearman's rho showed no significant association between perceived usefulness and overreliance ( $\rho = .105$ ,  $p = .419$ ). These findings suggest that Grammarly can be integrated into EFL writing instruction as a scaffold to support writing mechanics, provided that its use is guided in ways that also promote critical engagement and learner autonomy.

**Keywords:** artificial intelligence (AI) writing assistants; grammarly; Saudi EFL writing; writing mechanics; overreliance; learner autonomy; EFL writing instruction

The recent rise of artificial intelligence (AI) has had a significant impact on various aspects of life, including foreign language instruction. AI-powered writing assistants, such as Grammarly, have transformed traditional writing practices. For example, Grammarly can help users generate ideas, develop them into coherent content, and identify errors by providing instant feedback on critical aspects of writing, including spelling, capitalization, and punctuation. Studies support its efficacy. Yawiloeng (2025) and Mohd Sham et al. (2025) demonstrated that Grammarly improved grammatical accuracy and writing fluency. Similarly, Estrella (2025) and Ghufroon and Rosyida (2018) highlighted

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Grammarly's role in fostering greater independence and efficiency in writing. Collectively, these findings suggest that Grammarly has played an important role in shaping how English as a Foreign Language (EFL) learners develop writing skills.

In the context of Saudi Arabian education, which is undergoing rapid modernization, tools like Grammarly hold significant promise and occupy a unique niche. Preparatory-year university students, who are predominantly Gen Z (aged 17–22) and highly tech-savvy, increasingly rely on AI tools to enhance their writing skills (Ozfidan et al., 2024). Grammarly, in particular, has been recognized for helping Saudi students and other non-native speakers address limitations in language proficiency (Khan et al., 2024). However, the successful implementation of educational technology depends not only on its technical efficiency but also on how users perceive it (Nasim et al., 2024). Understanding whether students view Grammarly as a valuable scaffold for learning or merely as a convenient crutch is critical to evaluating its overall impact on the educational landscape.

Studies indicate that English as a Foreign Language (EFL) students face notable challenges in writing, especially with mechanics such as spelling, punctuation, and capitalization (Nasim & Mujeeba, 2024). Additionally, presenting and understanding ideas clearly poses significant difficulties for many learners. Recent Saudi-context research also suggests that students' perceptions of writing problems do not always fully align with their actual written performance (Ishtiaq et al., 2025). While tools like Grammarly have become popular for addressing such issues, their focus is primarily on achieving mechanical accuracy rather than improving argumentation or coherence (Muhammad, 2024; Resiana et al., 2024). Existing literature consistently highlights the technical effectiveness of Grammarly in correcting errors (Fitria & Sabarun, 2022; Fitria, 2023; Hoang & Van, 2025; Huang et al., 2020). However, there has been little focus on understanding students' perceptions of Grammarly's effectiveness, efficiency, limitations, and the risks of overreliance, particularly in the context of Saudi Arabian preparatory-year EFL programs.

This study addresses that gap by examining Saudi preparatory-year EFL students' perceptions of Grammarly in relation to four connected areas: its effectiveness in correcting writing mechanics, its efficiency in saving time and effort, its perceived limitations in fully correcting errors, and students' possible overreliance on the tool. It also investigates whether perceived usefulness is significantly related to perceived overreliance. By adopting this user-centered and context-specific approach, the study aims to provide a more precise understanding of Grammarly's role in Saudi EFL writing and to offer evidence that can inform pedagogy, instructional design, and responsible integration of AI-assisted writing support.

The following research questions guide the present study:

- RQ1.** To what extent do preparatory-year Saudi EFL students perceive Grammarly as effective in correcting writing mechanics (spelling, capitalization, and punctuation)?
- RQ2.** What are students' perceptions of Grammarly's efficiency in saving time and effort and its limitations in fully correcting writing errors?
- RQ3.** To what extent do students perceive their overreliance on Grammarly when correcting writing errors in writing mechanics?
- RQ4.** Is there a statistically significant relationship between students' perceptions of Grammarly's usefulness (mechanics correction and efficiency) and their perceived overreliance on Grammarly?

By addressing these research questions, this study aims to provide a more detailed perspective on the role of Grammarly in the Saudi EFL context and to inform pedagogical practice and policy.

## **Literature Review**

### **The Efficacy of Grammarly in Error Correction**

EFL education is increasingly influenced by the accelerated adoption of AI. The technical effectiveness of AI writing assistants such as Grammarly in detecting and correcting major and minor EFL writing errors has been reported in previous studies. Hoang and Van (2025) and Fitria (2023) assert that Grammarly accurately identifies capitalization, spelling, punctuation, and grammar errors. In other words, students who used Grammarly not only made fewer errors in writing mechanics but also achieved better writing outcomes, showing improvements in general writing proficiency and suggesting that iterative interaction with AI feedback could lead to broader linguistic growth (Estrella, 2025; Resiana et al., 2024; Martinez-Carrasco & Chabert, 2023).

Similarly, Wahyu and Zur (2023) Resiana et al., (2024) demonstrated that Grammarly contributed to improving various aspects of writing, such as grammar, spelling, punctuation, and overall readability. In line with this result, Dizon and Gayed (2021) emphasized the idea that Grammarly helps L2 learners write grammatically correct texts that facilitate effective communication in a second language (L2). Additionally, Dewi (2023) found that Grammarly offered clear and easy-to-understand feedback and saved time for learners when assessing grammar, verb use, word order, passive phrases, and impersonal constructions. This suggests that Grammarly may be a useful tool in developing basic writing skills among preparatory-year students who are learning the fundamentals of academic writing.

### **Learner Perceptions: Affordances, Challenges, and Nuanced Realities**

The literature presents not only quantitative indicators of effectiveness but also a complex landscape of learner perceptions. Learners reported the affective advantages of AI-based feedback, such as less frustration and more confidence, because the immediacy of AI-based feedback eases the cognitive burden of the writing process (Mekheimer, 2025; Bahing et al., 2025; Lai, 2025; Resiana et al., 2024). Furthermore, perceived time efficiency is another consistently cited advantage, allowing learners to allocate more cognitive resources to higher-order concerns like organization and argumentation (Al Mahmud, 2023; Altamimi, 2025). This suggests that learners may value Grammarly not only for correction itself but also for the way it supports a more manageable and less demanding writing process.

However, recent studies also indicate that while Grammarly is relatively effective in correcting simple mechanics, it may be less effective in addressing more complex or contextual writing errors, particularly in areas that require context-sensitive judgment (Abu Guba et al., 2024). Additionally, concerns about overdependence on automated feedback have also emerged. Researchers caution that this may result in disengagement from the writing process and a gradual sense of deskilling, where learners unconsciously accept corrections without critically analyzing the underlying linguistic principles, which can impede the development of their own autonomous proofreading abilities (Hoang & Van, 2025; Vieriu & Petrea, 2025). This dichotomy—between recognized benefits and risks of reliance—reinforces the notion that learners' perceptions are not a unitary construct but a balance of recognized affordances and acknowledged risks.

### **Contextualizing the Gap: The Saudi EFL Learner**

Although the existing body of research on AI tools like Grammarly offers a valuable framework, its direct relevance and applicability to the Saudi preparatory-year context remain limited. Recent Saudi-context studies also show that punctuation, capitalization, and grammar remain frequent writing problems, and that students' perceptions do not always fully align with their actual writing practices (Nasim & Mujeeba, 2024; Ishtiaq et al., 2025). The adoption of AI and its various forms in the Saudi educational context is shaped by Saudi Vision 2030, yet only a few studies have investigated

the advantages, challenges, and time efficiency of Grammarly specifically within this context and population. Existing studies in other contexts have established the general dimensions of perception, such as advantages and disadvantages, but they have not systematically investigated the interrelationships among efficacy, efficiency, and overuse, nor have they examined students' perceptions in the context of Saudi foundation programs. This research addresses this gap by using a validated instrument to examine these perceptions, thereby providing a more context-specific analysis of Grammarly's role among Saudi students. By synthesizing these themes, this study highlights the need for a perception-driven account of Grammarly's integration, which is important for effective, context-sensitive pedagogical interventions.

## Method

### Research Design

The present study employed a quantitative survey design to examine preparatory-year Saudi EFL students' perceptions of Grammarly's effectiveness, efficiency, limitations, and possible overreliance. The research followed a descriptive-correlational approach to examine both individual dimensions of Grammarly use and the relationships among these dimensions. The study focused on how Saudi EFL students perceive Grammarly as a tool for correcting mechanical errors in writing. A quantitative methodology was considered appropriate because it enabled the systematic analysis of responses related to the use of AI writing assistants.

The methodological framework combined descriptive and inferential statistical methods to answer the research questions while maintaining alignment with the study's overall aim.

### Participants and Sampling

The research was conducted using a census of all accessible preparatory-year male EFL students at Prince Sattam bin Abdulaziz University during the semester of the academic year 2025-26, resulting in a final sample of 61 students. The participants were Saudi EFL students aged 17 to 20 years whose first language was Arabic. All participants were enrolled in the first semester of a Level 1 English language writing course at the time of the study, which ensured consistent foundational exposure to academic writing instruction and Grammarly use.

Participants were included based on the following criteria: enrollment in the preparatory-year English program, use of Grammarly during the academic semester for writing tasks, voluntary participation in the survey, and completion of all questionnaire items. The institution was a public university in Saudi Arabia that enrolled preparatory-year EFL learners with A1-A2 proficiency levels based on the CEFR. Participants were also familiar with digital technologies through prior exposure to educational technology.

### Instrument Development and Validation

The data collection instrument was a structured, closed-ended questionnaire developed for the study. It included three items measuring perceived effectiveness in correcting spelling, capitalization, and punctuation (items 1-3), one item measuring perceived efficiency in saving time and effort (item 4), one item measuring perceived limitations in overall error correction (item 5), and one item measuring perceived overreliance on Grammarly (item 6). The questionnaire used a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

To ensure clarity and relevance, the instrument was reviewed by three EFL experts. Face validity was further examined through pilot testing with 10 students, after which minor revisions were

made based on their feedback. Reliability testing showed satisfactory psychometric properties, with Cronbach's alpha of 0.84 for the effectiveness subscale, which exceeded the acceptable threshold of 0.70. Item-total correlations ranged from 0.54 to 0.72, indicating adequate internal consistency.

### Data Collection Procedure

Data were collected after approval had been obtained from the relevant departmental authorities. All participants were informed about the purpose of the study and were assured that their responses would remain confidential through anonymized data collection and storage procedures. Participation was voluntary, and no penalties were associated with non-participation. The questionnaire was created using Google Forms and distributed to participants via WhatsApp. The researchers kept the survey open for two weeks. Quality-control procedures included data coding, data cleaning, and verification of data accuracy.

### Data Analysis

Data were analyzed using IBM SPSS Statistics 27. The analysis began with screening for missing data and assessment of normality using the Shapiro-Wilk and Kolmogorov-Smirnov tests, along with skewness and kurtosis values. Descriptive and inferential statistical techniques were then used to address the research questions. The data analysis framework is presented in Table 1.

**Table 1**  
*Statistical Analysis Plan by Research Question*

Research Question	Focus	Primary Analytical Methods	Rationale / Key Metrics
<b>RQ1: Effectiveness</b>	Perceived effectiveness across writing mechanics	<ul style="list-style-type: none"> <li>• Descriptive Statistics</li> <li>• Binomial Tests</li> <li>• Friedman Test</li> <li>• Post-hoc Wilcoxon signed-rank tests</li> <li>• Reliability Analysis (Cronbach's <math>\alpha</math>)</li> </ul>	Compare effectiveness percentages with the reference value (50%), test differences across spelling, capitalization, and punctuation, and assess internal consistency of the effectiveness scale.
<b>RQ2: Efficiency &amp; Limitations</b>	Perceptions of time-saving efficiency and perceived limitations	<ul style="list-style-type: none"> <li>• One-sample Wilcoxon signed-rank test</li> <li>• Cross-tabulation with Chi-square &amp; Phi</li> <li>• Descriptive Comparisons</li> </ul>	Test whether efficiency and limitation scores differ from the neutral point and examine the association between perceived efficiency and perceived limitations.
<b>RQ3: Overreliance</b>	Level and distribution of perceived dependency	<ul style="list-style-type: none"> <li>• Distribution Analysis (Skewness, Kurtosis, Percentiles)</li> <li>• One-sample Wilcoxon signed-rank test</li> <li>• Binomial tests</li> <li>• Categorical frequency analysis</li> </ul>	Examine whether overreliance scores differ from the neutral point, test the proportion reporting high overreliance, and describe the distribution of responses.
<b>RQ4: Relationship</b>	Relationship between perceived usefulness and perceived overreliance	<ul style="list-style-type: none"> <li>• Spearman's Rank Correlation (<math>\rho</math>)</li> <li>• Mann-Whitney U Test</li> <li>• Cross-tabulation with Chi-square</li> </ul>	Test the relationship between usefulness and overreliance and compare usefulness scores across overreliance groups.
<b>Overall Statistical Model</b>	Guiding statistical decisions	<ul style="list-style-type: none"> <li>• Tests: Non-parametric tests (Wilcoxon, Friedman, Mann-Whitney U, Spearman's <math>\rho</math>)</li> <li>• Effect Sizes: Kendall's W, Phi, Spearman's <math>\rho</math></li> <li>• Multiple Comparison Control: Bonferroni Correction</li> </ul>	Appropriate for ordinal Likert-scale data and non-normal distributions; provides robust estimates and controls Type I error.

Non-parametric tests were used for all inferential analyses because the data were ordinal and the distributions deviated from normality. Effect sizes were reported for all tests, and Bonferroni-adjusted significance levels were applied where multiple comparisons were conducted.

## Results

The findings are presented according to the four research questions and align with the study's focus on perceived effectiveness, efficiency, limitations, overreliance, and the relationship between usefulness and overreliance.

### RQ1: Perceived Effectiveness in Correcting Writing Mechanics

#### *Reliability and Internal Consistency*

The three effectiveness items demonstrated good internal consistency (Cronbach's  $\alpha = .84$ ), supporting their use as a coherent scale for measuring perceived effectiveness. Inter-item correlations ranged from .538 to .724, and all corrected item-total correlations exceeded .64, indicating strong relationships among the three items.

**Table 2**

*Descriptive Statistics and Distribution of Perceptions and Binomial Test Results for Effectiveness Perceptions in Correcting Writing Mechanics (n=61)*

Mechanics Domain	M	Mdn	SD	SD % (1)	D % (2)	N % (3)	A % (4)	SA % (5)	Not Effective % (1-3)	Effective % (4-5)	Binomial Test p-value
Spelling	4.13	4	0.97	3.3	4.9	6.6	45.9	39.3	14.8	85.2	p < .001
Capitalization	4.08	4	0.99	3.3	3.3	4.8	39.3	39.3	21.3	78.7	p < .001
Punctuation	3.87	4	1.09	4.9	4.9	21.3	36.1	32.8	31.1	68.9	p = .004

Note: Test proportion = 0.50. All tests were two-tailed.

**Table 3**

*Friedman Test and Post-hoc Pairwise Comparisons*

Analysis	Test Statistic	df	p	Effect Size
Friedman Test	$\chi^2 = 6.44$	2	0.04	Kendall's W = 0.053
Pairwise Comparisons	Z	Asymp. Sig.	Adj. Sig.*	
Punctuation vs. Capitalization	-1.583	0.113	0.773	
Punctuation vs. Spelling	-2.514	0.012	0.339	
Capitalization vs. Spelling	-0.544	0.586	1	

Note: Significant at  $p < .05$  before Bonferroni correction; not significant after adjustment ( $p > .0167$ )

One-sample binomial tests (see Table 2) showed that a significantly greater proportion of students perceived Grammarly as effective across all three areas of writing mechanics: spelling (85.2% vs. 14.8%,  $p < .001$ ), capitalization (78.7% vs. 21.3%,  $p < .001$ ), and punctuation (68.9% vs. 31.1%,  $p = .004$ ). These results indicate generally positive perceptions of Grammarly's effectiveness in correcting writing mechanics among preparatory-year Saudi EFL students.

A Friedman test (see Table 3) indicated a statistically significant overall difference in perceived effectiveness across spelling, capitalization, and punctuation,  $\chi^2 (2) = 6.44$ ,  $p = .040$ . However, the effect size was very small (Kendall's  $W = 0.053$ ). Post-hoc pairwise comparisons with Bonferroni adjustment showed that none of the individual comparisons remained statistically significant after correction.

The identical medians across the three items (Mdn = 4.00) and the negative skewness values for all items suggest that students' perceptions were generally favorable across spelling, capitalization, and punctuation, although punctuation received slightly lower ratings than the other two areas. Overall, these findings suggest that students perceived Grammarly as most effective for spelling, followed closely by capitalization, while still viewing it positively for punctuation.

### RQ2: Perceptions of Grammarly's Efficiency and Limitations

This section examines students' perceptions of Grammarly's efficiency in saving time and effort and its limitations in fully correcting writing errors. As shown in Table 4, students reported positive perceptions of Grammarly's efficiency, whereas their views on its limitations were more mixed.

**Table 4**

*Descriptive Statistics for Efficiency and Limitations Perceptions and One-Sample Wilcoxon Signed-Rank Tests Against Neutral Point (3) (n=61)*

Variable	M	Mdn	SD	Distribution of Responses (%)	Test Statistic	Standardized Test Statistic	p-value	Decision
Efficiency (Item 4)	4.03	4	0.95	1.6% (SD), 1.6% (D), 27.9% (N), 29.5% (A), 39.3% (SA)	948	5.463	< .001	Reject null hypothesis
Limitations (Item 5)	3.08	3	1.13	11.5% (SD), 14.8% (D), 37.7% (N), 26.2% (A), 9.8% (SA)	400	0.446	0.656	Retain null hypothesis

**Table 5**

*Association Between Efficiency and Perceived Limitations*

Analysis	$\chi^2$	p	Phi	Interpretation
Efficiency × Limitations	0.241	0.624	0.063	No significant association

The one-sample Wilcoxon signed-rank test (see Table 4) indicated that students' ratings of Grammarly's efficiency were significantly above the neutral point (Test Statistic = 948.000, Standardized Test Statistic = 5.463,  $p < .001$ ). The mean rating was 4.03, and 68.8% of students agreed or strongly agreed that Grammarly saved time and effort. This finding suggests that students generally perceived Grammarly as efficient in supporting writing tasks.

In contrast, perceptions of Grammarly's limitations did not differ significantly from the neutral point (Test Statistic = 400.000, Standardized Test Statistic = 0.446,  $p = .656$ ). The mean rating was 3.08, with 37.7% of students selecting the neutral option, 26.3% disagreeing or strongly disagreeing, and 36.0% agreeing or strongly agreeing. This pattern indicates mixed views regarding Grammarly's ability to fully correct writing errors and suggests that no clear consensus emerged on this issue.

### Relationship Between Efficiency and Perceived Limitations

Cross-tabulation analysis of binarized efficiency and limitations variables revealed no significant association between perceptions of Grammarly's efficiency and perceptions of its limitations,  $\chi^2(1) = 0.241$ ,  $p = .624$ ,  $\Phi = .063$ . The small effect size indicates that students who perceived Grammarly as highly efficient were not significantly more or less likely to perceive limitations (see Table 5).

The crosstabulation further showed that among students who perceived high efficiency (68.9% of the sample), 38.1% also agreed that Grammarly had limitations, whereas among those who perceived lower efficiency (31.1% of the sample), 31.6% reported such limitations. This pattern suggests that perceptions of limitations were not significantly associated with perceptions of efficiency.

Overall, these findings suggest that while Saudi EFL students valued Grammarly's time-saving benefits, they held mixed views about its limitations. In other words, perceiving Grammarly as efficient did not necessarily correspond to stronger or weaker perceptions of its limitations.

### RQ3: Perceived Overreliance on Grammarly

This section examined the extent to which preparatory-year Saudi EFL students perceived themselves as overreliant on Grammarly when correcting mechanical writing errors. Overall, the findings indicate mixed perceptions, with some evidence of overreliance but no clear majority endorsing high dependence on the tool.

**Table 6**  
*Descriptive Statistics for Perceived Overreliance*

Statistic	Value	Interpretation
Mean	3.31	Slightly above neutral
Median	3.00	Neutral point
Standard Deviation	1.07	Moderate variability
Skewness	0.092	Approximately symmetric distribution
Response Distribution	3.3% SD, 18.0% D, 41.0% N, 19.7% A, 18.0% SA	Mixed responses

As shown in Table 6, descriptive statistics indicated a mean overreliance score of 3.31, a median of 3.00, and a standard deviation of 1.07. The response distribution further showed that the largest category was neutral (41.0%), followed by agree (19.7%) and strongly agree (18.0%), whereas 18.0% disagreed and 3.3% strongly disagreed. The skewness value (0.092) suggests that the distribution was approximately symmetric, indicating that responses were mixed rather than concentrated at the high end of the scale.

**Table 7**  
*Inferential Results for Perceived Overreliance*

Analysis	Result	<i>p</i>	Interpretation
One-sample Wilcoxon signed-rank test	$T = 474.00, Z = 2.30$	.021	Significant difference from neutral point
Binomial test (High Overreliance vs. Low/No Overreliance)	37.7% high overreliance vs. 62.3% low/no overreliance	.072	No significant majority reporting high overreliance

*Note.* Low/No Overreliance = responses 1 to 3; High Overreliance = responses 4 to 5.

As presented in Table 7, a one-sample Wilcoxon signed-rank test indicated a statistically significant difference from the neutral point,  $T = 474.00, Z = 2.30, p = .021$ . However, this result should be interpreted alongside the descriptive pattern in Table 6, in which the median remained exactly at the neutral point and neutral responses constituted the largest single category.

To provide additional clarity, responses were re-coded into two categories: Low/No Overreliance (responses 1 to 3) and High Overreliance (responses 4 to 5). As shown in Table 7, 62.3% of students fell into the Low/No Overreliance category, whereas 37.7% fell into the High Overreliance category. The binomial test indicated that the proportion reporting high overreliance did not differ significantly from the reference proportion of .50,  $p = .072$ . Taken together, the results in Tables 6 and 7 suggest that students' perceptions of overreliance on Grammarly were mixed and that the overall pattern does not indicate a clear majority endorsing high dependence.

### RQ4: Relationship Between Perceived Usefulness and Overreliance

This section examined whether students' perceived usefulness of Grammarly was significantly related to their perceived overreliance on the tool. Overall, the findings showed no statistically significant relationship between these two variables.

**Table 8**

*Descriptive Statistics for Usefulness and Overreliance Variables and Correlation Analysis Between Them (n=61)*

Variable	M	Mdn	SD	IQR	95% CI	Correlation Coefficient	p	Interpretation
Perceived usefulness composite (mechanics + efficiency)	4.03	4	0.83	1	[3.82, 4.24]	Spearman's rho = .105	0.419	Small, non-significant relationship
Overreliance	3.31	3	1.07	1	[3.04, 3.59]	—	—	—

As shown in Table 8, students reported generally high perceptions of Grammarly's usefulness ( $M = 4.03$ ,  $SD = 0.83$ ), whereas perceptions of overreliance were more moderate ( $M = 3.31$ ,  $SD = 1.07$ ). Spearman's rank-order correlation revealed a small, non-significant positive relationship between perceived usefulness and overreliance,  $\rho = .105$ ,  $p = .419$ . This suggests that students who perceived Grammarly as more useful were only slightly more likely to report higher overreliance, but this tendency was not statistically significant.

**Table 9**

*Group Comparison: Usefulness by Overreliance Category*

Overreliance Group	n	Mean Usefulness	Median Usefulness	Standard Deviation
Low/No Overreliance	38	3.95	4	0.87
High Overreliance	23	4.15	4.25	0.77
Total	61	4.03	4	0.83

Note. Mann-Whitney  $U = 366.00$ ,  $Z = -1.07$ ,  $p = .285$ ,  $r = .14$ . The effect size was calculated as  $r = Z / \sqrt{N}$ .

As presented in Table 9, students in the High Overreliance group reported slightly higher usefulness scores ( $M = 4.15$ ,  $SD = 0.77$ ) than those in the Low/No Overreliance group ( $M = 3.95$ ,  $SD = 0.87$ ). However, a Mann-Whitney  $U$  test showed that this difference was not statistically significant,  $U = 366.00$ ,  $Z = -1.07$ ,  $p = .285$ ,  $r = .14$ .

A supplementary cross-tabulation of categorized usefulness levels by overreliance group also showed no significant association,  $\chi^2(2) = 2.052$ ,  $p = .358$ ,  $\Phi = .183$ . Although students in the High Overreliance group were somewhat more represented in the high-usefulness category (52.2% vs. 42.1%), and students in the Low/No Overreliance group were more represented in the low-usefulness category (28.9% vs. 13.0%), these differences did not reach statistical significance.

Taken together, the results in Tables 8 and 9 suggest that, in this sample, students' perceived usefulness of Grammarly was not significantly associated with their perceived overreliance.

## Discussion

This study examined Saudi preparatory-year EFL students' perceptions of Grammarly's effectiveness in correcting writing mechanics, its efficiency, its limitations, possible overreliance, and the relationship between perceived usefulness and overreliance. Overall, the findings suggest that students viewed Grammarly positively as a support tool for mechanical accuracy and writing efficiency, while also reporting mixed views about its limitations and the extent to which they relied on it. These results position Grammarly as a useful aid in EFL writing, but not as a substitute for learner judgment or teacher guidance.

### **Effectiveness of Grammarly in Correcting Writing Mechanics**

The findings for RQ1 indicate that students generally perceived Grammarly as effective in correcting writing mechanics, especially spelling and capitalization. This pattern is consistent with previous research showing that Grammarly performs well in identifying and correcting surface-level errors such as spelling, capitalization, punctuation, and grammar (Fitria, 2023; Hoang & Van, 2025; Huang et al., 2020). It is also in line with studies suggesting that Grammarly can contribute to broader improvement in writing quality and accuracy through iterative engagement with automated feedback (Estrella, 2025; Resiana et al., 2024; Martinez-Carrasco & Chabert, 2023). The strong endorsement of spelling and capitalization in the present study suggests that students saw Grammarly as particularly useful for more rule-governed aspects of writing, which are often challenging for EFL learners. This is especially relevant in the Saudi EFL context, where writing mechanics remain a persistent source of difficulty. Nasim and Mujeeba (2024) report that Arab EFL learners commonly struggle with spelling, punctuation, and capitalization, while Ishtiaq et al., (2025) similarly found that punctuation, capitalization, and grammar were among the most common difficulties in Saudi learners' actual written performance.

Punctuation was also viewed positively, but it received slightly lower ratings than spelling and capitalization. This difference should be interpreted cautiously because the overall Friedman effect was very small and the post-hoc comparisons were not significant after Bonferroni adjustment. Still, the direction of the findings suggests that students perceived Grammarly as somewhat less dependable for punctuation than for the other two mechanics domains. This interpretation is consistent with Abu Guba et al., (2024) who argued that Grammarly may be less effective in addressing more context-dependent writing issues than simpler mechanical errors. It also resonates with Saudi and Arab EFL studies showing that punctuation remains a particularly problematic area for learners. Nasim and Mujeeba (2024) found that students and instructors did not fully agree on which mechanics errors were most serious, with students emphasizing spelling and instructors emphasizing punctuation, while Ishtiaq et al., (2025) found that punctuation errors were among the most prominent problems in Saudi learners' writing. Taken together, these converging findings support the conclusion that Grammarly is especially useful for rule-based correction, but somewhat less dependable where contextual judgment is more heavily involved.

Overall, the RQ1 findings support the view that Grammarly is most useful as a tool for mechanical support rather than as a replacement for human judgment in broader aspects of writing such as coherence, argumentation, and style (Muhammad, 2024; Resiana et al., 2024).

### **Efficiency and Perceived Limitations**

The findings for RQ2 show that students clearly perceived Grammarly as efficient in saving time and effort. This result is consistent with previous studies that identify time efficiency as one of the most frequently reported benefits of AI-based writing feedback (Al Mahmud, 2023; Altamimi, 2025; Yang, 2018). In practical terms, this suggests that students viewed Grammarly as useful for reducing the burden of lower-level editing tasks, thereby allowing greater attention to idea development and text organization. This interpretation is also compatible with earlier studies showing that learners often value Grammarly for its convenience, clarity of feedback, and support for a more manageable writing process (Dizon & Gayed, 2021; Dewi, 2023).

At the same time, students' views about Grammarly's limitations were mixed. The non-significant Wilcoxon result indicates that there was no strong consensus about whether Grammarly fully corrects writing errors. This is an important result because it suggests that students were not simply idealizing the tool. Instead, they appeared to value its usefulness while remaining uncertain about its completeness. The non-significant association between efficiency and perceived limitations

further strengthens this interpretation. Students who viewed Grammarly as efficient were not significantly more or less likely to perceive limitations. In other words, perceiving Grammarly as helpful for saving time did not prevent students from also recognizing that it may not fully resolve all writing problems.

This interpretation fits well with the broader Saudi and Arab EFL writing literature. Nasim and Mujeeba (2024) emphasize that understanding learners' and instructors' perceptions of mechanics is important for targeted instructional design, while Ishtiaq et al., (2025) report that Saudi learners' views about their writing problems do not always align neatly with their actual writing practices. Together, these studies support the idea that learners can hold layered and even partially conflicting views about writing support tools. This point is also consistent with Nasim et al., (2024), who argue that pedagogical perspectives influence learning, development, and implementation. The present findings therefore suggest that Grammarly's efficiency and its limitations should be treated as coexisting perceptions rather than mutually exclusive positions.

### **Perceived Overreliance on Grammarly**

The findings for RQ3 indicate mixed perceptions of overreliance. Although the one-sample Wilcoxon test suggested a statistically significant difference from the neutral point, the descriptive pattern remained more cautious: the median was exactly neutral, the neutral category was the largest single response, and the binomial test showed no significant majority reporting high overreliance. Taken together, these results suggest that some students perceived themselves as relying heavily on Grammarly, but that high overreliance was not the dominant pattern in the sample.

This more cautious interpretation still fits the broader literature warning that AI tools can create dependence if used uncritically (Hoang & Van, 2025; Vieriu & Petrea, 2025), but it also suggests that such dependence should not be assumed to characterize most learners in this context. In the present study, Grammarly appears to function as a scaffold for many students, while still presenting a possible reliance risk for a smaller group. This point becomes more meaningful when read alongside the local writing context reflected in Saudi and Arab studies. Both Nasim and Mujeeba (2024) and Ishtiaq et al., (2025) show that mechanics remain a real source of difficulty for learners, especially in punctuation, capitalization, and spelling. In a context where learners continue to struggle with these areas, some degree of reliance on AI-assisted correction is unsurprising. The important point, however, is that the current data do not support the claim that most students had become highly dependent on Grammarly.

The present interpretation also supports the view that overdependence should be treated as a possible risk rather than as an outcome that can be presumed. Studies such as Hoang and Van (2025) and Vieriu and Petrea (2025) caution against uncritical acceptance of automated feedback because it may reduce active engagement with the writing process and weaken proofreading autonomy. The current findings support that concern in a limited way, but they do not justify the stronger claim that overreliance was widespread in this sample.

### **Relationship Between Perceived Usefulness and Overreliance**

The findings for RQ4 showed no statistically significant relationship between perceived usefulness and overreliance. The Spearman correlation was small and non-significant, and the Mann-Whitney group comparison and supplementary cross-tabulation also failed to show significant differences. This means that students who viewed Grammarly as more useful were not significantly more likely to report higher overreliance. This is an important finding because it suggests that positive perceptions of usefulness do not automatically translate into problematic dependence. In this sample, students rated Grammarly highly for usefulness, yet this did not correspond to a significant increase in perceived overreliance.

The RQ4 findings support the view that usefulness and overdependence should not be treated as identical constructs. The safest conclusion is that the relationship appears weak and non-significant in this dataset rather than entirely absent. This interpretation is also consistent with research suggesting that learners' reliance on AI tools is shaped by multiple factors, including self-regulation, metacognitive awareness, digital literacy, and instructional context, rather than by perceived usefulness alone (Rafida et al., 2024; Vieriu & Petrea, 2025; Lai, 2025). In this sense, the present results contribute to a more differentiated understanding of Grammarly use in EFL writing: students may recognize the tool's utility without necessarily becoming overly dependent on it.

### **Theoretical and Practical Implications**

Theoretically, the findings suggest that perceived usefulness and perceived overreliance should be treated as related but distinct constructs in studies of educational technology. In this study, students rated Grammarly highly for usefulness, yet this did not correspond to a significant increase in perceived overreliance. This implies that models of AI tool use in educational settings may benefit from incorporating learner agency, critical digital literacy, and instructional scaffolding alongside more traditional acceptance variables. In this respect, the findings are compatible with broader arguments in the AI-feedback literature that learner experience, confidence, and resilience mediate how automated support affects writing development (Lai, 2025; Mekheimer, 2025).

Practically, the findings support the guided integration of Grammarly in EFL writing instruction. Grammarly can be positioned as a support tool for final-stage editing of mechanical errors rather than as a replacement for drafting and idea development. Instructors can also use the tool's limitations, especially in areas such as punctuation and contextual correction, as opportunities to encourage students to evaluate suggestions rather than accept them automatically. This is especially important because metacognitive awareness supports language learning development and helps learners regulate, monitor, and reflect on their own learning processes (Mohd Nasim, 2022). In addition, because students reported mixed perceptions of overreliance, teachers should monitor use patterns and encourage balanced engagement with AI-based writing support rather than assuming either complete dependence or complete autonomy.

Nasim and Mujeeba (2024) emphasize that understanding perceptions of mechanics can help instructors design more targeted support, while Ishtiaq et al. (2025) highlight the role of practice, feedback, and reading habits in improving writing performance. Nasim et al., (2024) further underline the importance of pedagogical perspectives in shaping implementation and learning outcomes. Together, these studies support a pedagogy in which Grammarly is integrated as one tool within a broader writing-development process rather than treated as the main driver of improvement. This is also compatible with Saudi preparatory-year evidence showing that instructional practices, learning environments, and materials are more effective when they are aligned with students' preferred ways of learning (Nasim & Mujeeba, 2021). This also aligns with research emphasizing learner autonomy and guided support in AI-mediated writing contexts (Estrella, 2025; Ghufroon & Rosyida, 2018).

### **Limitations**

This study has several limitations. First, the sample was drawn from a single Saudi public university and included only preparatory-year male EFL students, which limits the generalizability of the findings to other institutions, proficiency levels, and learner groups. Second, the study relied on self-report questionnaire data, which reflect students' perceptions rather than their actual writing performance or actual Grammarly use. Third, the cross-sectional design does not permit causal interpretation. Finally, although the sample size was adequate for the analyses conducted, it may have limited the detection of smaller effects, particularly in the relationship analyses. These limitations

suggest that the findings should be interpreted as context-specific evidence about perceptions rather than as broad claims about the impact of Grammarly on EFL writing.

Future research could strengthen this line of inquiry by combining perception data with actual writing samples, revision behavior, or classroom observation. It would also be useful to include female learners, students from multiple institutions, and broader proficiency ranges to examine whether perceptions of Grammarly differ across learner groups. Mixed-methods or longitudinal designs could also help clarify how perceptions of usefulness, limitations, and overreliance evolve over time.

### Conclusion

In conclusion, this study suggests that preparatory-year Saudi EFL students generally viewed Grammarly as a useful tool for correcting writing mechanics and improving writing efficiency. At the same time, their perceptions of the tool's limitations and their own overreliance were more mixed. The findings also showed that perceived usefulness was not significantly associated with perceived overreliance in this sample. Taken together, these results support the use of Grammarly as a pedagogical scaffold in EFL writing instruction, provided that its use is accompanied by guidance that encourages critical evaluation, balanced use, and continued development of learner autonomy.

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## Emerging Trends in Sportswomen's Visual Representation in Pakistani Newspapers

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In Pakistan, women's sports face significant marginalization, as the realm of athletics is predominantly viewed as a male domain, relegating women to the status of unwelcome participants. As a result, women face restrictions in engaging in sports, stemming from societal and cultural limitations that render their participation a source of social stigma. This study aims to explore the sociological ramifications of the diverse reporting strategies employed by sports journalists in their coverage of women's sporting events in the *Dawn* and *The Nation* newspapers. Dyer's semiotic model provides the theoretical framework for the analysis conducted in this study regarding the visual representation of sportswomen in selected Pakistani newspapers. The data consists of thirty one pictures analyzed under five themes. The research has revealed that by highlighting the athletic prowess of sportswomen, both newspapers have effectively contested traditional feminine norms and stereotypes. The cultural and social assumptions have been critically examined and contested by Pakistani newspapers through the commendable representation of sportswomen. The research advocates for the cultivation of a sports media environment that accurately depicts the professional journeys of sportswomen, which could significantly contribute to reshaping societal views on women's sports.

**Keywords:** women's sports, visual representation, conventional femininity, subversion

In the course of human history, sports have served a multitude of purposes, ranging from providing entertainment to the masses to honing martial abilities. Engaging in sports enhances physical well-being, fosters social interactions, and elevates self-worth, alongside a myriad of other social, physical, and psychological advantages. Historically, sports have been predominantly associated with men, while women have often been regarded as outsiders within the sporting arena (Karthika & Nair, 2018). In cultures where female responsibilities are primarily limited to the private sphere and where public participation is restricted, engagement in sports can serve to challenge these limitations and facilitate the assumption of new roles for women within their communities (Huggins & Randell, 2007). But transgressing such boundaries is the biggest challenge for such women. Apart from its positive outcomes, sports had been a platform for disruptive behaviors including racism, violence, homophobia and gender bias. In the contemporary era of globalization, gender equality is widely recognized as being important for the emancipation of society. Women have gained authority and power in multiple spheres such as public and political arenas. Since the obstacles that formerly kept them from engaging in fields that were considered to be the domain of males have been removed, they now have greater opportunities for advancement. However, unequal treatment of women continues to exist in a number of areas, including social, economic, and academic life. Inaccurate media representations of women, men's domination in senior positions, and women's lower pay than males are all examples of ongoing inequality. Women's participation in sports has increased dramatically over the years yet they are still not given same treatment by media as their male counterparts receive. They are still represented in traditional ways as objects of beauty as focus is laid upon their appearance, looks, clothes, and their personal lives. The way that women are portrayed in the media also reflects cultural preconceptions that are notably inaccurate, leading to the diminishing of female athletes' achievements. There is institutionalized

oppression which is more covert, sneaky oppression rooted in ideology rather than overt discrimination, which adds to women's ongoing under representation (Scraton & Flintoff, 2013). The under representation of women in sports news implies that their contributions and participation is deemed insignificant and trivial. Newspaper media serves as a significant institution that reflects, reinforces, and perpetuates the culture, politics, and specific social environment in which it functions. The significance for a linguist lies in determining the degree and scope of its insights regarding its contributions to societal character (Khan & Ihsan, 2017). Given the significance of mass media in the spread and propagation of particular ideologies and discourses, the current study has made an effort to investigate the gendered discourses disseminated by the selected Pakistani newspapers.

### **Rationale of the Study**

According to earlier researches reviewed in this study, it is observed that sportswomen are either underrepresented or misrepresented since their private lives and beauty are highlighted; and they are perceived as less athletic by not focusing on their competence, skill and expertise which must be evaluated to judge their professional value. The growing involvement of women in sports suggests an anticipated improvement in their representation in media, reflecting the societal transformation occurring in the 21st century. Given how important the media is in influencing public opinion, it is fascinating to see how gender is portrayed in newspaper's sports sections particularly in pictures and the kind of discourses they promote, as they have broad national and global ramifications. A deeper analysis of sports journalism's discursive practices uncovers the social beliefs that underlie all forms of injustice and inequality. These discourse practices serve ideological goals and because of its enormous influence on public opinion, journalistic writing is a crucial genre to research. Sports coverage is greatly influenced by social ideas, so it's important to look closely at it to uncover any hidden biases or beliefs. For this purpose the current study has been conducted to analyze the quality of visual portrayal of sportswomen in Pakistani newspapers.

### **Research Objectives**

The study is guided by the following objectives:

1. To analyze how and in what ways sportswomen have been represented/projected in pictures of the selected Pakistani newspapers.
2. To find out whether, how far, and in what ways the traditional concept of femininity has been reinforced or challenged in the images of sportswomen in the selected Pakistani newspapers.

### **Research Questions**

Q.1- How and in what ways sportswomen have been projected in pictures of selected Pakistani newspapers?

Q.2- How far and in what ways the traditional notion of femininity has been reinforced or challenged in images of sportswomen in the selected Pakistani newspapers?

### **Method**

This study conducted a qualitative analysis of sports images featuring sportswomen in Pakistani newspapers *The Nation* and the *Dawn*, two leading English-language newspapers in Pakistan, provide the sports sections from which data was collected from their websites; Urdu dailies were excluded from this analysis. The selection of these two newspapers as a representative sample was based on their status as the most extensively read and distributed English newspapers in the country in the year 2019 when the current research was planned and designed. The readership of *Dawn* was 524, 953 per week, and the daily circulation of *The Nation* was 142000 according to the report of Pakistan Media Landscape (2022). The sports sections of both newspapers encompass leading stories, headlines, reviews, and analyses of sporting events in Pakistan and globally. This paper has been extracted from a PhD research for which the data had been collected from alternate days over a span of three years from 2017 to 2019, focusing mainly on major sports events. Due to the limited scope of this study, it was not possible to include all images (150 images) in this paper; a representative sample had been created by analyzing thirty one images for the year 2019 only. The images were divided into two categories namely: traditional portrayal of sportswomen and sporty portrayal of sportswomen. Since the present study is concerned with sporty representation of sportswomen only, the representative data has been selected only from the data of representation of sporty women. There

were ninety five (95) images under the category of sporty representation of sportswomen out of which thirty one (31) images had been selected to create a representative sample. The images of the sporty representation of sportswomen were subcategorized into five themes. These images had been selected due to their greater visibility (high frequency), popular sports (cricket, gymnastics, and tennis), and prominent placement (large size of images, central position on the page). The data had been analyzed under five themes which were the most recurrent themes in the picture bank. The themes had been derived deductively based on their recurrence in the picture bank. The analysis of pictures had been carried out according to Dyer's semiotic model (1982) and which involves both denotative and connotative analysis of images. The analysis exclusively examined photos, while captions were omitted due to their absence in *The Nation* newspapers. To maintain uniformity and consistency across the selected newspapers, only photos had been examined. Furthermore due to the limited scope of the research, it was not possible to cross examine the textual data or the headlines accompanying the images. In the current research the denotative analysis focuses on appearance, manner and activity; while connotative analysis reveals the hidden gender ideology that various signs and symbols support by examining the contextual, cultural, and social implications that signs carry in the Pakistani society. The connotative analysis reveals the broader sociocultural ideologies and discourses embedded in the images of sportswomen.

### **Significance of the Study**

Given how important the media is in influencing public opinion, the current study has attempted to investigate the projection of sportswomen in the images of selected Pakistani newspapers since it is fascinating to see how gender is portrayed in newspaper's sports sections and the kind of discourses they promote, as they have broad national and global implications. The study challenges the widely held claim that Pakistani media is conservative in its treatment of gender as emphasis is laid upon traditional attributes of men and women. The analysis reveals a new picture of Pakistani media that has shattered all stereotypes and has presented a realistic picture of sportswomen. This new trend in portrayal of sportswomen lays bare the transformation taking place in Pakistani society where women have transgressed all traditional boundaries and have achieved enormous success in all domains of life including sports.

### **Theoretical Framework**

Dyer's semiotic model has been adopted to examine how gender is portrayed in images. The study of the sign systems used to transmit meanings other than spoken words is known as semiotics. Signs and symbols employed in a communication system might have denotation, connotation, and contextual meanings, among other meanings. Distinct signs and symbols have distinct meanings in every country and culture. Both the sender and the recipient of a message must understand the denotative and connotative components of signs in order for communication to occur effectively. Dyer's model examines nonverbal cues through two distinct levels: denotation and connotation. Denotation involves detailing the appearance, actions, and characteristics of the objects and individuals depicted in the image, while connotative analysis explores how specific signs and symbols reinforce and promote an idea or belief by connecting the description to broader societal norms. The first component of denotative analysis is appearance, which conveys age, gender, size, and body structure; the second is manner, which includes facial expressions, eye contact, posture, and attire; and the third is activity, which includes posture, body language, props, and setting. In order to uncover the hidden ideology that various signs and symbols support, connotative analysis entails investigating the cultural, contextual and social meanings that these symbols hold in each society.

### **Literature Review**

Women have historically experienced discrimination and oppression at the hands of institutionalized patriarchal social norms. Consequently, in the 19<sup>th</sup> century organized feminist movements evolved to confront the misogynistic ideology and reforms were made to elevate the status of women. Gender equality has been acknowledged as being just as important to overall human equality in recent years as racial equality. Women in contemporary society are better able to lead independent lives than their predecessors who were unaware of the concept of gender equality, thanks to gender studies. The way gender issues are portrayed in Pakistan conforms to the prevalent sociocultural standards. By portraying women as weak and subservient, media in Pakistan's patriarchal society uphold conventional gender beliefs. It usually conveys

the idea that women are valued for their overall beauty and shape, while men are valued for their intelligence and charisma. The female body is often central to visual representation and has been depicted in numerous ways for various purposes. According to Butler:

The body is not a self-identical or merely factic materiality; it is a materiality that bears meaning, if nothing else, and the manner of this bearing is fundamentally dramatic...the body is not merely matter but a continual and incessant materializing of possibilities. One is not simply a body, but, in some very key sense, one does one's body and, indeed, one does one's body differently from one's contemporaries and from one's embodied predecessors and successors as well (1988, p. 522).

Their bodies are usually fragmented with focus on body dimensions. Women are frequently depicted as jovial and impulsive, while men are frequently shown as solemn and distant (Zia, 2007). In the media, exploitative and disparaging portrayals of women have persisted unchecked due to the absence of a truly gender-sensitive attitude and understanding of women's issues by society (Mansoor, 2013). By depicting women as nothing more than objects of beauty—beautiful without intelligence—gender stereotypes are thus perpetuated; and the objectification of women's bodies serves a capitalist purpose. Women's advancement and better living conditions are hampered by the media because it upholds patriarchal ideologies that restrict opportunities for women. Society's opinion of women is distorted by the emphasis on the female form, and as a result, irrational expectations are created. This makes it harder for societal acceptance of women who are more self-assured and gregarious rather than docile and subservient. Due to the socially formative nature of discourse, the way gender is portrayed in the media reflects broader cultural values and conventions. A number of studies (Mansoor, 2013; Tahseen, 2018 Zia, 2007) conducted on representation of gender in media have come up with similar results. They have all come to the conclusion that the media perpetuates prejudices about women, which restricts their ability to advance socially and economically. Media acts as a barrier to the enhancement of women's living conditions and advancement by perpetuating patriarchal ideologies that constrain women's opportunities. The emphasis on the female body skews societal perceptions of women, leading to the formation of unrealistic expectations stemming from this misrepresentation. As a result, society finds it challenging to accept women as confident and outgoing rather than submissive and obedient. The representation of gender in media mirrors broader cultural values and norms. However, a different perspective emerged when Messner and Cooky et al., (2021) conducted a longitudinal analysis that detected evolving patterns in the coverage of women's sports over the years 1989, 1993, and 1999. It has been noted that female athletes are predominantly trivialized and sexualized by the media in television broadcasts during these years. In 2014, they noted an apparent endeavor to portray women's sports narratives with respect, avoiding insults and overt gender stereotypes. It was observed that the narratives of most women were conveyed by commentators with significantly less verbal dynamism and enthusiasm than what normally defined the narratives of men's sports, and this trend continued till 2019. The study suggested that women's sports narratives be presented similarly to men's, characterized by excellent technical quality and articulated through enthusiastic, vivid, and engaging commentary by the announcers. The study concludes that the majority of sports news and highlight programs predominantly feature men's sports tales, whereas women's sports events are largely overlooked. All studies mentioned above affirm the fact that media portrays an unrealistic and biased picture of women belonging to different spheres of society. Stakeholders despise their accomplishments and either underrepresent or misrepresent them, exposing the patriarchal worldview that permeates all of our society's institutions.

### **Pakistani Sportswomen as Resisting the Patriarchal Norms of Womanhood**

“Women in Pakistani patriarchal society are taken as carriers of culture, tradition, and most importantly the honor of families. This is why, in the process of identity formation of a family, men have complete control over women’s sexuality” (Khan & Qadir, 2024, p. 64). In recent years, sports have served as a catalyst for societal shifts. Evidence indicates a reduction in racism, a narrowing of gender gaps, and a challenge to socioeconomic class injustices within sports contexts. The traditional concept of femininity is undergoing significant transformation, as women have successfully overcome various challenges and excelled in numerous physically demanding sports in recent years. Pakistani women persist in participating in sports, despite historical challenges, driven by a commitment to represent their country through athletic

accomplishments. "From fencing to weightlifting, from mountaineering to figure skating, Pakistani women have proven themselves to be fierce competitors, defying stereotypes and expectations and have become an inspiration to many"(Ahmad,2023). Their remarkable achievements in sports have engaged the nation and dismantled cultural barriers within Pakistani society. To encourage women's sport in the country, sporting events are now regularly held at the national level. Nonetheless, the circumstances are dire in various regions of Pakistani society, particularly in tribal areas, where the concept of women's participation in sports is virtually nonexistent. The survival of women in Pakistan's conventional tribal areas, characterized by prevalent honor killings, depends on their compliance with social norms and expectations. One of the exceptions is notable squash player, Maria Toorpkae Wazir from Waziristan, who disguised herself as a boy to pursue her dreams and had been playing squash for sixteen years with the moniker Changghis Khan. Another inspiring figure is Diana Baig, a football and cricket player from Hunza, Gilgit; for all women battling their own struggles in patriarchal cultures. She persisted in pursuing her goal of representing her nation internationally in spite of Gilgit's lack of a playground for females and the lack of any role models. For women in Pakistan, swimming is a socially inappropriate sport, particularly because of the cut and exposed style of traditional swimwear, which can go against social norms. Until 2000, Pakistani women were prohibited from participating in international swimming competitions due to cultural and religious prohibitions. Notable swimmers Kiran Khan and Rubab Raza have won various national accolades for their achievements and represented the nation with honors in various international swimming competitions. It takes strength to go against outmoded social conventions that define what women should do, and these women have the courage to question stereotypes about women. Similarly women who attempt to participate in mixed martial arts in Pakistan must overcome the stereotype that it is a male-dominated sport. In addition, Pakistan lacks female combatants, tournaments, and government support, and there aren't many mixed martial arts gyms for women. Nonetheless, Pakistani women have gained international recognition by showcasing their abilities and expertise across various platforms. Despite opposition from her community for practicing mixed martial arts, Anita Karim, a native of Hunza, Gilgit, has competed internationally on numerous occasions in mixed martial arts. Entering a male-only sport like mixed martial arts has never been easy for women like Pakistan's first female karate champion, Kulsoom Hazara from Quetta, Balochistan. Despite the fact that the Hazara community in Quetta is one of the most persecuted in Pakistan, some people, like Kulsoom Hazara and Nargis Hameedullah, are shining brightly as they overcome all the difficulties they face. For many Hazara women, karate is a way to rebel against and break free from the constraints they face. Similar to martial arts In Pakistan, Kabaddi, a tag-wrestling sport, is primarily played by men. Kabaddi is played in various South Asian countries around the world and was first popularized in the Punjab regions of India and Pakistan. Historically, women Kabaddi players have faced criticism and even ridicule for participating in a macho sport, and men have been the only ones allowed entry to the hallowed Akharas. However, they have persisted, maintained a positive attitude, and received recognition for their perseverance and hard work. Hazeema, Sadia Abdul Khaliq, and Fareeda Khanum are well-known Pakistani women Kabaddi players. Another well-known athlete is Naseem Hameed, also known as the "Queen of Tracks," who is the fastest woman in South Asia and earned a gold medal in the 2010 South Asian Federation Games. Similarly, Samina Baig, a mountaineer from the remote Pakistani region of Hunza, Gilgit Baltistan, was taught by her brother Mirza Ali and became the first Pakistani woman to climb Mount Everest in 2013. There is a long list of distinguished women athletes who have made a mark in the sports world by their remarkable performances and it is not possible to mention all of them here. In short, all of these sportswomen have shown tenacity and resolve by exercising their agency to play sports, and with the support of their families, they have been able to pursue their passions. The aforementioned discussion also clarifies that being a sportswoman is not an easy task for a woman, as it involves numerous obstacles and difficulties in a patriarchal culture. Owing to the lack of any extensive research on gender representation, particularly in Pakistani sports media; and also to the dominance of patriarchal ideology in Pakistani society that does not ascribe equal status to women, the current study aims to thoroughly examine the way sportswomen are represented in the Pakistani newspapers.

## Results

The present study analyzes the representations of sportswomen in pictures of Pakistani Newspapers and aims at revealing the implications of this portrayal. Although it is generally acknowledged that there should be gender equality but there is discrepancy between what is said and what is done in real life situations. According to researches reviewed in this study (Tahseen, 2018; Zia, 2007; Mansoor, 2013), even while women participate widely in all aspects of life, they are still portrayed in a conventional manner, and the media does not immediately embrace their new role as athletes/sportswomen. We can learn more about the profoundly embedded gender-based social norms and systems that permeate Pakistani culture by studying how sportswomen are portrayed in visuals, since images are packed with cultural messages. This section contains analysis of thirty one images taken from selected newspapers; and the study has found that Pakistani newspapers portray a different image of sportswomen which is contrary to traditional coverage of women's sports. The sportswomen are represented as excelling in sports and marking a new history by their incredible achievements across the globe. The pictures analyzed here show a positive view of Pakistani culture, where women have overcome all obstacles and disproved the antiquated beliefs that women are less competent and inferior. The analysis of images of sportswomen shows them to be active, competent, strong, dominant, and powerful which is contrary to traditional beliefs. Since it is not possible to discuss every picture here, only representative images are analyzed based on their greater visibility (high frequency), popular sports (cricket, gymnastics, and tennis), and prominent placement (large size of images, central position on the page) in the selected newspapers.

There are two methods for developing themes in accordance with the principles of thematic analysis. One is inductive, while the other is deductive. The inductive technique entails formulating themes and subsequently analyzing the data, while the deductive approach involves deriving themes from the gathered data. The present study employed a deductive approach for thematic analysis by establishing themes based on their frequency in the assembled picture bank.

The analysis is given below under five themes:

Theme 1: Portrayed in Sports Setting

Theme 2: Sportswomen in Sports Action

Theme 3: Portrayed in Sports Attire

Theme 4: Non-Objectification of Bodies

Theme 5: Subversion of Conventional Femininity

The given table shows the frequency of ninety five images for the category of sporty representation, extracted from the picture bank. Due to the impossibility to analyze all ninety-five images in the current study, as previously outlined in the research methodology, thirty-one images were selected based on the criteria of enhanced visibility, prominent placement, and popularity of the sport; these images were qualitatively examined under these themes.

**Table**

*Theme-Wise Distribution of Pictures*

Themes	Portrayed in Sports Setting (Theme 1)	Sportswomen in Sports Action (Theme 2)	Portrayed in Sports Attire (Theme 3)	Non-Objectification of Bodies (Theme 4)	Subversion of Conventional Femininity (Theme 5)
Number of pictures per theme	95	87	95	69	95

The above table demonstrates the occurrence of images for each theme. Themes 1, 3, and 5 exhibit a greater quantity of photos, with a substantial amount of images in themes 2 and 4, respectively. The data illustrates the burgeoning trend in the representation of female athletes within the chosen newspapers, as a substantial quantity of images in the archive emphasizes their sportsmanship by depicting them in athletic attire, engaged in sporting activities.

### Theme 1: Portrayed in Sports Setting

Theme 1 deals with the portrayal of sportswomen in the sports field, on the playground, in the courts and stadiums. The four images analyzed under this theme show all sportswomen in sports setting while performing in the sports field. The hockey, soccer, and cricket players are shown displaying their athletic skills in the selected images while wearing their sports uniforms. The selected newspapers have adopted constructive approach by focusing upon the athleticism of sportswomen instead of representing them in non-sports contexts, an approach which is widespread in different news media.



*Dawn, May 23, 2019*



*The Nation, May 14, 2019*



*Dawn, February 3, 2019*



*Dawn, February 12, 2019*

It can be seen that the selected Pakistani newspapers have not highlighted their personal lives by covering their family situations or social gatherings; rather they are shown, in competition with other players in the sports field. The purpose of representing women players in non-sport setting is to highlight their traditional roles and to throw into the background their sports accomplishments. Gender depiction in popular media usually fails to capture the variety of social reality. Harmful gender stereotypes are reinforced when women are represented as hyper sexualized objects or as having only traditional roles like caring for others or having romantic interests (Seluman et al., 2024). These photographs demonstrate that Pakistani media have dismantled prejudices around women by portraying female athletes as capable, establishing that women's sports hold equal significance to men's sports. If media reinforces the athletic identity of sportswomen by projecting them in realistic manner, it could lead to the elevation of sportswomen's status in the public; and their sport would also be taken seriously by the people, leading to the acceptance and propagation of women's sports in the country. The analysis of images shows that the selected Pakistani newspapers have attributed great importance to the contribution of sportswomen to the sports world by representing them in truthful and realistic manner.

### Theme 2: Sportswomen in Sports Action

Theme 2 focuses upon sportswomen shown in action in the sports field. It contains analysis of eight images of sportswomen who are shown engaged in athletic activity. Their representation in the competitive arena, as evidenced by the images, reflect an authentic and affirmative depiction of their abilities. This stands in stark contrast to the conventional portrayals of sportswomen, which often emphasize physical appearance over athletic prowess. These images suggest that the athletic prowess displayed by an individual on the field

holds greater importance than superficial aesthetics, thereby challenging the prevailing stereotypes of women perpetuated in media narratives



*Dawn, April 6, 2019*



*The Nation, September 28, 2019*



*Dawn, March 29, 2019*



*The Nation, February 10, 2019*



*Dawn, February 2, 2019*



*Dawn, February 3, 2019*



*The Nation, May 13, 2019*



*The Nation, May 16, 2019*

It is quite a significant finding that all images analyzed under theme 2 show sportswomen as powerful, self-assured, and resolute, which challenges the conventional view of women as timid, weak, and subservient. The photos depict them as strong contenders, showcasing their athleticism. In a departure from the stereotypical depiction of sportswomen as fragile objects, these images showcase their skills as they compete on the field. Their bodies are stretched out, and the effort they are exerting is evident in their facial expressions. Pakistani women are generally perceived as weak and limited to household responsibilities and

these images stand in sharp contrast to this notion as the athletes are shown to be dominant, self-assured, and determined who will stop at nothing to win. These images also highlights how, unlike earlier eras when women were prohibited from pursuing male-dominated professions, Pakistani society has changed to encourage women's involvement in sports. Furthermore, it illustrates how Pakistani newspapers prioritize athletic ability over sportswomen's appearance and beauty, reflecting the liberal attitudes toward women's standing that is pervasive in Pakistani media. These photographs convey a very positive image of Pakistani society in general since it shows that sports have ceased to be the exclusive province of men; and that sportswomen are represented positively by the media. It is interesting to note that contrary to general assumptions about women, they are no longer to be taken as weak and emotional, but they are shown to be strong and forceful, which is a subversion of cultural stereotypes associated with women.

### Theme 3: Portrayed in Sports' Attire

Theme 3 focuses upon the attire of sportsperson in four images analyzed here. It can be observed that all sportswomen are wearing their sports uniform and the fact that the uniforms worn by all players provide full coverage to their bodies is a reflection of the sociocultural norms that dictate the appropriate dress for women.



*The Nation, February 7, 2019*



*Dawn, April 4, 2019*



*Dawn, April 6, 2019*



*The Nation, September 18, 2019*

In addition to making history in sports, the photos shows that Pakistani women are staying true to themselves by designing their sporting apparel to reflect cultural standards. Every single player's is sporting typical sports attire; but, they have also personalized their outfits to reflect the customs and cultural values of their own communities. Some individuals are attired in loose trousers and shirts that obscure their body dimensions. The female contestants in this picture have also conformed to local traditions regarding appropriate attire for women. The given images prove that sportswomen in Pakistan, who face patriarchal society that is shaped by religious and cultural views, must embrace feminine values to a certain degree if they want to be accepted. The sportswomen in this picture preserve their athletic identity by wearing their sports uniform gracefully. They are not treated traditionally as objects of beauty, and are not portrayed as fashion icons or models, necessitating adherence to societal dress codes to uphold their athletic status and

safeguard their public image. Sportswomen are not taken to provide visual pleasure to men as their poses are not suggestive or seductive, which is a realistic projection of their sports identity.

#### Theme 4: Non-Objectification of Bodies

A general perspective about women is that they are always objectified as sportswomen are frequently being objectified by the media by focusing upon their looks, body, fashion and glamour. Theme 4 runs counter to this stereotypical projection of women players and rather highlight the non-objectification of sportswomen in the selected Pakistani newspapers. The analysis of seven images under this theme highlight the sports identity of women cricketers by showing them in sports setting, wearing their sports dresses, winning awards, and show casing their talent in the field.



*The Nation, October 26, 2019*



*Dawn, October 27, 2019*



*Dawn, January 1, 2019*



*Dawn, April 23, 2019*



*Dawn, August 29, 2019*



*Dawn, September 28, 2019*



*Dawn, October 24, 2019.*

It can be seen that none of the images has focused upon their looks or glamour as the players wear no makeup or jewelry to emphasize their femininity; rather they have maintained their professional look by dressing up formally. They are not presented as show girls or sexual beings as the camera does not focus on their specific body parts but the emphasis is laid upon their sports performance. All images show them wearing their loose sports dresses that have covered their body fully. Their sports outfit and their appearance reinforce their athletic identity. The images do not portray them to be seductive or attractive to men; rather the images highlight their sportsmanship and show them to be promising women cricketers, displaying their skills in cricket. Since images are more influential in shaping perception and attitude, portraying sportswomen in un-athletic manner trivializes their achievement and makes their sport seem less important than men's sport. Such a projection plays an important role in the sustenance of patriarchal ideology that devalues women and does not ascribe them equal status and respect along with men.

#### **Theme 5: Subversion of Conventional Femininity**

Theme 5 deals with the subversion of traditional femininity in eight images being analyzed and it shows all women players to be strong, competent, challenging, skillful and dominant. Previous researches show that women are represented in stereotypical manner weak, emotional, subservient, less skillful and it has been observed that male players are usually shown to be embodiment of sportsmanship, to be highly talented and skillful, while female athletes are shown to be less skillful and emotional (Vezzali et al., 2023). However, the current images highlight their athletic ability and skill as they are shown competing in the field and achieving their targets.



*The Nation, May 23, 2019*



*Dawn, May 23, 2019*



*The Nation, May 9, 2019*



*The Nation, February 14, 2019*



*The Nation, October 31, 2019*



*Dawn, June 20, 2019.*



*Dawn, October 31, 2019*



*Dawn, November 3, 2019.*

The analysis of all above images shows that sportswomen are depicted in authentic settings which can have a strong impact on prospective athletes. The projection of sportswomen in realistic manner serves as an impetus to future athletes as they get encouraged and motivated when they see their role models to be appraised and acknowledged for their contributions. Since media is an efficient tool for disseminating information, it should not adhere solely to gender ideologies by reporting the women sports in biased manner. The selected Pakistani newspapers have truly represented sportswomen as symbols of power, strength, excellence and endurance; and have awarded them the respect and recognition they deserve.

### **Conclusion**

The portrayal of gender in sports photography is a significant subject that mirrors wider cultural perspectives on gender roles. Research demonstrates that female athletes are usually depicted in traditional manner in sports photography as the emphasis is often on their physical attractiveness and femininity rather than their athletic prowess. The pictorial representation of gender in sports news in the United States has been extensively studied. It has been found that notwithstanding the considerable accomplishments of female athletes, they persistently receive diminished media attention compared to male sport stars. Similarly, sports photography demonstrates considerable biases in gender representation in UK news media (Juliet, 2024). However, the current study exposes a different trend regarding the sportswomen's portrayal in Pakistani

newspapers. The analysis of each photograph in this paper reveals the transformation occurring within Pakistan, a nation steeped in traditional patriarchal, religious, and cultural norms. Since the data has been taken from e-newspapers that have global readership, the analysis reveals that a progressive, realistic, non-objectified portrayal of Pakistani sportswomen has been found in the selected Pakistani newspapers. They have presented a realistic portrayal of women athletes by projecting them in sports setting and by focusing upon their athletic skills. It also contradicts the findings of previous studies which claim that false notions of femininity have been propagated by media by showing women belonging to politics, sports and other professions as objects of beauty. The initiative taken by Pakistani newspapers to underscore the accomplishments and talents of sportswomen is commendable, as it contributes to a more positive perception of women's sports. Their achievements have been commendably acknowledged. They are depicted in authoritative and influential positions, thereby inspiring aspiring sportswomen to pursue their athletic ambitions. These images effectively challenge the prevailing notion that women are inferior or less competent than men, as they have all etched their names in history by excelling as remarkable athletes across diverse sports disciplines. However, the fact that they are also represented in realistic way as more skillful and athletic directs our attention to the ideological transformation taking place in Pakistani society. The current study brings it to light that the contemporary trend in media is positive as women are presented as dominant, strong, leading and powerful which is a contradiction to traditional concept of womanhood in Pakistani society. Whereas in Pakistani society, majority of women still find it challenging to participate in sports, the newspapers have contributed significantly in projecting a progressive image of sportswomen as women of power, determination, and strength. Their representation encourages prospective sportswomen to join sports as they are treated respectfully and realistically by the media. In the context of society where traditional gender roles are changing, the positive representation of sportswomen adds to this ideological transformation in Pakistani society.

The qualitative findings of this study are supported by quantitative data bank as the frequency of images per theme has been elaborated in the Table 1. The results of the current study align with the longitudinal research conducted by Pope, Allison, and Petty (2023) on the FIFA Women's World Cup from 2015 to 2019 in UK print media, which indicates a significant increase in media coverage of women's football, characterized by consistent respectful representation. The coverage was pertinent to the task; there were no pieces that objectified female athletes, as the focus was instead on their talent and competence.

As previously noted, the media significantly influences public perception of sportspersons, thereby shaping societal views of them. Should the media persist in emphasizing their sports' achievements and depicting them favorably, it will contribute to altering public perceptions of women's involvement in sports, thereby motivating more women to engage in athletic activities. The media bears the responsibility to transform society's adaptation to male sports coverage, and the media system must implement measures to address this issue. All media personnel responsible for reporting on gender issues must receive urgent training and heightened awareness on these matters. This include reporters, authors, proprietors, editors, free lancers, advertising agencies, news agencies, and others focused on gender issues, facilitating their comprehension, recognition, acknowledgment, and representation of the multifaceted positions women occupy in society. Enhancing the representation of women in print media and challenging conventional gender norms can be achieved by utilizing female journalists and feminist media outlets. In the media sector, positions should be allocated by employers only based on competence, enabling qualified women to progress to executive and editorial posts. It is essential for unions, media organizations, and other stakeholders to participate in educating media workers on responsible and ethical reporting practices. The media bears the responsibility to transform society's acceptance of male-dominated sports coverage, and the media apparatus must implement measures to address the issue.

### **Recommendations for Future Research**

The current study has not examined all venues or sources of sports discourse, given its constrained scope. The research has gathered information from merely two leading Pakistani newspapers i.e. *the Dawn and The Nation*. In addition to newspapers, a wealth of information exists across social media platforms, online sports magazines, blogs, and various other websites; however, it was impractical to examine all of this

data for the current study. Furthermore, owing to limitations of the scope of current research paper, the data examined is also limited; a more comprehensive investigation may be conducted by broadening the scope of data. The study also facilitates further research on other media platforms heavily utilized for sports event reporting, including sports commentaries, sports magazines, sports boards' websites, and social media platforms.

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## **Belief, History and Machines: How Religious Traditions Shape Students' Attitudes Toward Artificial Intelligence**

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In recent years, Artificial Intelligence (AI) has rapidly entered the social sphere, including higher education. However, not all cultures perceive it in the same way. This comparative empirical study analyzes how students from two religiously homogeneous countries: Uzbekistan (predominantly Muslim) and Poland (predominantly Catholic) perceive AI in general and as a learning tool. Unlike most studies that focus on technical access or digital literacy, this paper examines the perception of AI from the perspective of historically shaped religious and cultural traditions after the collapse of the Soviet system. The study put forward and tested a research meta-hypothesis: historically shaped cultural and religious traditions should have a statistically significant effect on the perception of Artificial Intelligence by students from Muslim and Catholic countries. We used a standardized Likert-scale survey. The sample consisted of 439 undergraduate students (not majoring in IT). Professional and gender biases were excluded to focus on cultural and religious variables. The z-test at the 90% confidence level was used to test the four key hypotheses. The results showed that students from Uzbekistan have a significantly more positive attitude towards AI than students from Poland. This difference in perception applies to AI both in general and in the educational context. This difference reflects stable ideas about knowledge, traditions and technological progress. The obtained results have theoretical implications and practical significance.

**Keywords:** Muslim students, Catholic students, religious identity, artificial intelligence, perception, higher education, post-Soviet history

The Soviet Union ceased to exist as a sovereign state on December 25, 1991. After 1991, the former Soviet republics developed independently without official ideological pressure. The present study aims to compare the perception of AI by students from two such countries (Uzbekistan and Poland) with an emphasis on the influence of religious traditions and historical context.

In recent years, artificial intelligence (AI) has been rapidly introduced into various areas of social life (Gabriel, 2019; Carley, 1996; Cox & Mazumdar, 2022; Lee, Kim, & Na, 2018; Nilsson, 1985; Bullock, 2019), including education (Dinh, 2025; Marshik, McCracken, Kopp, & O'Marrah, 2024; Okulich-Kazarin, Artyukhov, Skowron, Artyukhova, & Wołowiec, 2024; Malik, Ed.daran, & Elhajraoui, 2023; Barker, 1994; Rashid, 2020; Adams, Henderson, Yi, & Babyn, 2020; Tang et al., 2018). However, the perception of AI is not universal throughout the world: it is shaped by historical, cultural and religious factors that determine society's attitude to technology and knowledge. Religion can play an important role in the perception of AI, shaping basic ideas about the admissibility of replacing the human mind with machine logic; about trust in digital

systems; about moral limitations of using such technologies.

The emergence of AI can be traced back to the 1950s (Caspari-Sadeghi, 2022), with pioneers such as Turing (1950), McCarthy (1959), Newell and Simon (Gugerty, 2006), and Feigenbaum (1965). Currently, there are many definitions of Artificial Intelligence (Cox & Mazumdar, 2022; Pantano & Scarpi, 2022). In our study, the definition used is: 'Artificial intelligence (AI) is the ability of computer systems to perform tasks that would normally require human-level intelligence' (Guan, 2019).

Most of the research focuses on digital literacy, access to technology, or ethical issues of AI implementation (Dinh, 2025; Hajam & Gahir, 2024; Marshik, McCracken, Kopp, & O'Marrah, 2024; Okulich-Kazarin, Artyukhov, Skowron, Artyukhova, Dluhopolskyi, & Cwynar, 2024; Malik, Ed.daran, & Elhajraoui, 2023; Ahmad, Abdallah S., Abbasi, & Abdallah A., 2023; Abdelwahab, Rauf, & Chen, 2022). However, there is a lack of comparative empirical studies in the scientific literature on how religiously different societies perceive AI and its educational applications.

This study fills this gap by relying on a cultural-historical approach, according to which the perception of innovations (including AI) depends on historically rooted traditions, values, and cultural scripts that have developed in a particular society. In this context, religion can act as a significant structuring force, shaping attitudes towards technology through the prism of ethics, morality, and social trust.

The aim of this study is to identify differences in the perception of AI by students from two religiously homogeneous but culturally different countries: Uzbekistan (a country with dominant Islam) and Poland (a country with dominant Catholicism). We assume that the influence of historically established religious and cultural norms may lead to differences in the perception of AI. The research is based on a cultural and historical approach, according to which attitudes towards technological innovations are shaped by social traditions, religious values, and historically fixed ideas about knowledge and progress. In Poland (Preamble) and Uzbekistan (Article 49), the Constitutions speak about religion. In Uzbekistan, this is the "duty of citizens to protect... spiritual ... the heritage of the people of Uzbekistan". In Poland, this is also a duty: "we owe it to our ancestors... for our culture, which has its roots in the Christian heritage of the nation..."

The study was conducted at universities in Uzbekistan and Poland in 2023-2025. The sample included undergraduate students not studying in information technology-related specialties. This allowed us to exclude professional bias and focus on religious differences. Standardized questionnaires (Likert scale) and z-statistics methods were used to test the hypotheses.

**Research meta-hypothesis:** Historically formed cultural and religious traditions should have a statistically significant effect on the perception of Artificial Intelligence by students from Muslim and Catholic countries, determining the degree of its acceptance as a socially acceptable and educational tool.

Thus, the article combines a theoretical analysis of the historical and cultural foundations of AI perception and an empirical study of the differences in the attitudes of students in the two countries.

## Literature review

### 1992-2024: How Has Scientific Discourse About AI Changed?

The introduction of Artificial Intelligence into the social sphere, technology and economy changes the scientific discourse (Hammack, 2008). Scientific discourse, as a part of scientific culture, influences the general culture of youth. An analysis of the number of scientific publications by the keyword "Artificial Intelligence" in the Scopus database showed their growth from 2220 in 1992 to 104171 in 2024 (Figure 1).

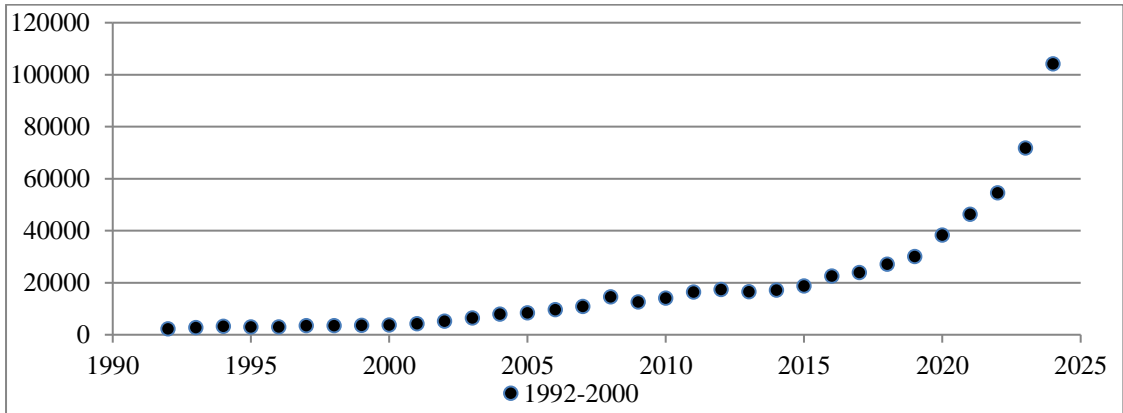


Figure 1. Scientometric analysis by relevance for the keyword 'Artificial Intelligence' in Scopus, based on 626,864 publications published between 1992 and 2024

Figure 1 covers the historical period, which is characterized by a sharp decrease in the ideological burden on the youth of the former Soviet republics and countries. At the beginning of the period, the scientific discourse on Artificial Intelligence had little effect on young people. We had no reason to study students' attitudes towards Artificial Intelligence. The end of this period is characterized by a strong scientific discourse on Artificial Intelligence. In particular, on November 30, 2022, OpenAI launched the ChatGPT (Generative Pre-trained Transformer) chatbot, which quickly attracted the attention of people, including students (Geerling, Mateer, Wooten, & Damodaran, 2023). It is of scientific and practical interest to see the result of a 30-year development of two countries with a different religion.

### Theoretical framework

The theoretical basis of the study is the Cultural-Historical Approach (Geertz, 1973; Hall, 1976; Hammack, 2008; González Rey, 2015). The essence of the approach is in the study of phenomena in the context of historical development. This approach states that in education, the cognitive and behavioral reactions of the individual are formed in interaction with the socio-historical and cultural context. Technological innovations, including artificial intelligence, should be perceived through the prism of the socio-historical and cultural context (Geertz, 1973; Tool, 1977; Inglehart, & Welzel, 2005; Blanco & Rosa, 1997; Mayisela, 2024).

Thus, according to Geertz (1973), culture is a system of symbols that give meaning to social reality. Within this system, religion performs the function of interpreting the world and establishing the boundaries of what is acceptable. Religious traditions, rooted in the history of a particular society, shape not only moral attitudes, but also attitudes toward knowledge, technology, and social transformation (Geertz, 1973; Tool, 1977; Inglehart & Welzel, 2005).

In religiously homogeneous societies such as Uzbekistan and Poland, the perception of new technologies, including AI, may be mediated not so much by the level of technical literacy as by ideas about the role of humans, morality, and the acceptable limits of automation. For example, Islam, in the context of modernization and an emphasis on access to education, may contribute to a positive perception of AI as a development tool in Uzbekistan (5G in Tashkent, 2021; U.S. Department of State, 2010; Law of the Republic of Uzbekistan, 2018; Zulkarnain et al., 2025). The Catholic tradition, in contrast, tends to be cautious about technological determinism and places importance on the humanistic foundations of education (Hicks, 2012; Prończuk, 2019; Kopińska, 2020; Klatt, 2023; Rada Ministrów, 2020). The social doctrine of Catholicism is the most developed in comparison with other Christian denominations and movements. It contains the well-known maxim "in necessity - unity, in doubt - freedom, in everything - love" (Jordan, 2012). The priorities of education related to societal improvements in the name of a "social cohesion" vision do not represent a global understanding of the initiatives that education usually includes (Green & Janmaat, 2016). "Polonism" is evident in policy discourses in documents since 2016, where a special emphasis is placed on "attitude formation" and "education" (Klatt,

2023). Therefore, AI may raise doubts about both the general ethics and the admissibility of its use in higher education. This attitude is reinforced by a cultural legacy of a critical attitude towards technocratic development models, inherited, among other things, from the experience of the post-socialist transition (Klatt, 2023; "FTSE Russell Upgrades Poland," 2017). Du, Guerra, Chen, Lindsay, & Nørgaard (2023) point to the need for "trust building". Poland, as an Eastern European country, has problems with recognizing students as subjects of the educational process (Okulich-Kazarin, 2020). The European Union has set ethical and legal limits on the implementation of AI (Al-Amoudi, 2023; Klatt, 2023; Mazur & Włoch, 2023). It may also influence students' perceptions of AI.

Thus, students' perception of AI can be seen as a consequence of cultural scripts anchored in a specific religious and historical environment. In addition, Hall (1976) noted that technologies act as an extension of human capabilities, but do not replace them. This allows us to consider AI as a tool whose effectiveness and appropriateness depend on the context of its application.

To ensure conceptual consistency and empirical measurability, the study identifies two key constructs reflecting students' attitudes towards artificial intelligence (AI) in general and its use in the educational process. Both constructs are based on the classical models of the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT), as well as on later adaptations focused on the perception of artificial intelligence in education.

The first construct, "General attitude towards artificial intelligence", is defined as an individual's emotional and cognitive orientation towards artificial intelligence as a social phenomenon, including a willingness to accept its existence and trust its application in society. This construct reflects the fundamental level of technology perception and is based on the attitude towards use dimension highlighted in the TAM model.

The second construct, "Attitude towards the use of AI in education", is understood as the perceived usefulness, relevance and permissibility of using artificial intelligence in educational activities, which correlates with the measurement of perceived usefulness and behavioral intention in the UTAUT model. This construct reflects the applied dimension - the level of AI adoption within a specific institutional context (university).

The perception of artificial intelligence (AI) is considered not from the standpoint of technical parameters, but as a socio-cultural phenomenon that is formed in the context of historical and religious traditions. The basic idea is that a person's attitude to technology reflects deep cultural attitudes that determine the permissibility, trust, and moral acceptability of new forms of knowledge.

From this point of view, differences between countries with different religious traditions (Islamic and Catholic) can be seen as the result of historically established scenarios of trust in sources of knowledge and the power of technology. In religiously homogeneous societies, such scenarios are fixed not only in the doctrine of faith, but also in educational practices, forming stable ideas about what is considered acceptable in the learning process.

Thus, both constructs, "general attitude to AI" and "attitude to AI in education", are interpreted as socio-psychological reflections of cultural norms, rather than as technical indicators of readiness to use technology. This simplified but conceptually holistic definition allows us to preserve the cultural and historical framework of the study and avoid over-complicating the model.

The proposed approach allows us to interpret differences in the perception of AI not as individual fluctuations, but as a manifestation of historically established cultural attitudes associated with religious tradition (Lalueza & Macías-Gómez-Estern, 2020). It sets a framework for analysis in which respondents' behavior is not considered in isolation, but as a reflection of broader collective meanings (Grimalt-Álvaro & Ametller, 2021; Portes & Salas, 2007; del Río & del Río, 2007; Hammack, 2008).

## Method

### Research design

This study is based on a quantitative comparative analysis and relies on a standardized Likert scale questionnaire. This design provides a quantitative assessment of students' attitudes toward artificial intelligence (AI) in two religiously homogeneous countries with different historical and cultural backgrounds: Uzbekistan and Poland. The method was chosen taking into account the identified gap in the literature: the lack of empirical cross-cultural data on the influence of religion on the perception of AI in the educational sphere.

The research meta-hypothesis was divided into 4 hypotheses.

**The hypothesis 1** is: There is a statistically significant difference in the overall perception of AI between students from Uzbekistan and Poland, due to differences in cultural and religious traditions.

**The hypothesis 2** is: Students from Uzbekistan assess the use of AI for educational purposes more positively than students from Poland, reflecting differences in religious and cultural attitudes towards innovation.

**The hypothesis 3** is: There is no statistically significant difference between the perception of AI in general and as a tool in higher education among students from Uzbekistan.

**The hypothesis 4** is: There is no statistically significant difference between the perception of AI in general and as a tool in higher education among students from Poland.

### Population and sample

The study involved 439 undergraduate students studying at universities in Uzbekistan and Poland (Table 1). Uzbekistan was chosen because Uzbekistan is a practically monoreligious country. In 2020, 94.78% of the population professed Islam (<https://www.thearda.com/world-religion/national-profiles?u=236c>). Poland was chosen for the same reason. In 2020, 96.61% were Christians, of which 90.10% were Catholics (<https://www.thearda.com/world-religion/national-profiles?u=180c>). That is, historically, religion in each country has a dominant influence on the cultural context.

Table 1

*General characteristics of the respondents, 2023*

No	Indicator	Female	Male	Sum	Students
1	Uzbekistan	39	36	75	Bachelor, non-information sciences, 1-2 year
2	Poland	283	81	364	Bachelor, non-information sciences, 1-3 year
	Total	322	117	439	-

*Source: own data*

Table 1 shows that the total number of respondents is 439. All respondents did not study AI as part of a mandatory educational program and did not specialize in the field of information technology, which minimized professional distortions of perception. Gender and academic specialization were taken into account to eliminate structural biases. Gender composition: 322 women, 117 men. The sample was purposeful, focusing on the religious homogeneity of countries and the representativeness of the student community. The survey was anonymous and voluntary.

### Instrument

The main tool used was a structured questionnaire, including:

- Metrics (country, gender, year of study),
- Two questions:

- 1) How do you feel about Artificial Intelligence,
- 2) How do you feel about using Artificial Intelligence in the teaching process.

The assessment was carried out on a Likert scale with five levels of gradation:

- definitely yes = 4;
- rather yes = 3;
- hard to say = 2;
- rather not = 1;
- definitely no = 0.

This scale allowed us to record the general emotional and cognitive attitude towards AI. Although the questions are conceptual, the Likert scale is appropriate here, since it allows us to reflect the degree of agreement with the positive perception of AI as a phenomenon and tool.

The questionnaire was developed by the authors based on similar studies published in the FWU Journal of Social Sciences and other peer-reviewed journals (e.g., Ahmad et al., 2023; Abdelwahab et al., 2022; Okulich-Kazarin, Artyukhov, Skowron, Artyukhova, & Wołowiec, 2024). The questionnaire was pre-tested with experts in the fields of psychology and education in Poland and Uzbekistan (Okulich-Kazarin, Artyukhov, Skowron, Artyukhova, Dluhopolskyi, & Cwynar, 2024). The reliability of the questionnaire was assessed qualitatively: through an analysis of the wording, their interpretation, and comprehensibility for respondents (Okulich-Kazarin, Artyukhov, Skowron, Artyukhova, & Wołowiec, 2024). Although a formal test of internal consistency (e.g., using Cronbach's  $\alpha$ ) was not conducted, expert validation confirmed the content relevance and logical consistency of the scale. We acknowledge this as a limitation that could be addressed in further research.

The study deliberately used a minimalistic measurement tool consisting of two key questions aimed at identifying students' general attitudes towards artificial intelligence (AI) and attitudes towards its use in the educational process. This approach is due to the pilot nature of the study, the main purpose of which was to identify cultural and religious differences in the perception of AI, rather than building a complete model of technology adoption.

When formulating the questions, their correspondence to the key dimensions of the "general attitude to AI" and "attitude to AI in education" (perceived usefulness) models was taken into account. This made it possible to assess the emotional and cognitive attitude to technology at a basic level.

Thus, the tool used should be considered as a pilot diagnostic tool for preliminary cultural validation before the possible use of extended scales in future studies. In the future, it is planned to adapt and localize multifactorial questionnaires that include cognitive, behavioral and emotional components of attitudes towards AI, which will increase the depth of analysis and cross-cultural comparability of data.

### **Data collection procedure**

Data collection and processing took place between November 2023 and March 2025 at one university in Poland and two universities in Uzbekistan. The survey was conducted online using the cloud of National Louis University (Poland). Before the survey, all participants were warned about the voluntary and anonymous nature of the answers. Students who did not agree to give answers did not take part in the survey.

### **Statistical analysis techniques**

The z-statistic for independent samples was used to test the four key hypotheses:

- confidence level: 90%,
- two-tailed test,
- sampling error: 4%.

Under these conditions, a minimum sample size is 423 respondents. Thus, the number of respondents in the study meets the requirements of statistical standards (Kingston University, 2010; Scanmarket, n.d.).

Statistical processing included calculation of mean values ( $M$ ), standard deviations ( $\delta$ ), and testing of statistical significance of differences between groups. The choice of z-analysis was due to the sample size and

normal distribution of estimates, which was confirmed by preliminary testing.

To verify statistical hypotheses, the respondents' answers were assigned the following values:

- definitely yes = 4;
- rather yes = 3;
- hard to say = 2;
- rather not = 1;
- definitely no = 0.

The answers "Rather yes" and "Definitely yes" were assigned values 3 and 4. The neutral value in the survey was the answer "Hard to say". This answer characterizes undecided students. This answer was assigned a value of 2. The answers "Rather not" and "Definitely no" were assigned values 1 and 0.

Each key hypothesis was transformed into a pair of statistical hypotheses, a null and an alternative (z-statistics).

**Null hypothesis  $H_{01}$ :** There are no differences in the perception of AI between students from Uzbekistan and Poland ( $\mu_1 - \mu_2 = 0$ ).

**Alternative hypothesis  $H_{11}$ :** Differences in perception of AI between students from Uzbekistan and Poland are statistically significant ( $\mu_1 - \mu_2 \neq 0$ ).

**Null hypothesis  $H_{02}$ :** There are no differences in perception of AI in education between students from Uzbekistan and Poland ( $\mu_1 - \mu_2 = 0$ ).

**Alternative hypothesis  $H_{12}$ :** Students from Uzbekistan and Poland have different opinions about AI in education ( $\mu_1 - \mu_2 \neq 0$ ).

**Null hypothesis  $H_{03}$ :** Students from Uzbekistan perceive AI in general and in the educational context in the same way ( $\mu_1 - \mu_2 = 0$ ).

**Alternative hypothesis  $H_{13}$ :** There is a statistically significant difference between these two aspects of AI perception ( $\mu_1 - \mu_2 \neq 0$ ).

**Null hypothesis  $H_{04}$ :** Students from Poland perceive AI in general and in the educational context in the same way ( $\mu_1 - \mu_2 = 0$ ).

**Alternative hypothesis  $H_{14}$ :** There is a statistically significant difference between these two aspects of AI perception ( $\mu_1 - \mu_2 \neq 0$ ).

In the above statistical hypotheses:

$\mu_1$  - mean of the first population,

$\mu_2$  - mean of the second population.

Statistical calculations and verification (z-statistics) were performed according to the standard methods described in (Kingston University, 2010; Okulich-Kazarin, 2024).

## Results

### Assessing the general attitude of students towards artificial intelligence

To identify differences in the general perception of AI between students from Uzbekistan and Poland, the answers to the question: "What is your general attitude towards artificial intelligence?" were analyzed (Table 2). Two Polish respondents did not answer this question.

**Table 2**

*Distribution of students' answers to the question: How do you feel about Artificial Intelligence?*

No	Answer	Uzbekistan	Poland
1	Definitely positively	25	60
2	Rather positively	38	164
3	Hard to say	10	100
4	Rather negatively	2	32
5	Definitely negatively	0	6
6	M(x)	3.1467	2.6630
7	$\delta_x$	0.7428	0.8312
	Total	75	362

Source: own data

Table 2 shows that most of the answers are in the positive area ("Rather yes" and "Definitely yes") for both groups of respondents. The number of undecided respondents ("Hard to say") is higher among Polish students.

The average Likert scale values were  $M(x) = 3.15$  (Uzbekistan) and  $M(x) = 2.66$  (Poland), indicating a more pronounced positive perception among Uzbek students. Standard deviations: 0.74 and 0.83, respectively.

In both samples, positive assessments predominate, but Polish students more often choose the neutral option ("hard to say"), which may indicate greater doubt or cognitive ambiguity regarding AI.

### Assessing attitudes towards the use of AI in education

The answers to the second question: "How do you feel about the use of AI in the educational process?" showed a similar trend (Table 3). Two Uzbek respondents did not answer this question.

**Table 3**

*Distribution of students' answers to the question: How do you feel about using Artificial Intelligence in the teaching process?*

No	Answer	Uzbekistan	Poland
1	Definitely positively	27	71
2	Rather positively	28	156
3	Hard to say	14	82
4	Rather negatively	2	43
5	Definitely negatively	2	12
6	M(x)	3.0411	2.6346
7	$\delta_x$	0.9571	1.0276
	Total	73	364

Source: own data

Table 3 shows that the number of negative responses ("Rather not" and "Definitely no") increased compared to the responses in Table 2 for both groups of respondents.

The average value in Uzbekistan is  $M(x) = 3.04$ , in Poland  $M(x) = 2.63$ . Both groups are on average positive about the use of AI in education, but Polish students demonstrate a greater degree of caution or uncertainty. The obtained result is statistically significant (90.0%).

### Comparative statistical analysis between countries (Hypotheses 1 and 2)

To test the statistical significance of differences between countries, z-tests of two independent samples were used. The results are shown in Table 4.

**Table 4**

*Testing the hypothesis about the difference in the general perception of AI (Hypothesis 1) and the hypothesis about the difference in the perception of AI in education (Hypothesis 2)*

Calculation stage	The hypothesis 1		The hypothesis 2	
	Uzbekistan	Poland	Uzbekistan	Poland
The size of a sample, N	75	362	73	364
The expected value, $M(x)$ , %	3.1467	2.6630	3.0411	2.6346
$ M(x_1) - M(x_2) $	0.4837		0.4065	
$\mu_1 - \mu_2$	0.00		0.00	
The standard deviation for the sample, $\delta_x$	0.7428	0.8312	0.9571	1.0276
Average error, $\hat{S}_x = \delta_x / \sqrt{n}$	0.0858	0.0436	0.1128	0.0539
$\hat{S}_x^2$	0.0074	0.0019	0.0127	0.0029
$ Z_{stat} $	6.5222		4.1063	
The value $Z_{tab1}$	1.645		1.645	
for the standard testing level of 0.10				
Result, $ Z_{stat}  > Z_{tab1}$	Yes		Yes	

Source: obtained from own data

If in Table 4, z-statistics  $|Z_{stat}|$  is larger than the  $Z_{tab1}$ , so the Null hypothesis is rejected. And the Alternative hypothesis is accepted in both cases, if random deviations are not taken into account. This means that students from Uzbekistan perceive AI more positively than students from Poland, both in general and in the context of higher education. The obtained result is statistically significant (90.0%).

### Comparison of attitudes within each country (Hypotheses 3 and 4)

Table 5 presents the process and results of verification of statistical hypotheses for hypotheses 3 and 4.

**Table 5**

*Comparison of the general perception of AI and its application in education within two countries*

Calculation stage	The hypothesis 3		The hypothesis 4	
	Uzbekistan	Poland	Uzbekistan	Poland
The size of a sample, N	75	72	364	364
The expected value, $M(x)$ , %	3.1467	3.0411	2.6630	2.6346
$ M(x_1) - M(x_2) $	0.1056		0.0284	
$\mu_1 - \mu_2$	0.00		0.00	
The standard deviation for the sample, $\delta_x$	0.7428	0.9571	0.8312	1.0276
Average error, $\hat{S}_x = \delta_x / \sqrt{n}$	0.0858	0.1128	0.0436	0.0539
$\hat{S}_x^2$	0.0074	0.0127	0.0019	0.0029
$ Z_{stat} $	1.4505		0.8981	
The value $Z_{tab1}$	1.645		1.645	
for the standard testing level of 0.10				
Result, $ Z_{stat}  > Z_{tab1}$	No		No	

Source: obtained from own data

If in Table 5, z-statistics  $|Z_{stat}|$  is less than the  $Z_{tab1}$ , so the Null hypothesis is accepted in both cases, if random deviations are not taken into account. This means that students from both countries have a positive attitude towards the use of AI, both in general and in higher education. For both countries, the differences between general attitudes towards AI and attitudes towards its educational applications are not statistically significant. The obtained result is statistically significant (90.0%).

## Discussion

The findings support the research hypothesis that cultural and religious traditions influence the perception of artificial intelligence. Students from Uzbekistan, where the Islamic tradition is combined with a state focus on technological modernization, demonstrate higher rates of acceptance of AI both in general and in the context of education. In contrast, Polish students, who are formed in the context of the Catholic humanist tradition and European critique of technocracy, demonstrate a more reserved and less certain attitude.

Unlike other studies that have focused primarily on access to technology (e.g. Abdelwahab et al., 2022; Hajam & Gahir, 2024), our study shows that the cultural-religious context factor may play an equally important role. This is also supported by the findings of Ahmad et al. (2023), where the perception of AI depends on the cultural environment and the level of trust in digital solutions. However, not all results of other studies fully coincide with our findings. For example, Marshik et al., (2024) show that students in the United States have a positive but fragmented attitude towards AI, not tied to religious or cultural background. This may indicate a more individualized perception in multicultural societies, as opposed to religiously homogeneous countries.

The obtained results help to more accurately take into account cultural and religious differences when implementing AI in educational processes. This is especially important for international projects, academic mobility programs and transnational initiatives in the field of digitalization of education. However, it is impossible to deny the importance of the results for national educational systems.

The results can be used:

- by government bodies - when forming educational policy in the field of digital transformation;
- by developers of educational tools and platforms - when designing interfaces and functionality taking into account the level of trust in AI in countries with different cultures;
- by universities - to adapt digital solutions to the peculiarities of perception of students with different historical backgrounds.

Knowing how historically conditioned values influence the adoption of AI technologies makes it possible to build more accurate and sustainable strategies for their implementation.

The study contributes to the development of a cultural-historical approach by applying it to the analysis of the perception of digital technologies in the educational environment. It shows that attitudes towards AI are formed not only under the influence of the level of digital literacy or professional training, but also as a continuation of cultural, religious and historical contexts. The results expand the scope of the cultural-historical approach, extending it to the sphere of modern technological innovations. The results confirm that technologies are interpreted not in isolation from culture, but as its continuation or challenge.

Thus, differences in students' perceptions of AI cannot be explained solely by personal preferences or levels of digital literacy. They are mediated by historically established scenarios for interpreting technologies, which are based on religious ideological foundations.

The study is limited to a sample of undergraduate students from two countries and does not include master's, postgraduate, advanced training students or teachers. The respondents were not trained in IT specialties, which helps to avoid professional bias. However, the professional composition of the respondents does not reflect the perception of AI among the technical audience. The Likert scale used reveals general perceptions, but does not capture the motivational or value bases of the answers. The study also focuses on two religiously homogeneous countries (Uzbekistan and Poland) and does not include multi-confessional contexts.

## Conclusions

The results of the study confirmed the main hypothesis: students' perception of artificial intelligence is formed not only on the basis of individual experience, but also reflects the influence of historically established religious and cultural traditions. Students from Uzbekistan, where Islam is combined with a positive attitude towards technological progress, demonstrate a higher level of acceptance of AI both in general and in the educational sphere. At the same time, students from Poland (a country with a predominantly Catholic tradition) express a reserved or uncertain attitude towards the use of AI in education.

These differences have both theoretical and practical implications. From a theoretical perspective, the study extends the application of the cultural-historical approach to the study of digital technologies. It demonstrates that the perception of AI is not universal, but is conditioned by symbolic systems that are formed in specific religious and socio-cultural contexts.

From a practical perspective, the results may be useful:

- for educational policy: when developing national and transnational strategies for digitalization of education, taking into account cultural sensitivity;
- for developers of digital platforms and educational solutions: when designing interfaces, functionality and levels of autonomy of AI systems depending on trust in them in various cultural environments;
- for universities: when introducing AI into educational processes through pilot projects that take into account local attitudes and values of students.

There are three multi-level managerial recommendations:

- government bodies need to perform a preliminary analysis of the cultural and historical aspect when forming educational policy in the field of digital transformation;
- developers of educational tools and platforms need to adapt the design brief / technical requirements according to the perception of AI by students before starting to design interfaces and functionality;
- universities need to draw up plans for the implementation of AI technologies in pedagogical practice, taking into account the cultural background of students' perception of AI.

Therefore, unified technological solutions require cultural specificity and subsequent adaptation. This is especially important for international academic programs, mobility programs, and distance learning platforms.

## Limitations and future research directions

One of the limitations of the study is the difference in the volume of national subsamples (364 Polish and 75 Uzbek students). This imbalance is due to the different availability of respondents, but it does not affect the correctness of statistical analysis: standard methods of comparing samples of different sizes were used to test hypotheses (Kingston University, 2010). With a confidence level of 90% and a total sample size ( $n = 439$ ), the results remain statistically reliable. Future studies plan to distribute the sample more symmetrically between countries.

The study is also limited to a sample of non-IT-related undergraduates from two religiously homogeneous countries. In the future, it seems important to:

1. expand the geography and religious diversity of the sample by including countries with a multi-religious structure;
2. conduct in-depth interviews to understand the motivations and reasons behind positive or negative attitudes towards AI;
3. conduct a follow-up study in 3–5 years to record possible dynamics of perception against the background of technological and regulatory changes.

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