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AN ANALYSIS OF THE EFFECTS OF RISK AVERSION AND INFORMATION COST ON PASSIVE INVESTING

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ABSTRACT

The paper analyzes the effect of risk aversion and information cost on the decision to invest in an indexed or non-indexed fund. A model considering two representative investors with differing risk aversions and negative exponential utilities are considered. Investors trade two assets, one called the index, another a regular stock, distinguished by the information available about them. Both investors attempt to maximize their future utility, meaning the utility at the time the assets are liquidated. Three periods are considered, which can be described as: buying, trading, and liquidating. As in the markets, the value of the assets in the future is unknown, hence both investors make decisions under uncertainty. It is found that more risk averse investors are more likely to invest in indexed funds. It is also found that both higher information cost and risk aversion increase the difference between the true value of an asset and the price at which the asset is traded in the market. Also, under the conditions imposed in the model, only extremely risk adverse investors will invest all their wealth in the index.

Keywords: risk aversion, indexed funds, information cost, price informativeness

INTRODUCTION

The objectives of this paper are two-fold: to analyze the effect of risk aversion and information cost in the decision to invest in indexed or non indexed funds and, to present how the difference between prices and the true value of an asset varies when both risk aversion and information cost change.

Indexed Mutual Funds and Exchange Traded Funds (ETF's) have been offered since the seventies. According to data from the 2025 Investment Company Factbook, the share of the fund market of indexed mutual funds and ETF's have increased from 19% in 2010 to 51% in 2024 (which amounts to $16.2 trillion), thus showing the growing investor preference for indexed mutual funds and ETF's. The growth of the fund market share of indexed mutual funds and ETF's have motivated a multifaceted discussion among academics and practitioners mostly centered in the effect of indexed funds in the price discovery of assets and to elucidate what kind of investors, in the risk aversion sense, would prefer indexed to managed, funds.

Malkiel (2003) affirms "the evidence strongly supports passive investment management in all markets", this conclusion is not weakened by doubts about the efficient market hypothesis as expressed in De Bondt and Thaler (1995), Campbell et al (1997), and Schiller (2000). Malkiel (2003) also shows the odds of a managed mutual fund obtaining higher returns than the SP500 to be decreasing with time. This result is also shown for a span of about 20 years in the SPIVA scorecard, published by Standard and Poors. When observing the amount of money managed by each category of funds, the passive funds manage more in assets than the managed funds, the total between the two being about 31.8 Trillion Dollars in 2024, of which 16.2 Trillion Dollars are in indexed ETFs or funds. Regardless of whether passive traders are obtaining higher returns than

active traders, or not, questions about the effects of passive investing on asset prices, hence returns, remain. To that respect, Baruch and Zhang (2019) conclude that passive investing affect prices via an increase of the proportion of idiosyncratic risk to total risk and an increase in comovement of asset prices. Coles, Davidson, and Ringgeberg (2022), using an augmented Grossman and Stiglitz framework, find the informativeness of prices unchanged despite the increase in passive investing. Using a dynamic exchange economy with heterogeneous traders and two Lucas trees, Chabakauri and Rytchkov (2021) find passive investing to be the source of increased market volatility and stock return correlations. Jiang, Vayanos, and Zheng (2024) contend that inclusion of a company in an index, like the SP500, bias its price towards overvaluation, hence lowering the financing cost of the firm. A simple model is developed to study the effect of risk aversion on passive investing and whether passive investing affects price informativeness. The results suggest passive investing to stem from high risk aversion or high informational cost, while no direct effects of passive investing on prices is found.

MODEL

We consider two assets, described as follows:
Asset 1 has a publicly accessible expected value with known standard deviation. The uncertainty in the information for this asset cannot be improved by paying a cost, meaning all the available information is already public. This can be construed as asset 1 being subject to very high scrutiny by market participants.
Asset 2 has a publicly available expected value but, a cost is associated to diminishing the standard deviation of it. Another way to express the same idea is to say that there is a cost in order to reduce the uncertainty of the information regarding asset 2, where the standard deviation is interpreted as the spread on the information available.
The prices and quantities each trader decide to hold of the assets are first derived assuming a correlation different than zero between assets, assumption that will be relaxed to study the quantities and prices for uncorrelated assets. The index is considered to be asset 1, this due to how public the information is without the need for extra cost to reduce its uncertainty. It can be argued that the pricing of the stocks forming the index reflects research done by informed traders who do not profit from their research if all the index information is public. Regarding the previous argument, this paper is silent.
We consider two traders: trader 1 is not willing to pay the cost to learn more about asset 2 while trader 2 is willing to pay the cost to diminish the uncertainty of the information regarding asset 2. It has to be clarified that the uncertainty is not referring to historical volatility but to the uncertainty derived from spread in information. In this sense, the cost of reducing the standard deviation of asset 2 is interpreted as the cost of narrowing the information associated with asset 2, thus making it safer to invest. It is also established that the uncertainty cannot be totally eliminated regardless how high is the cost associated with information gathering.
The information on asset 1 reflects an average expected return of ν_1 and a standard deviation of σ_1 while the information on asset 2 has an average expected return of ν_2 and a standard deviation of σ_2. if trader 2 decides to gather information about asset 2, the standard deviation of the information will be multiplied by a factor β where $0 < \beta < 1$. This will make an effective standard deviation of $\beta\sigma_2$ for trader 2.
There are three stages in the process. In the first stage an endowment is given to each trader. In the second stage, traders attempt to maximize the expected utility of their final wealth. In stage three the value of the assets is revealed. The focus of this paper is on

stage 1, where traders trade attempting to maximize their utility function. Since there is no a priori association between the traders and the assets, both traders hold a mix of both assets. The differentiating points between the traders are their risk aversion coefficients and willingness to pay a cost to decrease the uncertainty of information regarding asset 2. With that said, both traders maximize a negative exponential utility function over their expected wealth. Since the trader's willingness to incur a cost to lower the uncertainty of the information regarding asset 2 differs between them, the covariance matrix of the signals is different for both traders.

Each of the traders have a negative exponential utility on the final wealth with different risk aversion coefficients, δ for trader 1 and α for trader 2. The vector of asset demand for the traders 1 and 2 are denoted X_j for trader 1 and Y_j for trader 2, where $j \in \{1,2\}$ denotes the asset. Each trader decides its demand by solving:

$$\text{Max}[-E exp(-kw_2)]$$

where $k = \{\delta,\alpha\}$ subject to

$$w_2 = w_1 + (\vec{V} - \vec{P}_1)\vec{Y}_1$$

$$w_1 = w_0 + (\vec{P}_1 - \vec{P}_0)\vec{Y}_0$$

and markets clear at each period. For trader 1, the covariance matrix is given by:

$$\Sigma_1 = \begin{bmatrix} \sigma_1^2 & \rho\sigma_1\sigma_2 \\ \rho\sigma_1\sigma_2 & \sigma_2^2 \end{bmatrix}$$

while for trader 2, the covariance matrix is given by:

$$\Sigma_2 = \begin{bmatrix} \sigma_1^2 & \rho\sigma_1\beta\sigma_2 \\ \rho\sigma_1\beta\sigma_2 & \beta^2\sigma_2^2 \end{bmatrix}$$

If the assets are correlated we get the following solution:

$$X_1 = \frac{1}{\delta}\begin{bmatrix} \frac{(v_1-P_1)\sigma_2^2-(v_2-P_2)\rho\sigma_1\sigma_2}{\sigma_1^2\sigma_2^2(1-\rho^2)} \\ \frac{(v_2-P_2)\sigma_1^2-(v_1-P_1)\rho\sigma_1\sigma_2}{\sigma_2^2\sigma_1^2(1-\rho^2)} \end{bmatrix}$$

$$Y_1 = \frac{1}{\alpha}\begin{bmatrix} \frac{(v_1-P_1)(\beta\sigma_2)^2-(v_2-P_2-C)\rho\beta\sigma_1\sigma_2}{\beta^2\sigma_1^2\sigma_2^2(1-\rho^2)} \\ \frac{(v_2-P_2-C)\sigma_1^2-(v_1-P_1)\rho\beta\sigma_1\sigma_2}{\beta^2\sigma_1^2\sigma_2^2(1-\rho^2)} \end{bmatrix}$$

One can see, for both traders, that totally correlated assets leads to unfeasible solutions. One can also see trader 1 having a demand for both assets, even if the assets are uncorrelated. This result precludes naming trader 1 as solely focused on the index (asset 1). For trader 2, one can see that the higher the cost of obtaining information (lowering the standard deviation of asset 2), the less the demand for asset 2, unless the standard deviation of the information reduces enough to justify the price paid to obtain more accurate information.
Without loss of generality, the case of uncorrelated assets is studied. Then, we get the following demands by each trader for assets 1 and 2:

$$X_1 = \frac{1}{\delta}\begin{bmatrix} \frac{v_1 - P_1}{\sigma_1^2} \\ \frac{v_2 - P_2}{\sigma_2^2} \end{bmatrix}$$

$$Y_1 = \frac{1}{\alpha}\begin{bmatrix} \frac{v_1 - P_1}{\sigma_1^2} \\ \frac{v_2 - P_2 - C}{\beta^2 \sigma_2^2} \end{bmatrix}$$

since markets clear, the difference between the value of the asset, to be realized at stage 2, and the price at stage 1 is given by:

$$v_1 - P_1 = N_1 \left[\frac{\alpha\delta\sigma_1^2}{\alpha + \delta}\right]$$

and

$$v_2 - P_2 = N_2 \left[\frac{\alpha\delta\beta^2\sigma_2^2}{\alpha\beta^2 + \delta}\right] + \frac{C\delta}{\delta + \alpha\beta^2}$$

replacing these expressions in the demand by the traders we get the following expressions for the demand by the traders:

$$X_1 = \frac{1}{\delta}\begin{bmatrix} N_1 \left[\frac{\alpha\delta}{\alpha+\delta}\right] \\ \left[N_2\alpha\beta^2 + \frac{C}{\sigma_2^2}\right] \frac{\delta}{\delta+\alpha\beta^2} \end{bmatrix}$$

and

$$Y_1 = \frac{1}{\alpha}\begin{bmatrix} N_1 \left[\frac{\alpha\delta}{\alpha+\delta}\right] \\ \left[\frac{\alpha}{\delta+\alpha\beta^2}\right] \left[N_2\delta - \frac{C}{\sigma_2^2}\right] \end{bmatrix}$$

These equations have been calculated and simulated using numerical methods with the following beginning parameters:

standard deviation of asset 1 (σ_1=2), standard deviation of asset 2 (σ_2=2), shares of asset 1 (N_1=1), shares of asset 2 (N_2=1), information cost (C=1), factor for uncertainty on asset 2 (β=0.5)
The results that follow are based on the simulations of the above expressions.
Figure 1 present the difference between the true value of asset 1 and its price at time 1 against the risk aversion of the traders. One can see the difference between the final value of asset 1 and its price at time 1 to depend on: the quantity of the asset existing in the market (N_1), the volatility of the asset, which is taken as the relative uncertainty in the information, and the relative risk aversions of the traders. This result suggest the higher the uncertainty of the information, the higher the difference between price and true value. This result also suggest the practical impossibility for the price to reflect with total accuracy the value of the asset. In order for this to happen, the risk aversion of the traders should be zero. In a risk neutral world, then, the price may reflect the true value of asset 1. Also, one can see the difference between price and value for asset 1 not to be altered by the volatility of asset 2 or by the accuracy of asset 2 information (as reflected by β). The caveats with this result are: there is only one trader of each type, which precludes the pooling of information; and the assumption of uncorrelated assets, even though this last assumption does not alter the final conclusions.
Figure 2 present the difference between the true value of asset 2 and its price at time 1 against the risk aversions of the traders. In Figure 2, one can see the cost of information creating a wedge between the price and the true value of asset 2, this is before considering the effect of the information obtained on the uncertainty of asset 2. The trader willing to pay the cost to lower the uncertainty of asset 2 expects to recover the investment made on information, hence, this alone will create a difference between the price of the asset and its true value.
Depending on the effect of gathering information on the final uncertainty of asset 2, two extreme states can be distinguished:
When the uncertainty vanishes completely, corresponding to $\beta = 0$. When the uncertainty remains the same, regardless of the cost paid, corresponding to $\beta = 1$.
Every other case will be between these two extremes.

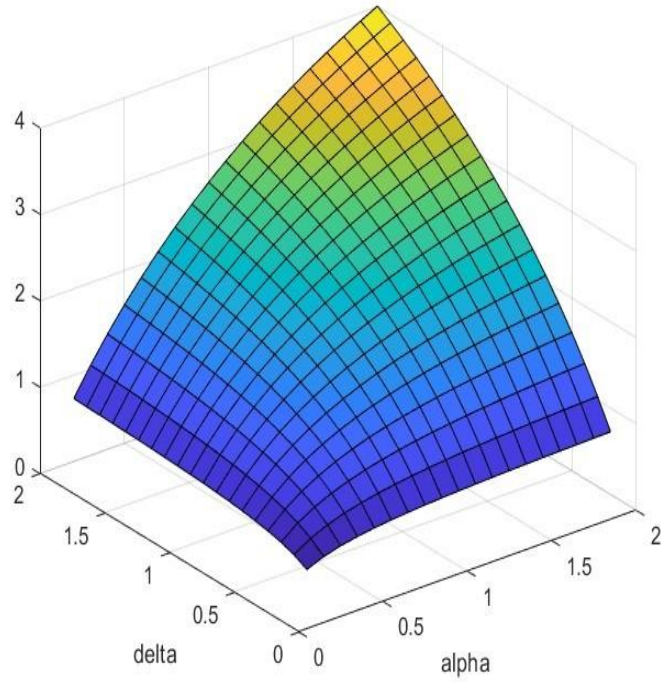

Figure 1. Difference between price and true value for asset 1 as a function of the traders risk aversion. Delta denotes the risk aversion of trader 1, alpha denotes the risk aversion of trader 2.

In the case $\beta = 0$, the difference between the price and the true value of the asset is the information cost. Trader 2, who was willing to pay for the information on asset 2, will recover the investment by paying the true value of asset 2 minus the cost of information.

The case of $\beta = 1$ presents us with an increased difference between the true value and the price compared with the case $\beta = 0$. As expected, when uncertainty is not totally eliminated by the expenditure on information, said uncertainty will place a wedge between the true value of the asset and the price paid for it. The direct effect of the uncertainty is modulated by the risk aversion of the traders. For infinitely averse traders, the price is very far from the true value, what is more, it is enough to have one of the traders to be infinitely risk averse for the price to be far from the true value. If the risk aversion of trader 1 is close to zero while the risk aversion of trader 2 is higher, close to 2, the difference between value and price will be about 10 times the value when both traders have low risk aversion (about 0.2). This effect is not symmetric with respect to the risk aversion of trader 1. An increase in the risk of asset 2, as measured by the standard deviation, bring about a big increase in the difference between value and price; this difference is equally dependent on the risk aversion of both traders.

Figure 3 presents the demand for asset 1 by trader 2 against the risk aversion of the traders. This figure suggest the higher the risk aversion of trader 1, the higher the demand of this asset by trader 2. This is explained by the fact that increased risk aversion from the part of trader 1 implies lower demand for asset 1, hence leaving more for trader 2. Also, the demand for asset 1 is not linked to the informational cost for asset 2. The demand for asset 2 varies depending on the trader. For trader 2, higher information cost implies less demand for asset 2, regardless of how

much the uncertainty about the asset diminish. Analyzing the effect of β on the demand by trader 2 one finds the higher the uncertainty, the lower the demand, and vice versa. This last statement is equivalent to recognizing that the least the reduction in the uncertainty of information for the price paid, the lower the demand from the trader paying for the information. The demand for asset 2 by trader 1 is presented in Figure 4. Said demand increases with the information cost while it decreases with the accuracy of the information while being heavily dependent on the risk aversion of trader 1. This result suggest the higher the information cost, the less demand for asset 2 by trader 2, thus leaving more for trader 1. Also, lower uncertainty means trader 2 will buy more of asset 2, leaving less for trader 1.

We cannot forget that trader 1 sees always the same uncertainty of information for asset 2, thus leaving effectively the final decision on quantities to trader 2. This result agrees with the trader that might be called informed (trader 2), using the information he holds to his advantage. This is shown in lowering the demand of asset 2 when the cost is too high, which implies trader 1 having more of it, while increasing his demand for asset 2 when the uncertainty is less, then leaving trader 1 to have less of the asset.

If the information cost for asset 2 reaches $N_2\delta\sigma_2^2$, then trader 2 have no incentive to be informed since his demand for asset 2 would be zero. If that limit cost is paid, then, the demand for asset 2 from trader 1 is N_2, as stated above, trader 1 buys the amount the trader 2 does not buy.

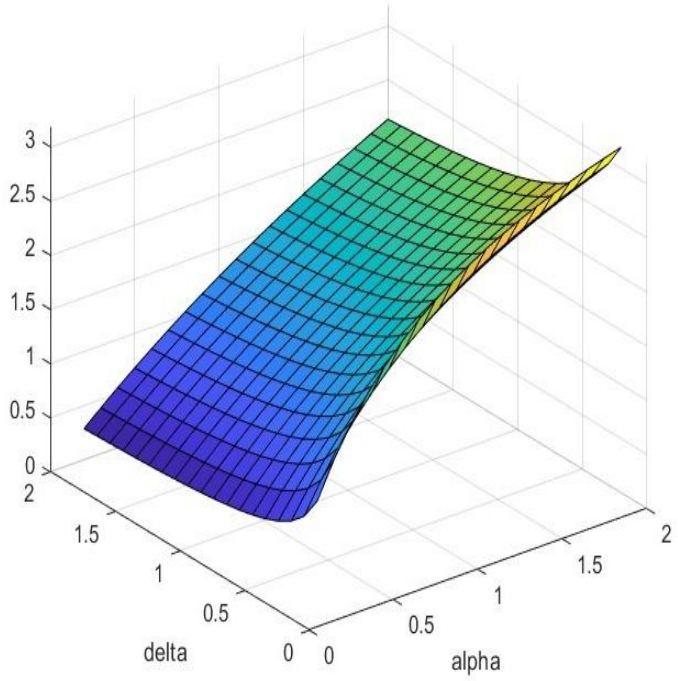

Figure 2. Difference between price and true value for asset 2 as a function of the traders risk aversion.

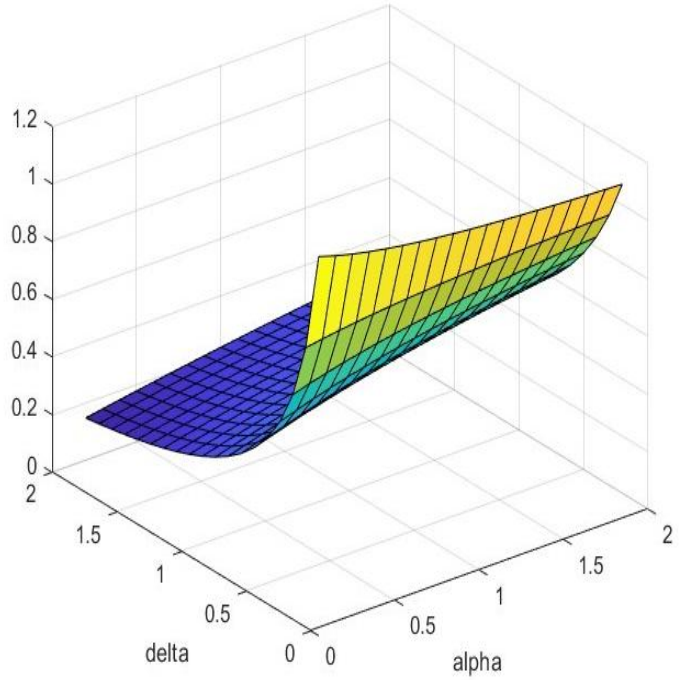

Figure 3. Demand for asset 1 by trader 2

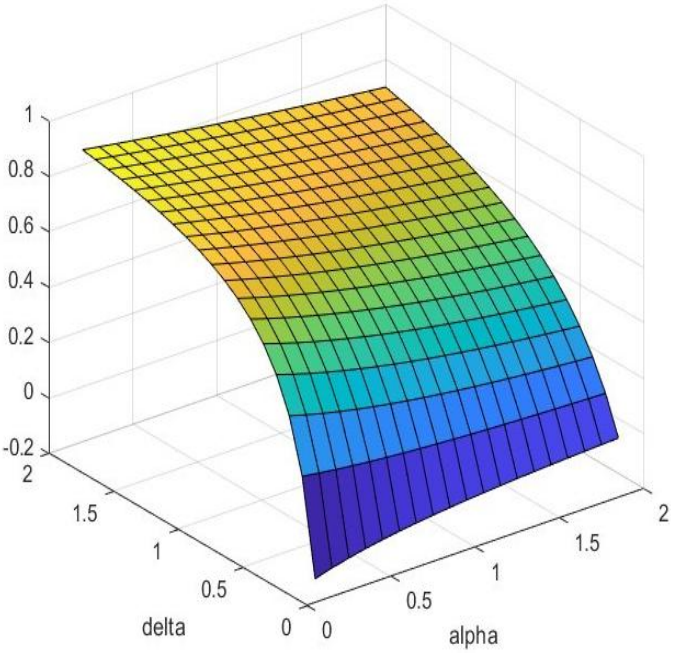

Figure 4. Demand for asset 2 by trader 1.

CONCLUSION

These results show that it is not easy to justify a trader being devoted to the index only unless the trader has very high risk aversion. If a trader is willing to pay for information about an asset, the

reduction in the uncertainty about the final value of the asset will prompt the trader to buy more of the asset, hence leaving less of the asset for what we can call the uninformed trader (trader 1). When the volatility of asset 1 (the index) is high, the demand for the index will not change. As a contrast, when the volatility of asset 2 is high, the demand for it is affected. This is attributed to the index information being public, hence, with no cost associated to obtain it. For what we have seen, a possible motive for indexing is plain risk aversion, where the shield offered by the index is very important. If we add to that the fact that companies in the index are usually high cap companies, then, the sense of security is increased due to the perception of those companies being very solid, thus, with low idiosyncratic risk.

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OPENNESS AND GDP IN CHINA: EVIDENCE FROM TRADE, FOREIGN DIRECT INVESTMENT, AND TARIFFS, 1961–2022

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ABSTRACT

This paper examines the relationship between economic openness—trade openness, foreign direct investment (FDI), and tariff rates—and income growth in China over the period 1961–2022. Controlling for inflation, population growth, and gross capital formation, it employs an Error Correction Model to capture both short-run dynamics and long-run equilibrium relationships. The results show that, in the short run, trade openness and FDI are positively and significantly associated with GDP per capita growth, while tariffs are not statistically significant. More importantly, the findings confirm a stable long-run relationship between economic openness and growth, with a relatively rapid speed of adjustment (70%–86%) back to equilibrium following a shock. Finally, an interaction term capturing China's accession to the World Trade Organization indicates a negative effect of trade openness and a positive effect of FDI, suggesting a shift in the channels of openness rather than a structural break in the growth process.

Key Words: China, foreign direct investment, trade, tariffs, error correction model

INTRODUCTION

Economic development, commonly measured by growth in gross domestic product (GDP), has long been a central concern in economics. This is particularly true for China, which has experienced remarkable economic expansion over the past four decades. Beginning in the 1960s and accelerating through subsequent reforms, China's transition toward greater openness—often referred to as its "opening up" period—provides a compelling case for examining the role of global integration in promoting economic growth.

Economic theory suggests that as countries open their economies to international trade and investment, overall welfare increases through gains in efficiency, specialization, and resource allocation. These gains generate higher total surplus across participating nations and contribute to rising standards of living. Such benefits are typically realized through multiple channels, including increased trade flows, foreign direct investment (FDI), and the transfer of technology and knowledge.

China's experience between 1961 and 2022 strongly reflects these theoretical predictions. Over this period, the country transformed into one of the world's largest economies, lifting a substantial portion of its population out of poverty. While the process of openness began earlier, China's accession to the World Trade Organization (WTO) in 2001 marked a significant milestone that further integrated the country into the global economy.

Despite broad agreement that openness has contributed to China's economic success, the relative importance of different channels of openness remains an empirical question. Trade in goods and

services can expand market access, create employment, and increase incomes, while FDI can enhance domestic production capacity through capital inflows and technology transfer. At the same time, reductions in tariffs lower trade barriers and facilitate greater international exchange.

This paper seeks to examine the relationship between economic openness and GDP per capita growth in China over the period 1961–2022. Specifically, it evaluates the roles of trade openness, foreign direct investment, and tariffs, while controlling for key macroeconomic factors. By employing a dynamic time-series framework, the study aims to provide both short-run and long-run insights into how different dimensions of openness have contributed to China's economic development.

LITERATURE REVIEW

The empirical relationship between trade openness and economic growth remains unsettled in the literature, with results varying across countries and methodologies. Din, Musleh-ud, et al. (2003), using an Error Correction Model for Pakistan, find no short-run causality but identify a bidirectional long-run relationship, suggesting that the benefits of trade may materialize over time. Similarly, Sarkar (2008) reports heterogeneous effects across countries, with growth observed primarily in highly trade-dependent economies, while others show no significant relationship. In contrast, Siddiqui (2016) challenges the conventional view by arguing that trade liberalization may adversely affect developing economies by increasing external vulnerability and weakening domestic industries. These mixed findings indicate that the growth effects of trade openness are likely context-dependent and influenced by structural characteristics.

In comparison, the literature on foreign direct investment provides more consistent evidence of its positive role in economic growth, particularly in developing economies. Hoang et al. (2010) find that FDI contributes to growth in Vietnam through capital accumulation, though its impact on human capital is limited. A broader review by Udeh, Ibrahim, and Sesay (2025) similarly concludes that FDI tends to promote growth in emerging markets, while its effects are less pronounced in developed economies. This suggests that the growth-enhancing role of FDI operates primarily through investment and technology transfer channels, though its effectiveness depends on domestic absorptive capacity.

The impact of tariff policies on economic growth is also subject to debate. Connelly and Yi (2015) show that tariff reductions can stimulate growth through increased specialization and capital accumulation, particularly in rapidly industrializing economies such as South Korea. However, historical evidence from O'Rourke (2000) suggests that tariffs were positively associated with growth during earlier stages of industrialization, highlighting the possibility that protectionist policies may support development under certain conditions. Moreover, Nunn and Trefler (2010) demonstrate that the composition of tariffs, particularly their skill bias, can have important long-term implications for growth by promoting skill-intensive sectors. These findings underscore the complexity of the trade policy–growth nexus.

Finally, macroeconomic factors such as inflation, population growth, and capital formation play a complementary role in shaping growth outcomes. Munir et al. (2009) find that inflation has a nonlinear relationship with growth, suggesting that moderate inflation may be growth-enhancing, while high inflation is detrimental. The effect of population growth remains ambiguous, with

some studies finding no significant relationship (Dawson and Tiffin, 1998; Thornton, 2001), while others, such as Furuoka (2009), identify a positive long-run association, particularly in developing economies. Gross capital formation is widely recognized as a key driver of growth through its role in expanding productive capacity. Overall, the literature suggests that macroeconomic conditions interact with openness variables in determining growth outcomes, reinforcing the need for a comprehensive empirical framework.

GAPS IN LITERATURE

Despite the extensive literature on openness and economic growth, some gaps remain. First, existing studies provide mixed and often context-specific findings regarding the impact of trade openness, FDI, and tariff policies, with limited consensus on their relative importance. Second, much of the empirical work focuses either on cross-country or panel data, which may overlook country-specific dynamics and structural transformations. In the case of China, there is a need for a comprehensive time-series analysis that jointly examines multiple dimensions of openness within a unified framework. This paper addresses these gaps by employing a dynamic time-series approach to analyze both short-run and long-run relationships, while also evaluating if the channels of openness have relatively changed over time.

DATA AND VARIABLES

This study uses annual time-series data for China covering the period 1961–2022. The data are obtained from the World Bank's World Development Indicators (https://databank.worldbank.org/source/world-development-indicators).

The dependent variable is GDP per capita growth, which serves as a measure of economic development.

The key independent variables capture different dimensions of economic openness. These include:

- Trade openness, measured as the sum of exports and imports as a percentage of GDP
- Foreign direct investment or FDI, measured as net inflows as a percentage of GDP
- Tariff rates, representing trade policy and barriers to international trade

To control for other factors influencing economic growth, the model includes the following macroeconomic variables:

- Population growth, measured as the annual percentage change in total population.
- Inflation, measured using the annual percentage change in GDP deflator.
- Gross capital formation (GCF), measured as a percentage of GDP, capturing domestic investment.

All variables are expressed in annual frequency. Where appropriate, variables are transformed to ensure consistency and suitability for time-series analysis.

1. Summary Statistics

***Table 1**: Variable*	***Obs***	***Mean***	***Std. Dev.***	***Min***	***Max***
GDP_Cap_Growth	62	6.69853	6.490685	-26.52764	16.0504
FDI_Inflows	44	2.488612	1.705951	0.0000448	6.161583
Trade	62	27.93849	17.09108	4.825486	63.56958
Tariff_All	28	13.12786	9.36123	5.31	39.71
Inflation	62	3.528487	4.735588	-3.802936	20.64054
PopGrowth	62	1.209663	0.8032064	-1.015528	2.787332
GCF	62	36.27137	6.695125	15.70354	46.2703

The summary statistics in Table 1 reveal substantial variation across variables over the sample period (1961–2022), reflecting the profound structural transformation of China's economy. GDP per capita growth follows cyclical patterns but exhibits a strong upward trend from the 1960s through the 1990s, with a modest increase around China's accession to the WTO in 2001, followed by a relative stabilization in later years. Trade openness expanded significantly over time, peaking in the mid-2000s before declining somewhat, likely reflecting global shocks such as the financial crisis and the COVID-19 pandemic. FDI as a share of GDP rose sharply between the 1980s and mid-1990s before declining as overall GDP growth outpaced inflows. Tariff rates fell dramatically from high levels of 39% in the 1990s to below 10% following WTO accession, stabilizing at low levels thereafter. Inflation remained moderate on average despite periods of volatility, while population growth steadily declined over time, consistent with demographic policy changes. Gross capital formation increased persistently, highlighting the central role of domestic investment in China's growth model. Overall, these patterns are consistent with increasing economic openness and rising standards of living.

Because the study uses annual time-series data covering several decades, it is important to examine the statistical properties of the variables before estimating the final model.

Time-series variables often contain trends or unit roots, which can lead to spurious regression results if not properly addressed. Therefore, the analysis proceeds in several steps. First, Augmented Dickey–Fuller tests are used to determine whether the variables are stationary. Second, if the variables are non-stationary but integrated of the same order, we test for cointegration to determine whether a long-run equilibrium relationship exists.

Given the time-series nature of the data, the analysis first tests for stationarity using the Augmented Dickey–Fuller (ADF) test. The results indicate mixed orders of integration among the variables, with some series stationary in levels and others in first differences (See Table 2 in appendix). To address this, the study proceeds with cointegration analysis to determine whether a long-run equilibrium relationship exists among the variables.

The ADF of the residuals of the baseline Long-run Models all show that these residuals are stationary, attesting to the existence of cointegration which means there are both short-run, and a long-run equilibrium relationships between the variables Therefore, an Error Correction Model (ECM) is estimated to capture both the short-run dynamics and the long-run relationship between openness and economic growth. The long-run relationship is specified in levels, while the short-run dynamics are modeled using first differences of the variables along with a lagged error correction term. The ECM coefficient reflects the speed at which deviations from the long-run equilibrium are corrected over time.

The following is the equation of the Error Correction Model:

$$\Delta GDPCapGr_t = \gamma_0 + \gamma_1 * \Delta Openeness_t + \gamma_2 * \Delta Inflation_t + \gamma_3 * \Delta PopGrowth_t + \gamma_4 * \Delta GCF_t + \omega * ECM_{t-1} + \varepsilon_t$$

- $where,\ \Delta = first\ difference.\ Short\ run\ changes\ and\ \omega = speed\ of\ adjustment\ parameter$
- $ECM_{t-1} = lagged\ residual\ from\ the\ cointegration\ regression$

To further assess structural changes associated with global integration, the model incorporates an interaction term capturing China's accession to the World Trade Organization in 2001. Finally, diagnostic tests, including tests for serial correlation, heteroskedasticity, and model stability, are conducted to ensure the robustness and reliability of the empirical results.

$$GDPcapGr_t = \mu + \pi_1 * Openness_t + \pi_2 * Interaction\_WTO_t + \pi_3 * Inflation_t + \pi_4 * PopGrowth_t + \pi_5 * GCF_t + \theta_t$$

$where\ \pi_2 = coefficients\ of\ the\ WTO\ interaction\ terms$

2. Empirical Results

The Unit Root Test or Augmented Dickey Fuller Test

Table 2

Variable	Level ADF	First diff ADF	Order of int.
GDP Per Cap Growth	-7.090	--	I(0)
Trade	-1.395	- 4.886***	I(1)
FDI	-2.031	- 5.081***	I(1)
Tariffs	-3.572	--	I(0)
Inflation	-3.567	--	I(0)
Pop Growth	-1.648	-15.604***	I(1)
Gross Cap Form	-3.331	--	I(0)

The ADF test results indicate that GDP, tariff rates, inflation, and gross capital formation are stationary in levels, as their test statistics exceed the critical values in absolute terms. These

variables are therefore classified as integrated of order zero, I(0). In contrast, trade openness, foreign direct investment, and population growth are found to be non-stationary in levels, as their test statistics are lower than the corresponding critical values. However, after first differencing, the ADF test statistics for these variables (−4.886, −5.081, and −15.604, respectively) exceed the critical values in absolute terms, indicating stationarity. These variables are thus classified as integrated of order one, I (1). Overall, the results suggest a mixed order of integration among the variables. The long-run estimation results show that trade openness and foreign direct investment are positive and statistically significant, while tariff rates are negative but not statistically significant. The cointegration test, based on the residuals from the long-run models, indicates that the test statistics exceed the critical values at the 5% (Table 3) level in all cases, and at the 1% level for both trade and FDI. These results provide strong evidence of cointegration between GDP per capita growth and the openness variables

Cointegration Test Results:

Table 3: Cointegration Test

Residual ADF Test	Trade	FDI	Tariffs
Coefficients	0.246***	0.691*	-0.0804
T-critical	-2.921	-2.950	-3.000
T-values	-5.237	-3.972	-3.212
	Stationary	Stationary	Stationary

4. The Error Correction Model

TABLE 4: ERROR CORRECTION MODEL

GDP Per Cap Growth	**GDP Per Cap Growth**	**GDP Per Cap Growth**	**GDP Per Cap Growth**
Trade	0.356*		
	(2.02)		
Inflation	-0.224	0.315**	0.290*
	(-1.19)	(3.35)	(2.43)
Pop Growth	7.684***	4.657	5.658
	(4.31)	(1.03)	(0.63)
GCF	0.950***	0.616**	0.199
	(4.10)	(3.02)	(0.80)
FDI		0.204	
		(0.11)	
Tariffs			-0.00495
			(-0.02)
Residuals (Trade)	- 0.702***		
	(-5.74)		
Residuals (FDI)		- 0.863***	
		(-5.16)	
Residuals (Tariffs)			- 0.710*
			(-2.64)
Constant	-0.177	-0.00187	0.0263
	(-0.33)	(-0.00)	(0.04)
N	61	43	26

t statistics in parentheses * p<0.05, ** p<0.01, *** p<0.001

Trade

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$$\Delta GDPCapGr_t = -0.177 + 0.356 * \Delta Trade_t - 0.224 * \Delta Inflation_t + 7.684 * \Delta PopGrowth_t + 0.950 * \Delta GCF_t - 0.702 * ECM_{t-1}$$

FDI:

$$\Delta GDPCapGr_t = -0.00187 + 0.204 * \Delta FDI_t + 0.315 * \Delta Inflation_t + 4.657 * \Delta PopGrowth_t + 0.616 * \Delta GCF_t - 0.8632 * ECM_{t-1}$$

Tariffs

$$\Delta GDPCapGr_t = 0.0263 - 0.00495 * \Delta Tariffs_t + 0.290 * \Delta Inflation_t + 5.656 * \Delta PopGrowth_t + 0.199 * \Delta GCF_t - 0.710 * ECM_{t-1}$$

The short-run results from the Error Correction Model indicate that population growth and gross capital formation have the largest and most statistically significant effects on GDP per capita growth. It is important to note that population growth affects the growth rate of GDP per capita, not the level of GDP itself. In the trade openness model, trade, population growth, and gross capital formation are all positive and statistically significant, suggesting strong short-run relationships with GDP per capita growth. Specifically, a one percent increase in these variables is associated with increases of approximately 0.356%, 7.684%, and 0.950% in GDP per capita growth, respectively.

In the FDI model, FDI is negative and not statistically significant, while inflation and gross capital formation are positive and significant. A one percent increase in inflation and gross capital formation is associated with increases of approximately 0.315% and 0.616% in GDP per capita growth, respectively. In the tariff model, inflation is the only variable that is positive and statistically significant, with a one percent increase in inflation associated with a 0.290% increase in GDP per capita growth, while tariffs and the remaining variables are not statistically significant.

In the long run, the coefficients on the error correction term are negative and statistically significant across all three models, confirming the existence of a stable long-run equilibrium relationship between GDP per capita growth and the openness variables. The magnitude of these coefficients reflects the speed of adjustment toward equilibrium following a shock. Specifically, approximately 70.2% of deviations from equilibrium are corrected each year in the trade model, 86.3% in the FDI model, and 71.0% in the tariff model. These results indicate a relatively rapid adjustment process and support the presence of a stable long-term relationship between economic openness and GDP per capita growth.

a. WTO Interaction Terms

Table 5: China Accession to World Trade Organization Interaction Terms

Trade***	FDI	Tariffs
Trade_WTO*	FDI_WTO*	Inflation*
-0.213 (-2.07)	0.735 (2.29)	
Pop Growth**		Tariffs_WTO
		0.205 (1.80)
GCF*		

The results of the WTO interaction models are broadly consistent with the baseline short-run findings, as trade openness, population growth, gross capital formation, and inflation remain statistically significant with the expected signs for most of the variables except for Trade openness. However, the interaction terms reveal important differences across openness measures. The interaction term for trade openness is negative and statistically significant (−0.213) indicating that the marginal contribution of trade to GDP per capita growth declined following China's accession to the WTO in 2001. This suggests that China may have already achieved a high level of trade integration prior to accession, with growth increasingly driven by other factors such as domestic investment and productivity gains.

In contrast, the interaction term for FDI is positive and statistically significant (0.735), implying that the contribution of foreign direct investment to economic growth increased after WTO accession. This likely reflects improved investor confidence, greater market access, and deeper integration into global capital markets. Finally, the interaction term for tariffs is positive but not statistically significant (0.205), indicating that tariff reductions associated with WTO accession did not have a measurable impact on the relationship between tariffs and economic growth. This may be due to the fact that tariff rates had already been declining prior to accession, and that growth is more strongly influenced by trade volumes and investment flows than by tariff levels alone.

Diagnostic Tests

	Test	*Critical Value*	*P-Value*	*Results*
	Breusch-Godfrey LM Test			
Trade		0.05	0.1558	No serial correlation
FDI		0.05	0.3331	No serial correlation
Tariffs		0.05	0.2209	No serial correlation
	Heteroskedasticity-Breusch-Pagan			
Trade		0.05	0.3168	Homoskedastic
FDI		0.05	0.4455	Homoskedastic
Tariffs		0.05	0.4588	Homoskedastic

a. Serial Correlation

The Breusch–Godfrey LM test for autocorrelation of order one was conducted for each of the three openness models. In all cases, the null hypothesis of no serial correlation could not be rejected, as the p-values exceeded the 5% significance level. The reported probabilities are 0.1558 for trade openness, 0.3331 for FDI, and 0.2209 for tariffs. These results indicate the absence of serial correlation in the residuals, suggesting that the models are appropriately specified and that the error terms are not correlated over time.

b. Heteroskedasticity

To assess the presence of heteroskedasticity, the Breusch–Pagan/Cook–Weisberg test was performed for each model. The results show that the null hypothesis of homoskedasticity cannot be rejected, as the p-values are 0.3168 for trade openness, 0.4455 for FDI, and 0.4588 for tariffs, all of which are well above the 5% significance level. This indicates that the variance of the error terms remains constant across observations, confirming that the models do not suffer from heteroskedasticity.

c. Robustness Check

The robustness analysis using post-2001 data, following China's accession to the WTO, indicates that trade openness, FDI, and inflation remain statistically significant and retain their expected signs, confirming the stability of the main findings. However, when lagged values of the explanatory variables are introduced, only inflation remains statistically significant, while the significance of trade openness and FDI diminishes. This suggests that the short-run effects of openness variables are sensitive to dynamic specifications, whereas inflation exhibits a more persistent relationship with GDP per capita growth. Overall, the results support the robustness of the main conclusions, while highlighting some variation in short-run dynamics depending on model specification.

While the error correction framework captures both short-run dynamics and long-run equilibrium relationships, potential endogeneity between economic openness and income growth cannot be completely ruled out. The use of lagged variables and cointegration techniques mitigates some simultaneity concerns, although future research may explore instrumental variable approaches

DISCUSSION

The empirical results indicate that trade openness and foreign direct investment are positively and statistically significantly associated with GDP per capita growth in China, while tariff rates do not exhibit a significant relationship. In addition, population growth and inflation emerge as important macroeconomic determinants, and the Error Correction Model confirms the existence of a stable long-run equilibrium relationship between openness and economic growth.

Building on these baseline results, the positive effects of trade openness and foreign direct investment are consistent with economic theory, which predicts that integration into global markets enhances overall economic welfare through gains in efficiency, technology transfer, and improved resource allocation. In the case of China, these benefits have been realized through

increased access to international markets, inflows of capital, and the transfer of knowledge. These channels have contributed to productivity improvements and sustained economic expansion.

Turning to domestic macroeconomic drivers, the positive relationship between population growth and GDP per capita growth suggests that demographic dynamics have supported economic development. This finding may reflect an expansion in labor supply during a period of rapid industrialization, where demand for workers across different skill levels was high. Population growth likely contributed to manufacturing expansion, export growth, domestic consumption, and urbanization. While this result contrasts with the predictions of the Solow growth model, which emphasizes the potential for capital dilution, it is consistent with the experience of developing economies benefiting from a demographic dividend during early stages of growth.

Similarly, inflation also shows a positive and statistically significant relationship with economic growth, which may reflect periods of strong economic activity rather than macroeconomic instability. Gross capital formation plays an important role in supporting short-run growth, underscoring the contribution of domestic investment to China's development process.

Extending the analysis to structural change, the interaction terms suggest that China's accession to the World Trade Organization in 2001 did not fundamentally alter the overall relationship between openness and economic growth, but it did change the composition of that relationship. The results show a statistically significant negative interaction effect for trade openness and a statistically significant positive interaction effect for foreign direct investment, indicating a shift in the marginal contributions of these channels following accession.

More specifically, the marginal contribution of trade openness to GDP per capita growth appears to have declined after 2001, suggesting that China may have already reached a relatively high level of trade integration prior to WTO membership. In contrast, FDI became more strongly growth-enhancing in the post-accession period, reflecting a reallocation of growth drivers toward capital inflows and technology transfer.

Taken together, these findings suggest that WTO accession did not generate a structural break in the openness–growth relationship, but rather reinforced existing integration patterns while shifting the relative importance of trade and FDI in driving economic growth.

Finally, the robustness checks further indicate that trade openness and FDI remain significant in the post-2001 period, while population growth and gross capital formation lose significance. This suggests a shift in the drivers of economic growth toward greater reliance on international integration, with domestic demographic and investment factors playing a less prominent role in later stages of development.

Overall, these findings are consistent with the broader empirical literature emphasizing the positive role of openness in promoting economic growth, particularly in rapidly developing economies. The results also reinforce the importance of foreign direct investment as a key channel for technology transfer, productivity gains, and long-term economic development.

CONCLUSION

This study examines the relationship between economic openness and GDP per capita growth in China over the past four decades. The findings indicate that openness—particularly through trade openness and foreign direct investment —has played a significant role in supporting China's economic development. These results highlight the importance of global integration as a key driver of sustained growth.

In addition to openness, macroeconomic factors such as inflation, population growth, and gross capital formation are found to influence economic growth. These variables capture important domestic dynamics, including labor supply, investment, and macroeconomic conditions, which have contributed to China's rapid expansion.

The analysis further shows that China's accession to the World Trade Organization in 2001 did not produce a statistically significant change in the relationship between openness and GDP per capita growth. This suggests that China was already on a strong growth trajectory prior to accession, and that WTO membership reinforced rather than fundamentally altered existing economic trends.

However, the results also point to a shift in the channels of growth following 2001. In particular, the post-accession period appears to be more closely associated with trade-driven growth, indicating a deeper integration into global markets and a greater reliance on external demand.

Overall, the findings suggest that both international openness and domestic economic factors have been central to China's development process. Future research may further explore the evolving role of openness by examining sectoral dynamics, regional differences, and additional channels of globalization.

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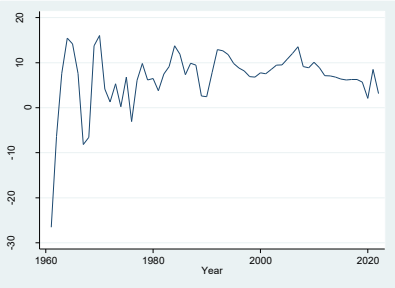
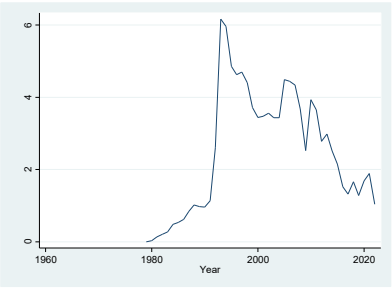
APPENDIX





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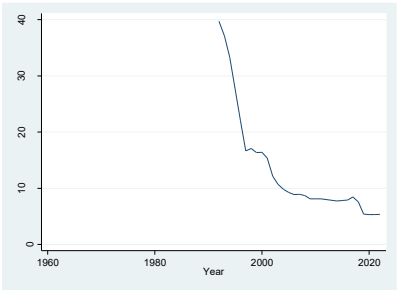
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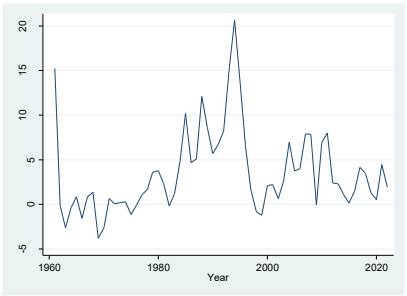
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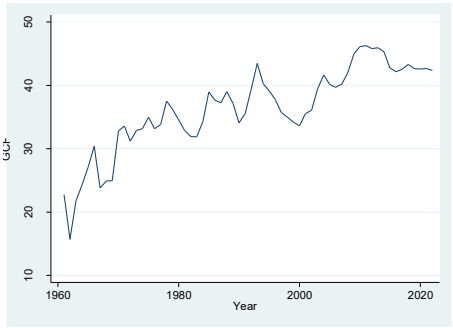
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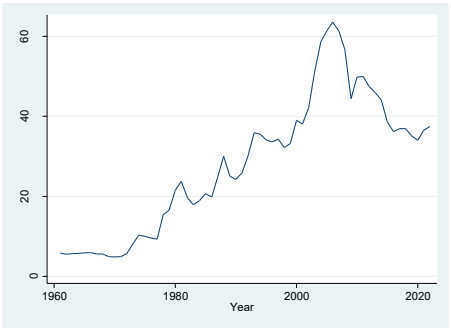
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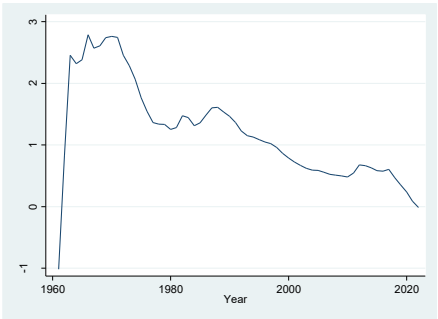
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HIGHER EDUCATION INSTITUTIONS IN TURMOIL: STRATEGIC OPTIONS IN A DECLINING INDUSTRY

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ABSTRACT

In this paper, we highlight that the higher education industry is an industry in decline. It is an industry that is facing great turmoil and change, coupled with declining demand. Its methods of service delivery are facing disruption from innovative technological changes ranging from online course delivery to AI-based learning options. In the face of these changes, the industry remains overbuilt, with too many competitors. Furthermore, many industry participants feel that they can't adopt all the new delivery options due to resource rigidity. For example, universities that have physical assets such as dorms, dining halls, and instructional facilities are reluctant to adopt online delivery, which could lead to underutilization of existing assets. Instead, they engage in hypercompetition, trying to lure the shrinking number of in-person students left to their institutions. These efforts are usually accompanied by increasing numbers of administrators and a shrinking number of faculty, which further destabilizes the situation. We propose that solutions to this situation are similar to those available in any declining industry. Specifically, the literature in business suggests that declining industries can be managed by taking into consideration an institution's strengths and weaknesses, and the opportunities and threats faced in the industry. Options may be available ranging from exit to selective decline, to even growth, depending on the institution's resource profile and its stakeholders' preferences. However, it is important to realize that action needs to be taken to minimize inefficient resource allocation.

Key Words: Higher Education; Declining Industries: Strategic Choices; Core Competencies

INTRODUCTION

It is hard to have a day go by without hearing adverse news stories about the higher education industry in the United States. These issues range from declining enrollment, changing student preferences, and increasing costs to students, to increasing hardships that impact faculty careers (Drozdowski, 2024).

For example, Drozdowski (2024) reports that between 2011-2022 enrollment in U.S. Universities declined by 12.3%, with the Covid-19 pandemic period seeing the most dramatic declines. In fact, during the COVID-19 period, community colleges saw up to a 13% decline (Nadworny, 2022). While some universities are seeing some improvement or stability in their numbers, the number of students lost during the pandemic years has not been recovered (National Student Clearinghouse Research Center, 2024). In addition to a less-than-complete recovery from the losses, higher education institutions are faced with a looming demographic cliff that is predicted to impact not only the number of students available to be served by higher education institutions but also the profile of the students that will be served. These changes in profile and number of students are

expected to make the challenges facing higher education institutions much more difficult than the challenges faced in the years before the Covid-19 pandemic (Boeckenstedt, 2022).

Enrollment issues are not the only change that is facing higher education institutions. Another interesting development is that student and societal preferences seem to be changing dramatically. Many employers are looking to hire career-ready employees, and they define career-ready as having certificates that can prove that the employee can perform certain activities (e.g., Drozdowski, 2024). For example, an employee can have certain certificates that show that they can program or work as ethical hackers, and so forth. These certificates can be attained by going through "boot camps" and/or certificate courses offered by a range of institutions (e.g., TryHackMe.com, Google, Microsoft, Khan Academy, etc.). These certificates short-circuit the traditional 4-year training offered by many higher education institutions and suit the needs of the students whose profile is changing as a result of the demographic changes discussed above. In addition to certificates and shorter programs giving employees skills in a quicker time frame, many workers are now preferring to go into trades and career fields that do not require higher education (e.g., Drozdowski, 2024). Another factor that is speeding up this change is that the cost of a 4-year degree is increasing dramatically, due to at least two predominant factors. One factor is the persistent inflation that has been present in the U.S. economy since the disruption of global supply chains during and after the COVID-19 pandemic. Furthermore, since faculty salaries have not kept up with inflation (thus providing higher education institutions with some relief), the complete impact of that inflation may not be seen until some more time has passed (Spitalniak, 2023).

On top of all these concerns, another factor is the resource allocation difficulties that are facing higher education institutions, as evidenced by skyrocketing administrative expenses faced by universities and shrinking government educational outlays that have been observed for some time (e.g., Nissen, 2014; Nissen and Zhang, 2009). Inefficient resource allocation is one of the most damaging outcomes that can be faced by an industry or an economy (Costello and Costello, 2024), and the damage that has been observed in the higher education industry amplifies the repercussions of changing student and societal preferences.

Another set of issues that are causing serious disruptions for industry participants is the change in education delivery modes and the increasing use of AI by all industry stakeholders (e.g., Coffey, 2024). The COVID-19 pandemic allowed global citizens to get accustomed to using cyber means and information technology to take care of most of their needs. Services ranging from healthcare (e.g., Pearl and Wayling, 2022) to education can be achieved electronically (e.g., Barshay, 2024). However, at least in higher education in elite private universities, the percentage of online classes is still low, demonstrating a propensity of less privileged students to end up with online options, whereas elite students have more access to in-person offerings (e.g., Barshay, 2024).

Also, interestingly, in education, some large state universities quickly became leaders in the online delivery of programs, and they started taking students from regions of the country and the world that are located far away from them (e.g., the University of Maryland Global Campus). Other universities started to see themselves making a painful choice, either adapting to online provision of education or digging deeper into an in-person model. With that choice of committing to an in-person model, they started to find themselves in a hyper-competitive world, where many universities are chasing fewer students, and the situation is exacerbated by the impending demographic cliff (Drozdowski, 2024).

Perhaps to add insult to injury, many successful universities that made good progress in adapting to the online world also kept their in-person infrastructure and even grew both their online and in-person programs. But while many times the success of the larger, more agile institutions is guaranteed, the same generally cannot be said for the smaller second-tier institutions (e.g., Mallach, 2024).

It is easy to suggest that all the institutions that are faced with change would do well to adapt to the new realities; however, exit barriers in industries are real, and they reflect the tremendous pain and suffering that can be faced by those institutions' stakeholders as the institutions change or exit their declining industries (e.g., Harrigan, 1980). For example, if a small regional state university, facing a demographic cliff, as well as the rest of the changes in the industry landscape, wants to change to an online delivery of its programs, it would start losing in-person students. This kind of outcome can devastate the community in which this institution is located. Furthermore, this institution will face operating difficulties, as its assets, such as dorms, instructional facilities, dining halls, and non-digital libraries, start seeing declining utilization. Its budget for maintaining physical facilities would decline faster than the outlays required for those assets' upkeep. Facing such bleak circumstances, this institution may be tempted to delay making needed adjustments. In that case, they would be trying to engage in hypercompetition, where they would be going after the remaining shrinking student population by offering lowered tuition, better room and board, and other expenses. Such an institution would quickly start seeing administrative expenses rising as a percentage of total expenses, thus indicating an inefficient allocation of resources from an educational perspective.

Perhaps the key to finding solutions to the ailments of higher education institutions is for them to fully understand what they are facing. These institutions are facing what many other institutions had to face in the past, namely, industry decline. The literature in business defines industry decline as decreasing demand that is consistent and across the board for the industry. However, it is important to note that even in a declining industry, there may be individual institutions that see increased demand (Harrigan and Porter, 1983). It is also important to understand that the pattern of decline will make a big difference (e.g., instant, drastic, unpredictable decline, versus a smooth, steady, slow decline); in addition, whether institutions can exit quickly or not will also impact end-game strategies and outcomes for participants (e.g., Harrigan and Porter, 1983).

In this paper, we will first undertake a literature review that looks at declining industries in detail. We will look at the different types of decline and options available to the participants in these industries. Then, we'll change our focus back to universities and identify the conditions in the higher education industry. Finally, we'll make our recommendations in terms of how different higher education institutions can adapt, as the options available to large research-intensive, resource-rich universities will be very different than those that are available to smaller, less resource-rich, balanced research and teaching institutions. Finally, we'll highlight the implications for higher education stakeholders as we move forward.

LITERATURE REVIEW

As we mentioned above, the higher education industry is a declining industry that has been disrupted by a multitude of factors, ranging from the Covid-19 pandemic to technological change. However, before we delve deeper into the declining nature of the higher education industry, we need to remember that the first universities were founded in Medieval Europe and elsewhere to

store, create, and disseminate knowledge. These universities usually undertook the study of subjects such as theology, astronomy, law, and medicine. Furthermore, they usually were offshoots of Christian cathedral schools or monastic schools. But as the Renaissance matured, they were increasingly sponsored by local rulers to help aid in secular matters, although the church's influence also continued. Regardless, the reason for the existence of these institutions was not to compete for students or funds, but rather to study fields of interest to the church and the state (Denley, 2013). So, industry dynamics were very different from those seen today.

There are many different types of declining industries, but in disrupted declining industries, we can expect to see some similarities. For example, these industries are usually characterized by declining demand, industry participants who are unable to acquire new resources, and disappearing financial slack experienced by those industry participants (e.g., Thomas and Douglas, 2021). The decline in demand is always present, but in different industries, different factors spearhead the decline. Some industries see the demand decline due to technological change. In others, the demand declines as the number of consumers shrinks. In addition to these factors, we can see industries where changing sociocultural trends may lead customers to look for alternatives to the product or service that the industry is providing. Yet in others, the cost of providing the product or service goes up so much that customers of the products and services that the industry is providing are priced out (e.g., Harrigan and Porter, 1983). In the higher education industry, the complexity of decline and disruption is tremendous, and this situation is highlighted by the fact that all of these types of demand decline that are enumerated in the literature are present in the higher education industry.

Another interesting angle of declining industries is that sometimes technological change destroys the competence of existing players instead of enhancing it (e.g., Tushman and Anderson, 1986; Khan and Luiz, 2023). For example, at a small regional university, the competence of the university could have been that the university has a great student-to-faculty ratio. The university might have taken that enviable ratio to its heart and used it as a selling point for generations of students. However, when technology-driven delivery of college courses and online programs started gaining traction, the once enviable position of delivering courses with low student-to-faculty ratios became somewhat irrelevant as technology now allows one faculty member to reach many more students without necessarily compromising the quality of the course taught. The university that once boasted of its high number of faculty to students finds itself in an increasing cost, decreasing demand type of situation.

Furthermore, in the types of declining industries Khan and Luiz (2023) describe, the existing industry players whose competence was destroyed by technological change could have chosen to adapt to technological change. But they often don’t do so because their existing shrinking customer base does not demand adaptation to change. As a result, the existing industry players can be tempted to think that adaptation to new technologies can be delayed or avoided completely. This situation usually creates unfortunate long-term consequences. In our example of the small regional university above, the university leadership may be tempted to refuse to change its ways to online delivery, citing their belief that their existing students do not need online programs, or that the students may be better served by in-person programs. However, as the student population shrinks and technologically delivered programs improve and become more pervasive, the above-mentioned university may find its enrollment declining. What is more, this situation may be difficult to recover from.

An interesting issue highlighted in the business literature is that, in some industries, the industry participants will face very high exit barriers, usually due to large, fixed costs that they may be contractually obligated to settle if they were to leave the industry (e.g., Harrigan and Porter, 1983). For example, the hypothetical small regional university that we are using to demonstrate our points may have faculty union contracts that cover most of its employees, a town that may depend on the students it attracts for its existence, and dorms and instructional facilities that may lie empty if the university were to close. When considering the exit of such a university from this industry, one can see the difficulties and devastation that may be created. Such a difficult predicament certainly slows the exit of similar universities from the industry, thus having the overcapacity in the industry linger.

Another issue that high exit costs bring is the temptation that it creates for the industry players to engage in harvest strategies. In harvesting strategies (as explained by Harrigan and Porter, 1983), an organization tries to exploit the past goodwill that it might have created. In addition, new investment in personnel and facilities is curtailed, innovation is ignored, and advertising is minimized. Decisions can be made based on short-term expediency as opposed to well-researched conclusions, which may be seen as a luxury.

PROPOSED SOLUTIONS

In the paragraphs below, we propose a variety of avenues that universities can pursue as they are facing the issues created by declining demand in their industry. It is important to note that each option is not open to every university. What elite Tier-1 universities can do will be very different from what smaller public and private universities can do. It is also important to note that players who do not exit due to exit barriers can cause value destruction across the board. In the long run, research can be done to see the outcomes for universities depending on the paths that they have chosen to address their industry's decline.

1: Elite Tier-1 Universities Can Expect to Provide Full-Service Higher Education Provision

Elite Tier-1 universities are in a position to consolidate their positions and remain full-service institutions. These universities can offer both in-person and online services because the demand for their degrees seems to be less elastic than the in-person demand for the services of Tier-2 institutions. In addition, Tier-1 universities have the resources to experiment and create the knowledge and capabilities to match the changing needs of the students whose decisions are creating the declining demand in the industry in the first place. Thus, Tier-1 universities are not only able to serve the needs of existing pockets of students who may be demanding traditional education, but also, they can better adapt to serve the needs of the demand that is shifting. Unfortunately, this situation will create a formidable threat to the lower-tiered industry participants.

2: Tier-2 Universities Need to Innovate, Adapt, and Excel in Growth Niches to Survive

Tier-2 universities are those that are usually regional state universities or smaller private universities, where the faculty has a balanced mission of conducting research and teaching. These universities are usually much smaller than Tier-1 universities, with fewer resources. Many of them are also located away from big population centers. These universities are the ones that find themselves with a shrinking in-person demand and fewer resources to be able to create the new programs that are needed to attract students who are looking at innovative technology-driven solutions. These universities would do well to avoid strategic inertia. They need to quickly pivot to

an innovation-mindset and use whatever resources they have left to acquire the technological and human assets needed to create new programs that better cater to the changing needs of growing segments of the student population, as well as the changing needs of society. This path would be the only one that can avoid a spiral of decline and resource decay.

3: Tier-2 Universities that Face High Exit Barriers Need to Avoid Employing Harvest Strategies

It is also important to realize that Tier-2 universities need to avoid employing harvest strategies. Harvest strategies may seem desirable in the sense that they delay the making of difficult decisions. In addition, employees who may be nearing retirement and may believe that they can complete their careers in declining institutions, as opposed to being forced to find new employment, often resist change. The towns in which the harvesting institutions are located also benefit from a slower decline in business as opposed to a faster decline, which can have a dramatically destabilizing impact on real estate prices, among other adverse outcomes. By resisting harvest strategies, the universities can either start exiting procedures or pivot to recommendations 2 or 4. Such an outcome would lessen the effects of exit barriers that are expected to negatively impact the higher education industry.

4: Tier-2 Universities can Benefit from Consolidation of at least Administrative Functions

A tried-and-true way of dealing with declining industries, especially if the industry is fragmented, is to seek a consolidation of the industry. Consolidation is desirable because it can create economies of scale and scope, and allow industry players to access new customers, new locations, and new technologies (e.g., Khan and Luiz, 2023; McGee and Shook, 2000). In the higher education industry, small regional state schools could, in theory, implement a modified consolidation strategy where they can potentially consolidate their administrative functions. This consolidation can reduce the administrative costs of these universities as a percentage of their overall costs. Also, if one of the regional universities is doing better than the others, that university can be chosen as the focal point of consolidation, and this would aid in the dissemination of best practices.

CONCLUSION AND FUTURE RESEARCH

From the end of World War II until today, the U.S. higher education system has been the envy of the world, in the sense that U.S. universities have been at the forefront of creating knowledge and disseminating that knowledge to the world. But now, U.S. institutions of higher education are facing unprecedented challenges as the cost of provision of higher education is rising, the number of students entering the U.S. higher education system is declining, and the competition between universities is intensifying.

As we discussed above, for elite Tier-1 research-intensive universities, especially those that undertake crucial research at the graduate level, there are still resources, students, and global prowess. These Tier-1 institutions are not expected to face much change in enrollment, and they have the resources and capabilities to adapt to technological change and competition. However, the other smaller institutions of higher education in the U.S., both public and private, must take action to adapt to the changes that are taking place in the higher education industry.

In this paper, based on a review of the relevant business literature, we have identified a series of options that are available to non-Tier-1 institutions that exist in the U.S. higher education industry. It is important to note that not every non-Tier-1 institution may be in a position to take advantage of each strategic option. It will be important for university administrators to review their institutions' resources, capabilities, opportunities, and threats and then to pick their strategic options.

Future research can identify a list of Tier-2 universities and follow them to see what choices they make over time. For example, if a list of 100 Tier-2 universities is chosen, each university can be tracked over 10 years. Interesting metrics to follow could be the percentage of online programs versus in-person programs offered, the percentage of administrative expenditures versus total expenditures, the change in the number of faculty, the change in the composition of faculty (i.e., the percentage of faculty that have doctoral degrees), and the change in enrollment. If the universities are making progress in adapting to environmental changes, we would expect to see the number of online programs increase, administrative expenditures as a percentage of total expenditures stabilize or ideally drop, and the number of faculty and students remain stable (and maybe even increase). Such research would not only give us interesting insights into the higher education industry but also into a further general understanding of industries in decline.

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THE UNITED STATES' ADHERENCE TO AN AI ETHICAL AND LEGAL FRAMEWORK

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ABSTRACT

The United States seeks to develop a competitive artificial intelligence (AI) sector that can rival those of any country. To do so, the country's federal government will remove restrictions imposed at the state level. Recent research indicates that doing so could have adverse consequences. International organizations such as UNESCO have published tools to help countries assess their implementation of AI. The goal of tools such as the Readiness Assessment Methodology (RAM) and Ethical Impact Assessments (EIAs) is to help countries use AI as ethically as possible. While reviewing the ethical domains promoted by these tools, this study aimed to answer the question, "What are we doing in the United States to further the ethical dimensions of AI?" A literature review found that the United States is most invested in the technological/infrastructural and economic domains of AI ethics. However, the White House's focus on revising existing legislation indicates that the country recognizes the importance of its legal system. This paper proposes a means of implementing a broad ethical framework at the national level without fully deregulating the private sector.

Key Words: artificial intelligence, AI ethics, federal government, deregulation, ethical frameworks

INTRODUCTION

Artificial intelligence (AI) has established itself as a significant technology within the global economy. AI provides the information and convenience that executives and consumers need to make decisions more quickly (Short, 2025). However, the collection of the information often happens without subjects' consent (UNESCO, n.d.). Beheshti and Kerridge (2025) argue that the ethical ramifications of AI have become more severe as it has become an increasingly significant part of the average person's life. At this point, AI is used in healthcare, finance, government, and cultural industries (Beheshti & Kerridge, 2025). This means the average individual cannot live a life completely unaffected by AI.

Many private-sector stakeholders view AI as a tool to improve productivity and efficiency. However, the current state of AI creates more problems than it solves. Tropiano (2024) writes that business owners are excited about the innovations AI provides for their companies. The improvements seen within organizations are short-lived, as AI tools create new problems for leaders more often than not (Tropiano, 2024). Privacy, bias, and employment insecurity are among the most frequently cited problems by researchers and executives (Tropiano, 2024; Short, 2025).

Short (2025) writes that biased AI platforms provide inaccurate information, leading to poor decision-making and the overempowerment of groups that influence the development of biased technology. Power imbalances prevent employees from advocating for themselves to preserve their employment and remind managers of their human rights. AI's increased use in offices and white-collar environments reduces the competitiveness of human workers in this sector and diminishes opportunities to earn a living wage (Short, 2025). This presents a significant ethical issue in large, developed countries like the United States.

The White House's (2025) policy framework for artificial intelligence aims to remove regulations that inhibit AI developers and AI-focused companies from innovating the technology's capabilities in the open market. The framework argues that a national framework is needed to facilitate compliance for AI companies and prevent state-level legislators from stifling AI's growth in the country (The White House, 2025). The current administration's ultimate goal appears to be for the United States to become the global front-runner in AI use and innovation. This raises questions about the country's ethical strategy going forward as AI becomes more established in American culture, politics, and commerce.

PROBLEM STATEMENT

The United States' stance on regulating AI's growth within the country introduces ethical problems within its social, economic, and political environment. Recent publications recognize the need to protect employees, disadvantaged populations, and other vulnerable stakeholders affected by AI's presence (UNESCO, 2021; Short, 2025; Beheshti & Kerridge, 2025). Protecting vulnerable stakeholders entails implementing policies that regulate AI's growth and the use of information collected through harmful means (UNESCO, 2021; Arrazi, 2024). These findings conflict with the current American government's vision of allowing AI to grow unimpeded within a national framework that provides the most open environment for innovation possible.

SIGNIFICANCE OF THE STUDY

The research presented in this paper identifies emerging ethical dimensions shaping AI's growth in the country. AI ethics centers on ensuring accountability and transparency through explainable systems, human oversight, and clear responsibility for outcomes (UNESCO, 2021; Arrazi, 2024; Radanliev, 2025). The technological dimension of AI ethics includes addressing challenges such as "black box" models and bias by documenting design, communicating limitations, and establishing governance mechanisms for trust, fairness, and risk mitigation across the AI lifecycle (Radanliev, 2025; UNESCO, 2021; Office of the Director of National Intelligence, 2020). Other key aspects involve traceability, explainability, and clear communication, balancing individual rights, privacy, and societal well-being with technological advancement.

The consideration of vulnerable stakeholders' individual rights is an aspect of the social dimension of AI ethics. Properly preserving individuals' rights in the workplace and elsewhere would require targeted efforts from companies and developers (Arrazi, 2024). Arrazi (2024) writes that diversity, equity, inclusion, and public engagement and trust are additional elements of the social dimension that policymakers must consider when considering their constituents.

Other elements of AI ethics include the scientific, legal, and economic dimensions (Arrazi, 2024). The White House's (2025) policy framework on artificial intelligence confirms that the United

States wants to streamline the legal dimension of AI ethics and make it simpler for employers and developers to understand. The national policy framework also states that an AI litigation task force will be established to challenge state-level laws that are inconsistent with the new framework (The White House, 2025). In the absence of strict domestic regulations and procurement policies, it is unlikely that organizations such as UNESCO will be able to assist vulnerable stakeholders in the United States.

RESEARCH QUESTION

The research question guiding the research for this paper is: "What are we doing in the United States to further the ethical dimensions of AI?" While conducting the research to answer the primary question, four additional sub-questions arose. These questions were:

1. What framework should the United States use?
2. Is there an alternative framework that the United States can use?
3. How do we make this framework a national agenda?
4. Should there be a governing body that includes representation from each state?

AI's presence within politics, economics, and organizational management will grow in the near future (Short, 2025; UNESCO, 2021). Government agencies in the United States recognize that unethical outcomes will occur if leaders and policymakers fail to act proactively (Office of the Director of National Intelligence, 2020). Likewise, international organizations such as UNESCO recognize the need to implement methodologies that facilitate the implementation of AI-focused policies (Arrazi, 2024). This paper examines the current ethical dimensions of AI in the United States and the new areas of regulation the country is exploring. American policymakers' and developers' work on current ethical dimensions is likely to affect how American citizens interact with AI in the short and long term.

The remainder of this paper presents a literature review of the actionable policies that guide AI ethics in the United States. This review includes the principles and values that policymakers use to craft policies and to oversee their implementation across the country. The literature review will also present information covering UNESCO's Readiness Assessment Methodology (RAM) and the benefits of Ethical Impact Assessment (EIA). Subsequently, the paper will discuss the most prominent trends in the literature and their implications for the United States' future development or maintenance of AI ethics.

LITERATURE REVIEW

The following literature review examines the policies adopted by UNESCO and the United States to guide the development of AI ethics in the United States and elsewhere. The ethical problems associated with AI's uncontrolled growth are similar across regions worldwide (UNESCO, 2021; Short, 2025). The global job market is affected by AI's rise as a productivity tool, which incentivizes non-governmental organizations to investigate how vulnerable populations will be affected in the future (Short, 2025). Abdulhamid et al. (2025) write that generative AI addresses the global population's need for more knowledge and productivity within weaker economies. Knowledge gains and productivity gains cannot be achieved in areas that lack access to computers, Internet connections, and robust technological infrastructure (Abdulhamid et al., 2025). This means claims that AI helps developing nations and economies are not entirely valid.

Radanliev (2025) writes that transparency, fairness, and privacy are additional considerations that must be addressed when developing new ethical frameworks. AI platforms with biased knowledge banks promote social inequality and social trends that harm vulnerable populations (Randanliev, 2025). The European Union (EU) and the National Institute of Standards and Technology (NIST) issued regulations that directly addressed these problems and included language prohibiting the involvement of vulnerable populations without their consent. However, these entities' regulations do not always impact the United States.

The Office of the Director of National Intelligence (2020) employed an internal framework that considered individuals' human rights. Protecting individuals' human rights required the lawful and ethical collection of data for the American intelligence community's core activities. Communicating the intelligence community's use of AI in an accessible way was also an aspect of the American intelligence sector's framework (Office of the Director of National Intelligence, 2020). The Office of the Director of National Intelligence's AI ethics framework indicates that the American government considered the ethical development of AI at the national level. This mindset could have spread nationwide, but it appears that state-level policies either conflicted with national regulations or sought to enforce them differently (The White House, 2025).

The United States has access to alternative frameworks that could help it build an innovative AI sector without harming human stakeholders. Ethical frameworks based on checklists and questions provide executives and legislators with the flexibility needed to develop new policies without restricting companies' freedom to operate. Frameworks like West's (2022) encourage the creation and use of technical standards to solve everyday problems. This incentivizes companies and government agencies to invest in their infrastructure, scientific research, and literature.

Actionable Policies

The literature shows that United States government agencies and AI ethics groups in non-governmental organizations have developed ethical frameworks to guide AI implementation within their jurisdictions (The White House, 2025; Office of the Director of National Intelligence, 2020; UNESCO, 2021). Academic literature also proposes the implementation of theoretical frameworks to enhance transparency in critical sectors such as healthcare (Radanliev, 2025). Some reports claim that the American government is aware of the damage AI's rapid growth can cause to the United States' national security (Tropiano, 2024).

As of 2025, the United States' legal dimension was in disarray. Legislative actions focused on the ethical use and growth of AI were disorganized and, in some states, ineffectively implemented (The White House, 2025; Saviano et al., 2025). Saviano et al. (2025) write that the first President Trump Administration authored the Executive Order on Maintaining American Leadership in Artificial Intelligence in 2019. President Biden added to this legislation with the 2023 Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence (Saviano et al., 2025). These policies demonstrate that the American government recognized the need to be proactive regarding AI and its growth within the nation's economy. However, the most recent framework presented by the White House (2025) indicates that the government may be shifting. Determining the severity of the shift requires a comparison against policies enforced elsewhere.

UNESCO's recommendations provide member states with tools to make AI more sustainable within their jurisdictions. UNESCO's (2021) Recommendation on the Ethics of Artificial

Intelligence outlines 11 key policy areas that governments must focus on to prevent AI from harming vulnerable stakeholders. These policy areas include:

1. Ethical Impact Assessment
2. Ethical Governance and Stewardship
3. Data Policy
4. Development and International Cooperation
5. Environment and Ecosystems
6. Gender
7. Culture
8. Education and Research
9. Communication and Information
10. Economy and Labor
11. Health and Social Well-Being

UNESCO (2021) states that the aforementioned policy areas help member states formalize the principles and values guiding the protection of vulnerable populations. The 11 policy areas are informed by the United Nations Guiding Principles on Business and Human Rights, which facilitate ethical and sustainable commerce that minimizes harm. It should be noted that member states are at different stages of implementation. A country's readiness influences the number of recommendations and policies it can implement within a short period (UNESCO, 2021). The United States is among the most well-resourced countries implementing AI across its public and private sectors (The White House, 2025). The United States' National Policy Framework for Artificial Intelligence declares that the country wants to be the global leader in AI innovation, growth, and implementation. The framework aims to strengthen the country's legal dimension of AI ethics by streamlining it and granting AI developers greater power and flexibility (The White House, 2025). This indicates that countries' values do not always align with the ideal of protecting and well-informing all stakeholders as AI continues to grow.

Recent research on AI ethics emphasizes the necessity to move beyond broad theoretical principles and to develop practical strategies to help countries address emerging problems promptly. Beheshti and Kerridge (2025) argue that AI is designed to help users acquire knowledge and skills to complete processes more efficiently. Processes are established sets of tasks that must be completed for individuals or organizations to achieve their goals (Beheshti & Kerridge, 2025). In a sense, UNESCO's (2021) recommendation provides a process for member states to follow while implementing their own AI ethics framework. The 11 aforementioned areas define aspects of the AI environment that governments should consider when determining how to protect their citizens in the modern technological landscape. In the White House's (2025) current framework, elements of UNESCO's Recommendation are evident.

The first policy area one finds in the White House's (2025) description of the National Policy Framework for Artificial Intelligence is Economy and Labor. The White House's publication is clear about the national government's goal to make the United States the most productive and influential user of AI in the world. The American Competitiveness of a More Productive Emerging Tech Economy (COMPETE) Act commissioned studies that identified the sectors best suited to AI and public-private partnerships to promote AI implementation (United States Congress, 2020).

Another policy area seen within the White House's (2025) national framework is Ethical Governance and Stewardship. The agency states that the streamlined national framework must protect children, respect copyright, and shield communities as much as possible, without impeding companies' ability to grow and do business in the AI sector. Some actionable policies maintained by the American government already consider these goals and others. The General Services Administration (GSA) Centers of Excellence (n.d.) published a Guide to AI Ethics, highlighting the agency's dedication to implementing AI while minimizing harm to stakeholders. The guidelines include multiple questions that evaluate the design, development, and distribution of AI tools within the GSA and other government agencies. Assessments of individuals' data monitoring and management of AI tools' decision-making capabilities are also integrated into the GSA Centers of Excellence's (n.d.) guide.

Readiness Assessment Methodology (RAM)

The RAM's criteria determine if UNESCO member states are equipped to implement the recommendation within their political environments. Member states identify their levels of readiness after completing the assessment and communicate with UNESCO to receive tailored solutions to address their ethical shortcomings. Arrazi (2024) writes that the RAM uses five ethical dimensions to evaluate subjects' ethical performance. These dimensions are the scientific, social, legal, economic, and infrastructural/technological domains (Arrazi, 2024). The RAM is influenced by the United Nations' General Assembly Resolution on AI (Arrazi, 2024). Neither document nor enforcement tool is legally binding, but they provide guidance for countries struggling to determine how to build AI markets without harming the citizens they care for.

Countries' use of the RAM is often self-reflective. This means that countries assess their current AI landscapes and ethical frameworks firsthand. The Kingdom of Bahrain (2025) released a report using the RAM to evaluate its own AI landscape and explain its current competencies to the public. The report reveals that Bahrain requires additional laws and policies to define how the country protects citizens' data, enforces ethical standards, and holds AI users accountable. In the social domain, the Kingdom identifies public engagement, cultural preservation, and sustainability as three areas that the country must focus on in the future. Scientifically, curriculum development, research and development support, and talent development are areas the country considers worthy of investment. The country's economic performance calls for greater investment opportunities, job creation, and diversification within the Kingdom's traditional economy. Finally, the infrastructural and technological domain indicates that Bahrain needs to strengthen its digital infrastructure, develop new standards and protocols to align industry standards, and establish frameworks for data governance and quality (Kingdom of Bahrain, 2025).

In some cases, non-governmental organizations, such as the United Nations Global Marketplace (UNGM, 2025), publish calls for contractors capable of performing RAM assessments. In a recent posting, the UNGM invited researchers and consultants affiliated with legal entities to apply for an opportunity to conduct a RAM assessment and multistakeholder consultation in Ukraine. After the analytical phase of the project, the researchers and consultants would be required to submit a report explaining the outcomes of the RAM assessment and multistakeholder consultation. A notable element of the RAM assessment highlighted by the UNGM is the collection of quantitative and qualitative data to answer the RAM's questionnaire. Collecting diverse data and employing diverse domains for analysis helps researchers assess the human, technological, and economic dimensions of AI ethics.

The UNGM (2025) states that the results of the RAM assessment can inform the development of new policies. The Kingdom of Bahrain's (2025) results show that the country recognizes its need to develop stronger legislative tools and frameworks for AI users. Arrazi's (2024) RAM report for Indonesia finds that the country places greater emphasis on publishing in scientific journals than on producing domestic innovations. However, the RAM does not account for scientific publications and asks countries about their use of modern technological tools such as GitHub (Arrazi, 2024). This presents a gap for UNESCO leaders to address when evaluating the RAM tool's feasibility and effectiveness. Another element for UNESCO to consider is countries' use of international policies to govern their own environments. For example, Indonesia relies on international policies to govern its AI landscape (Arrazi, 2024). This indicates that the country has addressed its AI ethics legal framework by relying on entities with greater expertise. As the capabilities of AI technologies continue to grow, this may not be a negative strategy for countries that lack the political and social resources to draft domestic legislation within the next few years.

Ethical Impact Assessment (EIA)

EIA is a structured method that assists AI project teams in collaborating with previously affected communities and in identifying and assessing the impacts an AI system may have on vulnerable populations. The method enables organizations and government officials to reflect on AI's potential impact and the need to identify solutions to prevent future adverse consequences. EIA can be conducted by any entity seeking to assess the ethical impact of AI use among its stakeholders. However, UNESCO's (2023) recommendations include specific metrics evaluators can use to measure the ethical environments of choice. UNESCO states that the EIA assesses whether AI algorithms align with previously defined values and whether information about the development and use of AI systems is available to the public.

The EU's AI Act requires Member States to conduct impact assessments whenever they use high-risk systems (UNESCO, 2023). UNESCO's (2023) EIA instrument considers the entire lifecycle of AI tools and the potential consequences of leaving vulnerabilities unchecked. The organization's publication explaining the EIA's intended use states that government officials should most often implement the instrument. Brey's (2025) work highlights how members of academia and private industry can use impact assessments to explore the AI environments around them.

Brey (2025) writes that the primary goal of impact assessments is to identify current and impending issues that stakeholders should address before the problems become too severe. Academic scholarship has given limited attention to EIAs at the time of this study. Brey's (2025) journal article is an early academic work that explains how impact assessments address ethical problems in the AI and public sectors. In the past, stakeholders were concerned about privacy invasions, potential harm to human users, and the environmental impacts of emerging technologies. Ethical assessments were needed to prevent these outcomes, but academic researchers and political institutions were not aligned. The lack of alignment prevented either party from developing the impact assessments required to protect users in both the public and private sectors (Brey, 2025).

Published literature by private-sector authors indicates that companies recognize the importance of conducting impact assessments. Goss (2025) writes that impact assessments conducted within private businesses evaluate various areas, including companies' strategies, the laws and

regulations governing AI use, managers' appetite for risk when using AI, stakeholders' expectations, and the cultures within and outside companies. These metrics integrate elements of the RAM, taking into account the legal, social, and economic contexts in which businesses operate. UNESCO's (2023) EIA instrument includes an expansive list of scoping questions for participants to use when describing AI's presence within their organizations.

The lack of academic and business-focused literature on the EIA's application does not preclude the existence of connections between UNESCO's (2023) EIA instrument and the impact assessments conducted by others. Goss (2025), Brey (2025), and UNESCO (2023) all conclude that impact assessments help leaders make the most informed decisions possible. As the United States determines how it will move forward in the era of AI, stakeholders in the public and private sectors will need assessment tools that identify vulnerabilities, protect individuals, and ensure the country's long-term future is as innovative and sustainable as possible.

DISCUSSION

The literature review showed that the United States partially adheres to the five dimensions of AI ethics as defined by UNESCO (2021) and Arrazi (2024). The United States' active approach to AI governance helps it control the technology's growth within its jurisdiction. In the past, the United States invested resources in preventing harm and establishing safeguards (Saviano et al., 2025). The President Trump Administration gradually removed these safeguards via the national framework (The White House, 2025). Despite this, some benefits could improve the United States' adherence to specific ethical dimensions.

The United States could adhere to the RAM's five dimensions while also incorporating broader frameworks, such as West's (2022) core areas of focus. Broad frameworks that rely on a checklist of questions enabled the American government to streamline its national framework without forcing state-level officials and private businesses to operate without any guidance. As the White House (2025) oversees the creation and implementation of a streamlined National Framework, it should consult AI experts and leaders from UNESCO member states to explain the importance of a consistent, enforceable framework that uses either RAM or EIA. As this section continues, West's (2022) core areas of focus will be described in more detail. Other frameworks and assessment instruments that could help the United States govern its AI environment will also be presented.

The United States' Management of the Current Dimensions of AI Ethics

The United States' current legislative framework considers the importance of a streamlined legal dimension. Arrazi (2024) states that the legal dimension includes freedom of information acts, AI policies, and regulations. The White House's (2025) national framework aims to repeal state-level laws that restrict AI companies and developers from expanding their businesses and that discourage censorship, as users leverage AI to create and publish new information. Other national-level policies indicate that the United States frequently invests in regulations governing AI use in the public sector and in measures to protect citizens as much as possible.

The social dimension of AI ethics considers health and social well-being, diversity, equity, and inclusion, and public engagement and trust. Current United States legislation is freely available, which demonstrates the country's commitment to transparency. However, the removal of state-

level laws prevents the country from protecting vulnerable populations living in states that have invested in addressing their needs. The White House's (2025) national framework specifically targets state-level policies that impede the progress of AI developers, companies, and applications. This unchallenged growth could harm vulnerable populations that lack the political and economic resources to contest large companies.

The scientific dimension is notable, as journal articles such as Beheshti and Kerridge's (2025) recognize the need to define various types of intelligence and to examine how AI's growth influences their use. Researching the processes used to leverage AI can help answer questions about the ethical gaps introduced by AI's growing presence in specific industries. The White House's (2025) national framework does not include information encouraging the use of government resources to support research projects. However, its primary purpose is to maximize innovation. This means that the United States indirectly considers the scientific dimension of AI ethics. It is reasonable to question whether protecting vulnerable populations is a motivating factor in this consideration.

The economic dimension of AI ethics considers labor markets, intermediate consumption, and investment and output. The United States desires to encourage as much investment and output in the AI sector as possible in the near term. The national framework enables companies to sell and develop their products to the greatest extent. This provides employees with AI-related skills an opportunity to work for firms seeking to gain market share in the AI sector. However, the unchecked AI growth and development expose white-collar workers to negative consequences. Short (2025) writes that software engineers, copywriters, and sales professionals could lose their jobs if AI tools become more versatile and accurate. Supporters of technological innovation note that low-skilled workers have adapted to new labor markets in the past (Short, 2025). While true, the United States actionable policies are unable to protect human workers' professional and economic futures. There is insufficient concrete evidence to confirm the long-term loss of white-collar jobs, as AI companies are still developing and testing their tools. However, the disruption caused by AI is a tangible problem that could be addressed by more thoughtful policies (Short, 2025; Tropiano, 2024).

Finally, the infrastructure/technology dimension of AI ethics is well served in the United States. American giants such as Microsoft frequently invest in developing AI products for the U.S. and global markets (Abdulhamid et al., 2025). Microsoft's internal research efforts aim to develop AI solutions that serve developing communities and address technological inequities across regions (Abdulhamid et al., 2025). Microsoft's freedom to do this is a benefit of the American government's national framework. The legislative strategy removes the state- and national-level barriers that constricted Microsoft's ability to invest in the physical and scientific infrastructure needed to accomplish its objectives. AI companies that work on behalf of others can reduce the prevalence of harmful outcomes. If this occurred, it does not seem like the United States would create policies that punish private decisions to act ethically. However, public-private partnerships could help regulate the behavior of companies with a history of misconduct.

An alternative ethical dimension to consider is the diplomatic domain. Working with allies in other regions of the world would help American companies identify potential investment partners. This does not appear to be a priority, as the United States' current national framework contradicts the ideals outlined in UNESCO's (2021) Recommendation. Working with international partners would require making concessions that prevent American AI companies

from growing as quickly as they want. The United States would also need to adhere to international guidelines that may not satisfy its domestic interests. Overcoming these factors could integrate the United States into the international community and establish it as one of the more ethical actors within the global AI economy.

Alternative Frameworks to Consider

The five ethical dimensions included in the RAM provide a comprehensive summary of the variables that countries should examine. However, some frameworks rely on core questions to guide the ethical use of AI within one's jurisdiction. West (2022) presents six core areas of focus governments can explore when assessing their use of AI. The areas of focus are: 1) having well-defined codes of conduct, 2) promoting ethical principles with the appropriate tools, 3) developing benchmarks and metrics, 4) using technical standards to solve common issues, 5) experimenting within organizational spaces, and 6) recruiting workers with technical and nontechnical skills (West, 2022). This framework addresses the American workforce, the implementation of technical standards across public and private agencies, and the use of existing codes of conduct to promote ethical conduct in the country.

West's (2022) areas of focus are broad enough for the United States to implement a robust ethical framework without contravening the White House's (2025) policy framework for the country's AI sector. Private businesses can use impact assessments to evaluate how they employ AI within their business models and to estimate how the American government will regulate AI ethics in the short and long term. Simple frameworks allow private businesses to maintain their independence and approach ethical business models in creative ways. This appears to be the ultimate goal of the White House (2025), as it seeks to make private AI companies as innovative as possible within the shortest possible timeframe. West's (2022) core areas of focus could guide the government in developing blanket policies that must account for companies' cybersecurity and treatment of human stakeholders.

The Government of the Hong Kong Special Administrative Region of the People's Republic of China (2024) employs an ethical framework that identifies the stakeholders who contribute to it, enabling the achievement of various objectives. Information Technology (IT) planners and system architects are among the groups designated as users in Hong Kong's framework. These users adhere to IT policies, conduct impact assessments, and oversee the AI lifecycle to achieve their primary objectives ethically. Hong Kong's ethical framework is more descriptive than the West's (2022) core areas of focus. West's core areas do not identify the user groups most likely to control AI use. At the government level, organizations will likely have the human resources needed to have dedicated IT and AI teams. However, it may not be realistic to expect private stakeholders to have developed IT and AI teams within small- to medium-sized organizations.

The Feasibility of the RAM and EIA

The White House's (2025) national framework appears to provide private AI companies with the necessary freedom to conduct EIAs. Magee and Saviano (2025) examined how ethical frameworks could influence the implementation of AI in the healthcare sector. The authors found that recent court cases established new standards and norms that medical facilities and professionals must consider when integrating AI into routine practice. AI tools affect patient safety and cannot be left unattended for extended periods. In this case, the American healthcare

sector must focus primarily on the legal aspects of the RAM's ethical framework to ensure that AI is used appropriately in medical facilities.

The lack of literature available on UNESCO's (2023) EIA presents a significant gap. It is difficult to determine whether the EIA is superior to the RAM without multiple case studies and practical applications. Arrazi's (2024) brief explanation of the RAM instrument and its application to Indonesia's current situation highlights how evaluators and government agencies can use the RAM assessment's findings to make rapid decisions. In Indonesia's case, the country's use of international AI policies provided a legal framework on which to rely as it strengthened its broader ethical infrastructure. The inability to review how other countries used the EIA to inform decision-making makes it hard to determine whether governments could derive more value from impact assessments alone.

The current American government's heavy focus on innovation and prosperity may provide an opportunity for private organizations to use other ethical assessment tools in the meantime. The UNDP-UNESCO Joint Collaboration on Artificial Intelligence Assessments (2024) proposes combining UNDP's Artificial Intelligence Landscape Assessment (AILA) and UNESCO's RAM to provide a comprehensive assessment of countries' AI use and the implementation of ethical frameworks and policies. The AILA specifically evaluates countries' ability to integrate AI technologies into government frameworks. The instrument's focus areas include the government as a user and as an enabler, as well as ethical AI (UNDP-UNESCO Joint Collaboration on Artificial Intelligence Assessments, 2024, p. 2). Surveys and interviews with key participants are used to collect data during the AILA assessment. While the AILA focuses on the public sector, the information gathered through the instrument can inform private businesses about the legal and political environment in which they operate.

The White House (2025) claims that it seeks to streamline the policy framework governing AI ethics in the United States. Doing so requires the federal government to assume authority from state-level agencies and officials, who legislate and enforce regulations governing AI within their jurisdictions. The Office of the Director of National Intelligence (2020) published a guide to help practitioners in the intelligence sector use AI. The office's leadership within the intelligence community illustrates how a government agency could present an AI ethics framework that public agencies at the state level are required to use. A blanket policy would not account for the unique needs of states with limited resources and technological infrastructure. The United States' current national strategy for regulating AI ethics prevents state-level public stakeholders from mitigating the risk of the removal of unique protections.

How to Integrate the RAM's Ethical Framework into the United States' National Agenda

The best way for the United States to move forward is to integrate West's (2022) areas of focus and the RAM's ethical dimensions into the proposed National Framework. Doing so provides the international community with a modest sense of relief regarding how the American government will invest in the growth of its domestic AI sector. Asking the federal government to implement the RAM's ethical framework in its purest form appears unrealistic at present. The White House (2025) clarified that it does not want critics' social, environmental, and cultural concerns to impede progress in the American AI sector. American lawmakers seeking a compromise can

focus on regulating the United States' scientific, technological/infrastructural ethics in the meantime.

While improving the country's performance in the scientific, technical/infrastructural domains, American lawmakers should lobby for the formation of a government committee to recruit public officials from every state. The White House's (2025) National Framework will remove state-level policies that address local weaknesses and vulnerabilities. As the federal government removes these protections, state-level officials should have the opportunity to explain the consequences of the changes and help mitigate the resulting damage. The committee could be established within a federal agency, such as the FBI or the Department of Energy (DOE), to enable members to draw on internal resources to make knowledgeable decisions.

The White House's (2025) desire for innovation could also lead to colleges and universities becoming contributors to the proposed government committee as well. AI companies will need access to innovative research to develop products more quickly. State-level officials serving on the committee can collaborate with institutions in their jurisdictions to identify potential problems, propose solutions, and communicate these ideas to AI companies interested in operating ethically.

Implementing West's (2022) Core Areas of Focus

West's (2022) core areas of focus consider the needs of workers, managers, politicians, private companies, and government agencies. For example, recruiting workers with both technical and nontechnical skills requires a flexible approach to how companies will use AI to achieve their goals. Technically skilled employees can maintain AI systems and ensure they are protected from potential cyberattacks. Nontechnical employees have the communication, marketing, and sales expertise necessary to properly use AI tools to create promotional materials and sales documents.

As the United States seeks to foster greater innovation among businesses, it should use past federal agency-published technical standards to guide the National Framework's technical elements. Technical standards help individuals, organizations, and government agencies solve technical problems as they happen. Solving these issues as quickly as possible prevents stakeholders from being vulnerable to malicious actions.

West's (2022) recommendation to promote major ethical principles and combat bias through operational materials can be implemented via digital applications that provide employee safeguards and templates for performing job duties. Integrating publications, digital applications, and educational opportunities to reduce bias and unethical behavior is an investment that private businesses and the government should pursue. Likewise, creating well-defined codes of conduct is a natural solution that AI-focused companies can use to ensure current employees and newly hired workers are aware of their organization's vision for AI and how it will be used when working with customers and other stakeholders.

The core areas of focus can be implemented by managers who are aware of West's (2022) recommendations and have the authority to create and enforce internal policies. None of West's recommendations prevents privately owned companies from being as innovative as possible. Additionally, the call to use technical standards to address common issues gives the federal government an opportunity to rely on organizations such as NIST and the Federal Bureau of

Investigation (FBI) to train private businesses and state-level agencies to prevent adverse events involving AI tools.

Performing Research That Assesses Each State's Current AI Environment

While West's (2022) core areas of focus provide a broad alternative for the federal government to consider, the United States must perform the research necessary to determine if a growth-oriented national framework would cause severe harm to state-level governments. States with weak scientific and technological infrastructures may be unable to generate innovative findings and products. Low performance in this area may prompt federal officials to call for increased funding and investment, but there is no guarantee that states will have the funds required to implement these changes. Some states may prioritize the social dimension of AI ethics over other aspects of the RAM ethical framework. Doing so may encourage them to invest more in programs that effectively educate the public about AI and how to identify AI-based attacks and misinformation. These investments do not go towards start-ups and large companies investing in technological infrastructure. This conflict is likely to draw negative attention from the federal government.

Business management research can be conducted to assess the current demand for AI products and innovation across the U.S. states and territories. Economic research could examine the extent of funding allocated to AI-related commerce in each state during the past five years. States with increasing AI-related revenues every year would be excellent targets for growth-oriented legislation. However, states with declining or stagnant AI-related revenues warrant further investigation. These investigations can employ surveys and targeted interviews to elicit information from executives at AI companies. The questions could ask about employees' level of technical education before being hired, if AI was a significant part of a company's business model five years ago, and if AI skills courses are offered as a perk of employment. Executives' responses to these questions would indicate to the federal government whether the human resources are in place to pursue rapid growth and dominance in the global AI sector.

Case studies examining prominent companies that used AI to improve their performance and operations can also be conducted. The United States has a positive view of AI; therefore, funds dedicated to new research should be allocated to studies that can work within the conditions imposed on researchers and consultants. Case studies of successful companies would illustrate how new start-ups can leverage AI effectively without harming surrounding communities. Learning about these companies could also help the federal government develop a framework that promotes the most ethical decision-making possible, rather than creating an unregulated sector. This would satisfy the federal government's desire to foster a more vibrant private sector while also recognizing the need to minimize adverse AI-related outcomes.

CONCLUSION

This paper aimed to answer the research question, "What are we doing in the United States to further the ethical dimensions of AI?" Several sub-questions arose after the research on the initial question began. A literature review found that the United States is in the process of repealing state-level policies that restrict AI-focused companies from pursuing innovative ventures. The White House (2025) declared its aim to make the United States the world's most prosperous user of AI. Achieving this goal would require a domestic boom and the development of multiple innovations that the world would seek to adopt.

Removing state-level policies would prevent state officials from protecting vulnerable stakeholders within their jurisdictions. Like Indonesia, Ukraine, and Bahrain, American states have unique contexts and needs that preclude the use of the same methods as other jurisdictions. The states must be collaboratively involved. The United States can prevent adverse outcomes by implementing a broad ethical framework that provides government agencies and private businesses with a checklist of activities to perform before integrating AI into their operations. Moving forward, the United States' federal government must slow its pace and address the social domain of the RAM assessment and the country's scientific goals before finalizing its National Framework.

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LEVERAGING ADVANCED TECHNOLOGY AND AI IN EYECARE TO IMPROVE DIAGNOSTICS AND REDUCE WAIT TIMES

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ABSTRACT

An estimated 93 million adults in the United States are at high risk for severe vision loss (Vision Center, 2025). Given the high demand for eye care, clinicians must be well-equipped to provide prompt and high-quality examinations. Traditional diagnostic workflows consume excessive time and space, which hinders patient throughput. Additionally, many doctors remain hesitant to adopt newer methods due to concerns about validity, workflow disruptions, and regulatory issues. When properly implemented, AI and VR technology can enhance early detection, expand access, and improve operational efficiency. Successful integration involves conducting a readiness assessment, running a pilot program, offering comprehensive training, and executing a full-scale rollout, all while maintaining a focus on continuous improvement. AI and VR advancements enable the delivery of value-based, accessible digital care while promoting ethical leadership and ensuring administrative preparedness in the field of healthcare innovation. Healthcare administrators should adopt AI and VR diagnostic tools in eye care through a structured, five-phase process that addresses clinician resistance, guarantees regulatory compliance, and maximizes patient outcomes while remaining cost-effective.

Keywords: artificial intelligence, virtual reality, eyecare diagnostics, health technology, access to care

INTRODUCTION

Technology is rapidly evolving across every sector of modern life, and healthcare and eye care are no exception. Advanced technology and artificial intelligence (AI) are increasingly embedded in daily clinical operations, with the primary aim of increasing efficiency and meeting the growing demands of an expanding patient population.

Traditional eye care diagnostics involve several steps and tests, often resulting in extended wait times for testing and results. As patient loads increase and resources remain limited, clinicians must find effective ways to streamline diagnostics while ensuring accuracy and reliability. While numerous advancements in eye care have occurred, particularly with AI and VR-based technology, many professionals remain hesitant due to concerns about automation, accuracy, and patient interaction.

As the eye care technology industry continues to evolve, innovations like virtual reality (VR) testing and the integration of AI-driven diagnostics can serve as valuable tools for enhancing patient care. In addition to providing accurate and precise results comparable to traditional methods, advanced technology allows for reduced wait times, increased accessibility, and a more comprehensive overall patient experience. AI algorithms help interpret data and assist clinicians in identifying early signs of eye diseases, such as glaucoma and macular degeneration, among others.

Despite advancements in AI and VR, clinicians remain hesitant to fully embrace AI-assisted diagnostics. Concerns include the reliability of these technologies compared to standard methods, the potential impact on doctor-patient relationships, and the ethical and regulatory implications. Transitioning to and adopting innovative technology is a significant decision, requiring adjustments to existing workflows, training, and infrastructure, all of which present meaningful challenges.

This paper advocates for the responsible implementation of advanced technology and AI-driven diagnostics in eye care. It provides an evidence base for the benefits of these tools, addresses documented concerns, and highlights real-world case studies demonstrating how AI can enhance rather than replace clinician expertise. It further demonstrates how VR diagnostics can streamline clinical operations, improve patient experience, and optimize medical decision-making. By examining practical applications, regulatory considerations, and the role of AI in supporting clinicians, this paper aims to address prevailing skepticism and encourage informed adoption.

DESCRIPTION OF THE PROBLEM

The standard eye care exam includes manual assessments, traditional imaging, and clinician interpretation. While effective, standard methods often produce long wait times, limited access, and delays in early detection. As demand for eye care increases, professionals must find new ways to expedite diagnostics without compromising accuracy. Weill Cornell Medicine studied patient experience with virtual reality-based visual fields, and the results showed that VR testing scored higher in all surveyed areas, including clarity, focus, comfort, and ease (Li et al., n.d.).

The leading contender for enhancing efficiency and reducing wait times is the use of VR and AI-assisted diagnostics. These technologies can conduct rapid and accurate eye assessments, eliminating the need for bulky equipment confined to a specific space. The ability to perform an exam anytime and anywhere, combined with AI solutions that analyze data and detect diseases, represents a significant advancement in care delivery. AI-assisted tools such as IRIS have shown significant time savings, with some clinics reducing exam wait times from several weeks to same-day access after implementation in diabetic eye care settings (Simbo AI, 2025).

Despite the benefits of AI and VR-based tools, several factors continue to prevent widespread adoption in clinical settings:

1. Skepticism Among Clinicians. Many clinicians hesitate to depend on advanced AI-based tools due to concerns about reliability. Professionals worry that AI algorithms might overlook subtle anomalies that require clinical expertise to detect.
2. Concerns about the Doctor-Patient Relationship. Patients value the personalized care that a doctor provides. Fostering patient trust in advanced technology requires clear communication and reassurance that AI is designed to assist, not replace, the clinician.
3. Regulatory and Compliance Barriers. In the healthcare field, strict regulations, privacy laws, FDA approvals, and ethical standards require transparency in algorithms and the

security of patient data. The absence of standardized guidelines for many AI tools creates uncertainty regarding their adoption in medical practice.

4. Integration into Existing Clinical Workflows. Most clinics rely on standard diagnostic methods, and transitioning to more advanced solutions requires adjustments to workflow, training, and infrastructure. Without a designated transition period, incorporating advanced technology and AI diagnostics remains a significant challenge. Over 80% of healthcare AI initiatives fail due to misaligned workflows, poor stakeholder engagement, and data quality issues (Orion Health, 2024). These findings underscore the importance of structured rollout planning, including readiness assessments and piloting, in preventing implementation setbacks.
5. Resistance to Change in the Medical Community. AI and VR eye care tools encounter skepticism and reluctance from professionals familiar with traditional methods. Many worry that embracing advanced technology could undermine clinician expertise, introduce risks, or alter the nature of their practice.

These concerns can be addressed by examining how advanced technology and AI generate efficiency and enhance the care that clinicians provide. By analyzing real-world successes, scientific validation studies, and practical adoption frameworks, the field can move toward education, transparency, and the strategic adoption of AI-driven diagnostics in eye care. The goal is to ensure that AI and VR tools are used responsibly, allowing providers to deliver better, faster, and more accessible care while maintaining patient trust and regulatory compliance.

LITERATURE REVIEW

"Vision science is all about taking care of our eyes and finding innovative ways to improve our visual health" (DPU Optometry, 2023, para. 3). Over the past several years, as technology and AI have been further studied and developed, the eye care industry has grown to incorporate AI and VR technology into diagnostic equipment. AI and VR diagnostic tools can serve as powerful resources for clinicians when adopted and appropriately regulated. The underlying premise is that AI and VR tools enhance the care a clinician provides rather than replace it. In addition to the operational benefits that an eye care practice achieves, patients receiving care experience faster and more accessible treatment. Despite advancements in technology, skepticism regarding AI and VR remains prevalent. This literature review examines current research on advanced technology in eye care, highlighting key advancements, case studies, and the challenges they present.

According to the Centers for Disease Control and Prevention (CDC, 2023), approximately 12 million people aged 40 and older in the United States have vision impairment. Additionally, more individuals are living with chronic health conditions that contribute to vision loss. As the demand for eye care increases, advanced technologies such as AI and VR can provide timely and convenient diagnostics. Most eye diseases are diagnosed through scans, images, or magnetic resonance imaging (MRI). AI can be trained to recognize early anomalies of these diseases and help clinicians detect them more quickly.

In April 2018, the FDA approved IDx-DR, the first AI device capable of screening for diabetic retinopathy. IDx-DR is software that interprets and analyzes uploaded scans and images to identify signs of diabetic retinopathy. "AI systems are capable of detecting diabetic retinopathy with an accuracy that rivals or even surpasses that of experienced ophthalmologists" (American Academy of Ophthalmology [AAO], 2021, para. 15). The EyeArt AI system demonstrated sensitivity of 96%

and specificity of 88% in diagnosing diabetic retinopathy across more than 850,000 fundus images, rivaling expert-level performance (Leonard, 2020).

By incorporating advanced automated technology into the early assessment of a patient, doctors can gain a general understanding of a patient's condition before their appointment. Previously, the retinal exam required a visit to an eye specialist; however, technology like IDx-DR now saves time and helps determine when to refer a patient to a specialist. With diagnostic equipment that detects anomalies, doctors gain an advantage and can begin developing a treatment plan. Even outside of eye care, AI-assisted diagnostics have reduced outpatient wait times from a median of 1.97 hours to just 0.38 hours, demonstrating the broader potential of AI integration to streamline workflows (Li et al., 2021).

The use of virtual reality in diagnostic testing is also transforming the field. "Portable VR-based perimetry is reshaping visual field assessment by offering mobility, cost-effectiveness, and increased patient engagement" (AAO, 2024, para. 2). Providing diagnostic tests that are both physically and financially accessible while engaging the patient creates a meaningful benefit for all stakeholders. Although AI-based diagnostics may carry higher upfront costs, for example, $559 per patient compared to $533 with traditional screening methods, they provide long-term savings through better access, earlier detection, and faster results (JAMA Network Open, 2023). Cost-effectiveness should be viewed holistically, considering both financial efficiency and health outcomes. Head-mounted perimetry devices have been shown to produce functionally indistinguishable results compared to the Humphrey Field Analyzer, offering a low-cost, portable alternative to specialized clinic-based perimetry devices.

Despite notable progress, doubt about AI and VR persists. A prevalent concern is the perceived "black box" characteristic of AI tools. While algorithms produce results, not every clinician is confident in understanding how those results are formulated. As noted by the American Medical Association, "growth and adoption could stall if physicians aren't told what the technology is doing and how it's doing it or if they are unable to explain the functions to their patients," underscoring the need for transparency in AI in medical settings (Robeznieks, 2024).

There is also concern regarding AI's diagnostic accuracy and whether it can truly match human expertise. While studies show that AI can detect diseases like diabetic retinopathy, glaucoma, and macular degeneration with impressive sensitivity, some clinicians worry about subtle anomalies being overlooked. According to the American Academy of Ophthalmology (2024), adoption is hindered more by trust issues than technological limitations, highlighting that the barriers are often psychological rather than technical. Comparative studies show that AI performs on par with or better than clinicians in estimating diagnostic probabilities. One JAMA Network study found AI systems produced lower error rates than clinicians across multiple conditions (Rodman et al., 2023).

In the case of VR-based diagnostics, the concern lies in whether virtual methods truly replicate the standards of traditional devices such as the Humphrey Field Analyzer. A study comparing Virtual Field's VR headset with the Humphrey Field Analyzer concluded that "Virtual visual field testing using the BOLT strategy was similar to the Zeiss Humphrey SITA-Standard 24-2. VVF testing provides advantages over HVF in terms of cost effectiveness, portability, and efficiency" (Robinson et al., 2022). In addition to concerns about the technology itself, patients who have become accustomed to traditional diagnostic equipment may be hesitant to trust results from a headset.

Regulatory and ethical considerations represent another significant area of concern. As AI and VR technologies take on more responsibilities in eye care, regulatory oversight is both necessary and foundational. AI and VR tools must comply with healthcare standards such as the Health Insurance Portability and Accountability Act (HIPAA) to protect patient data privacy. In the United States, devices and software used for diagnosing or influencing clinical decision-making are subject to FDA approval, ensuring their safety, efficacy, and transparency. Since AI algorithms are constantly learning and evolving, however, compliance cannot be a one-time checkpoint. "AI tools must align with medical regulations and ensure transparency, fairness, and privacy," emphasizing the need for dynamic regulation as technology advances (Essert Inc., 2024). Transparency in explaining AI diagnostics, including how results are generated, is essential to maintaining clinician and patient trust. Without transparency, confidence in AI systems remains fragile, making the role of regulation not just protective but restorative.

While these concerns are valid, skepticism can be addressed through education, transparency, and inclusion in the development and implementation processes. Rather than replacing clinicians, AI and VR should be viewed as tools that enhance clinical capacity, reduce administrative burdens, and support earlier and more accurate diagnoses, particularly in underserved areas.

PROPOSED SOLUTION

As eye care diagnostics rapidly develop new methods for testing, establishing a structured implementation approach for integrating AI and VR diagnostics is essential. Although introducing new technologies is not new in healthcare, the skepticism surrounding AI and VR requires administrators to take deliberate steps toward smart, regulated rollouts. Eye care administrators are well-positioned to seize the opportunity to enhance access, efficiency, and quality through innovative care delivery.

To successfully implement these technologies, administrators should focus on three primary goals:

- Enhance Diagnostic Efficiency and Access
- Strengthen Data Governance and Compliance
- Align with Organizational Change Models

Improving diagnostic efficiency and access should be a priority for the eye care community. By leveraging AI and VR, the capabilities of current diagnostic methods can be expanded meaningfully. Enhancing data governance and compliance provides providers with the confidence needed when adopting advanced technologies. Applying organizational change models supports the implementation process and facilitates the adoption of new technologies in a structured and sustainable manner.

The goal of any healthcare operation should be to have the most significant impact on both individuals and communities. Through integrating advanced technology, clinicians can improve care and extend their reach. AR/VR can speed up diagnoses and increase access to care when in-person visits are challenging (FDA, 2024). Trained on expert clinical knowledge, these technologies can identify anomalies in diagnostic testing and assist doctors in making more accurate diagnoses. AI systems like VeriSee DR can deliver accurate eye disease diagnoses in as little as ten seconds, compared to multi-week turnaround times common in traditional workflows (IndianWeb2, 2025). This technology not only supports the clinician but can also influence the

course of a patient's journey, enabling early detection and the initiation of preventative measures to delay or manage symptoms.

In addition to AI, VR can significantly enhance the efficiency and accessibility of eye care. VR technology enables patients who have difficulty using traditional tabletop devices to access diagnostic exams such as visual fields, which are highly valuable in diagnosing eye conditions. The ability to perform diagnostic exams at any time and from any location in the clinic also boosts clinical efficiency and reduces wait times. Furthermore, this technology enables clinicians to extend their reach and deliver diagnostic exams to underserved areas that lack access to quality eye care.

The success of integrating AI and VR diagnostics in eye care depends on a solid foundation of data security and regulatory compliance. As AI and VR technologies access large volumes of patient data, it is critical to establish transparent, secure, and ethical policies that are regularly updated as the technologies advance.
Eye care organizations must establish a comprehensive data governance framework to ensure the integrity of their data. This framework should outline how data is collected, validated, stored, and shared. According to KMS Healthcare, "Data governance is fundamentally the bedrock for ensuring patient safety" (2025, para. 3), especially when AI is involved. Key elements include assigning responsible personnel for data oversight, standardizing data validation processes, and documenting AI outputs for accountability.

AI and VR diagnostic tools must comply with HIPAA regulations and FDA guidelines for medical devices. Some AI and VR tools have already received FDA approval, but ongoing compliance requires continuous monitoring and documentation. As Essert notes, "Healthcare AI must adhere to strict regulations like HIPAA, GDPR, and FDA AI guidelines" (2024, para. 13) to protect patient confidentiality and ensure legal accountability. Potential risks, including diagnostic bias, automation error, and data breaches, must be addressed proactively. Mitigation strategies include selecting explainable AI systems, conducting pilot evaluations, implementing multi-factor authentication, and adhering to HIPAA and FDA protocols. Transparent governance not only protects patients but also builds trust in the system among both providers and patients (HealthTech Magazine, 2025; Essert Inc., 2024).

Transparency in the algorithms used in AI and VR technologies would also foster trust among clinicians and patients. This involves selecting AI tools that provide explainable outputs and demonstrate how diagnostic decisions are made. Regular audits and bias mitigation strategies should be incorporated into the governance process. As outlined by HealthTech Magazine, "Data problems will only be amplified when fed into AI for things like diagnoses and treatment recommendations" (2025, para. 17), making governance not just a legal requirement but a clinical necessity.

IMPLEMENTATION PLAN

A successful implementation of AI and VR diagnostic tools requires a structured, multi-phase plan. It involves evaluating clinical safety, regulatory compliance, and organizational readiness. Focused on improving diagnostic efficiency, early disease detection, and equitable access to vision care, the plan translates high-level innovation into practical operational steps. It supports healthcare objectives while emphasizing the importance of clinician oversight, regulatory compliance, and sustainable integration. The multi-phase approach reflects core administrative competencies,

including organizational leadership, change management, healthcare informatics, and quality improvement.

Phase 1: Organizational Readiness (Months 0-3)

The initial stage involves evaluating organizational readiness. This includes conducting a SWOT analysis to identify internal strengths, weaknesses, opportunities, and threats related to the adoption of AI and VR. A formal gap analysis identifies areas of clinical workflows, data infrastructure, or human resources that may require enhancement. Stakeholder mapping locates key individuals and departments to be involved in the rollout, including clinicians, health IT staff, compliance officers, and patient experience leaders. This stage also includes selecting vendor partners with FDA-cleared diagnostic tools and ensuring the platform complies with HIPAA and cybersecurity protocols. A communication plan is developed to outline the project scope and secure organizational buy-in.

Phase 2: Pilot Program and Evaluation (Months 4-6)

During the pilot phase, AI and VR tools are deployed in a controlled environment such as a high-volume outpatient eye care clinic. "Pilot testing in a controlled environment allows healthcare organizations to evaluate AI tools for safety, usability, and clinical effectiveness before full-scale deployment" (Sharma, 2024, para. 5). Clinical and administrative staff undergo an onboarding process and receive hands-on training to ensure comfort with device operation, data input, and the interpretation of AI-generated insights. VR-based visual field testing is implemented in parallel with standard methods to allow for performance benchmarking. The organization begins collecting baseline data on diagnostic accuracy, time to diagnosis, and clinician satisfaction. Patient education materials and consent processes are piloted to support transparency and trust in emerging technology.

Phase 3: Evaluation and Refinement (Months 7-8)

Following the initial rollout, the implementation team assesses the pilot's success using both quantitative and qualitative methods. KPI data, including visit duration, screening completion rates, and time saved in diagnostic workflows, is analyzed to determine operational impact. Surveys and interviews with patients, providers, and support staff assess satisfaction, usability, and perceived barriers. The results of this evaluation guide refinements in training materials, workflow documentation, and support infrastructure. A final report summarizing the pilot's lessons learned and recommendations for scale-up is presented to senior leadership.

Phase 4: Full-Scale Rollout (Months 9-15)

Once vetted, the AI and VR diagnostic programs are expanded to additional eye care departments and partner clinics. The rollout includes updates to standard operating procedures (SOPs) that formally integrate AI and VR tools into diagnostic protocols. EHR systems are linked to ensure seamless documentation and easy access to AI-generated findings. Refresher training and peer mentoring programs are offered to newly onboarded teams. A compliance audit is conducted at each stage of expansion to verify ongoing adherence to HIPAA, FDA guidelines, and internal policies. This stage marks a key turning point at which innovation becomes an integral part of routine care.

Phase 5: Continuous Improvement and Long-Term Sustainability (Months 16-18+)

Maintaining this innovation requires continuous investment in performance monitoring, clinician feedback, and technological upgrades. A quarterly review system is established using real-time dashboards to monitor key indicators, including diagnostic accuracy, early intervention rates, and patient access. Stakeholder feedback loops through online surveys and department meetings, gathering insights that influence future iterations of the tools and workflows. The organization also pursues funding opportunities, such as CMS Innovation Center grants or vendor-supported research partnerships, to help cover future costs. Long-term sustainability depends on maintaining a balance between clinical relevance, operational efficiency, and patient-centered care.

Roles and Responsibilities

To ensure accountability, a cross-functional implementation team is established with defined responsibilities. The Project Manager oversees timelines and milestones and coordinates with stakeholders across departments. The Clinical Director guides diagnostic quality and ensures that new tools align with care standards. An IT Lead manages hardware and software integration and troubleshoots emerging issues. The Compliance Officer oversees regulatory adherence and audit documentation. A dedicated Training Coordinator develops modular education programs tailored to the needs of both clinical and administrative staff.

Resource Allocation and Risk Management

Implementation requires both financial and human resources. Budget considerations encompass the costs of VR headset software, licensing, cybersecurity infrastructure, and staff training. Staff time must be allocated for planning, piloting, and ongoing support. Risks such as clinician resistance, technology failure, or workflow disruption are addressed proactively through clear communication about AI as a support tool rather than a replacement, investment in 24/7 IT support during rollout, and multi-factor authentication to protect data integrity.

Evaluation Metrics and Success Indicators

The success of this plan is assessed using a set of outcome-focused metrics. Clinical outcomes emphasize the accuracy and promptness of diagnoses. Operational metrics measure changes in patient flow, staff workload, and documentation efficiency. Financial indicators include downstream cost savings from early detection and fewer complications. Human expertise metrics, such as clinician adoption rates and patient trust scores, ensure that implementation not only improves outcomes but also fosters a stronger culture of care.

CONCLUSION

A significant factor in the long wait times at eye care practices is the slow process of diagnostic testing. Often, each type of equipment requires a dedicated room, causing patients to wait for the previous test to be completed and creating a bottleneck. After completing diagnostic testing, the reviewing clinician must evaluate each result to make a diagnosis. Because the clinician also interacts directly with each patient and reviews all diagnostic data in rapid succession, the risk of overlooking minor anomalies during testing increases. This workflow, although common, is unsustainable as demand for vision care continues to grow.

Integrating AI and VR offers a sustainable solution that saves time and space, enhances diagnostic accuracy, supports clinicians, and increases patient access. The key to success lies in establishing a solid foundation that includes a phased rollout involving leadership engagement, change management, targeted training, continuous feedback, and compliance oversight. At the core of healthcare administration are strategic planning, data-driven leadership, workforce development, and ethical innovation, all of which closely align with the implementation of AI and VR diagnostics.

Adopting AI and VR diagnostics is not about replacing providers but about reinforcing the care they deliver. As eye care practices evaluate AI and VR technology, thoughtful planning and readiness assessments are essential. By aligning technology with organizational values and patient-centered goals, administrators can lead the transformation toward more efficient, equitable, and effective care.

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CONTEMPORARY THEMES ON CLASSIC ORGANIZATIONAL BEHAVIOR CONSTRUCTS: IMPLICATIONS OF PERSON-ORGANIZATION FIT ON EMPLOYEE ENGAGEMENT

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ABSTRACT
This review follows the roles and impacts of person-organization fit on employee engagement as demonstrated in the attitudes, perceptions, emotions, and motivations of case study actors and their actions. Five cases studies from the Robbins and Judge (2023) text *Organizational Behavior, nineteenth edition*, were evaluated as a lens by which to study the implications of person-organization fit on employee engagement that are common in today's workplace. These case studies cover a range of classic organizational behavior (OB) themes, including work-life balance, stress, personality traits, behaviors, emotions, and motivation. Each of these cases highlights implications of person-organization fit on employee engagement, and the corresponding role of the industrial and organizational (I/O) professional in managing and leading in situations like these. Based on these OB cases studies, the I/O psychologists' role in training managers and facilitating such cases include helping employees and organizations deal with values conflict to retain top talent, helping leaders and workers recognize and level up emotional intelligence (EI) skills in the workplace, ensuring personality assessments with valid empirical evidence are used appropriately as hiring tools, helping manage mood in complex person-job fit scenarios to improve workplace culture, and investigating and strategizing ways to reduce expensive employee turnover by better understanding motivation to retain employees.

Keywords: organizational behavior, employee engagement, person-organization fit, person-job fit, emotional intelligence

INTRODUCTION

Falling employee engagement costs the world economy $438 billion in lost productivity in 2024 alone, led primarily by a decline in manager engagement and a lack of effective training for managers (Gallup, 2025). These findings demonstrate the broad scope and impact from which managers and human resource professionals can glean by understanding the root causes of declining employee engagement. Figure 1 (Gallup, 2025) summarizes the recent trends in employee engagement metrics, most notably that both globally and in North America, engagement has dropped two percentage points, and the percentage of employees thriving has declined by five percentage points between 2022 and 2024.

Figure 1. Workplace Engagement Trends (Adapted from Gallup, 2025)

Gallup Employee Metric[1]	Globally			US & Canada		
	2022	2024	Change	2022	2024	Change
% Engaged	23%	21%	-2%	33%	31%	-2%
% Thriving	35%	33%	-2%	57%	52%	-5%
% Job Climate Good	53%	51%	-2%	57%	57%	0%

[1]Adapted from Gallup State of the Global Workplace: Understanding Employees, Informing Leaders

Five cases studies from the Robbins and Judge (2023) textbook *Organizational Behavior, nineteenth edition*, provide a useful lens by which to illuminate the implications of person-organization fit on employee engagement that are common in today's workplace. These case studies cover a range of classic organizational behavior (OB) themes, including work-life balance, stress, personality traits, behaviors, emotions, and motivation. Each of these cases highlights implications of person-organization fit on employee engagement, and the corresponding role of the industrial and organizational (I/O) professional in managing and leading in situations like these. Person-organization fit is a theory that people are attracted to and selected by organizations that match their values and leave when there is no compatibility. Employee engagement is defined as the degree of enthusiasm an employee feels for the job (Robbins & Judge, 2023).

This review follows the roles and impacts of person-organization fit on employee engagement of each case, as demonstrated in the attitudes, perceptions, emotions, and motivations of the actors and their actions.

THEME 1: VALUES CONFLICT IN WORK-LIFE BALANCE

Case 1 features a woman named Tatum at R.G. & Company, a global consulting firm (Robbins & Judge, 2023). Tatum is an ambitious and passionate employee that is motivated by the achievement of her professional goals. She was attracted to the company by their flexible, family friendly benefits, but now fears the perception that her supervisor may hold her prioritization of family against her and limit her chances of advancement in the company. She feels guilt and perhaps regret about having to make such a choice and is troubled by the idea that she may not accomplish her professional goals.

Tatum's case is not unique, especially for many women in the workplace. Choosing between work and family goes against her values, and she is questioning her person-organization fit. Tatum thought she was joining a company where both family and professional life could coexist in harmony. Falk (2025) states that social psychologists have known for a long time that others' opinions can change how a person chooses, and these shifts towards conformity can make one feel untrue to oneself or inauthentic. Her supervisor or human resources (HR) professional with training in OB concepts should be aware of this organizational values dilemma and help facilitate measures to assist in

retaining a talented, highly motivated employee like Tatum. Reassurance and support for working mothers, well within the constructs of their benefits plan, should be positively reinforced to improve employee engagement and retain top talent.

When personal values are in conflict with those of the organization and employees feel they must make a choice, they may become disengaged as it threatens person-organization fit.

THEME 2: REVIEW SHOCK: EMOTIONAL INTELLIGENCE AT WORK

Have you ever felt like you really rocked your goals, or at least met or exceeded your performance expectations, only to be hit between the eyes at your performance review with not-so-positive feedback? Such is the case incident from Chapter 4 of *Organizational Behavior* (Robbins & Judge, 2023). This case speaks to the supervisor's role and impact on recognizing emotional intelligence (EI) at work, and opportunities for both the manager and employee to improve skills when it comes to EI.

The subject employee, who has met their performance goals and expects a promotion, is met with the feedback that many of the senior executives perceive her as unfriendly, and that she "…needs to work on her EI…" Our subject is in denial that her demeanor has anything to do with her results, and is taken aback by the comment in a moment of unwelcome surprise. The supervisor's perception is that the employee's EI needs improvement; the employee's perception is "…what does it matter if I'm unfriendly as long as the work gets done?" This speaks to the employee's feeling that she is being asked to be fake or inauthentic.

In this case, there are EI concepts that both the supervisor and the employee could consider in the context of OB. The supervisor could benefit from training on his delivery of the message, true as it may be. In Choi's (2006) paper, it states that charismatic leaders can empower their followers by enhancing their perceptions of self-efficacy and confidence by serving as a role model and utilizing empathy, a strong aspect of EI. The employee in this case can also benefit from professional advisement and training from an I/O psychologist to recognize their own moods, behaviors, and emotions to self-regulate and improve her own EI in the workplace. By both the manager and employee looking in the mirror and working on their EI, improved self-awareness can lead to improved person-organization fit, and better results from a more engaging, friendlier work environment.

THEME 3: EMPLOYER PERSONALITY ASSESSMENT USE

The Chapter 5 case incident highlights a popular, but often misused or misguided tool in the OB toolbox: personality assessments (PA) (Robbins & Judge, 2023). In this case, the CEO's attitude is that managing and working with different personalities is challenging. He is inspired by the widely used and well-known PA, the Myers-Briggs Type Indicator (MBTI), which taps four characteristics and classifies people into one of sixteen possible personality types (Robbins & Judge, 2023). He is convinced that this PA will help find a

cultural fit for "coachable" people, and in his enthusiasm, he installs it as part of the hiring process with essentially no further research. Now faced with a hiring decision of two interview finalists, he uses the MBTI test results to make a final decision. Will it be the right candidate?

The CEO believes that MBTI as a hiring tool could strengthen the team by ensuring diversity. This sounds good at face-value, but if he believes that some MBTI types are more coachable than others, it may result in the exact opposite – a more homogenous personality pattern recruited to his team. While extremely popular as a means to understanding oneself, the MBTI model has come under scientific scrutiny for organizational behavior applications as lacking in empirical evidence (Robbins & Judge, 2023).

In this case, one brave hiring manager speaks up that this might not be the best PA to use in hiring and refers to The Big Five Model. In making this suggestion, this hiring manager has leaned on their due diligence of empirical research and demonstrates the appropriate OB role and response in challenging the validity and potential misapplication of the MBTI assessment. There are many research-proven relationships with The Big Five personality dimensions and job performance (Barrick, et al., 2001). Because MBTI results tend to be unrelated to job performance, the CEO should consider using the Big Five Personality Model as the better personality selection test for job candidates (Robbins & Judge, 2023). The long-term implications and impacts on Sky Energy's team could include greater diversity, productivity, person-job fit and better potential person-organization fit and employee engagement.

THEME 4: JOB ENGAGEMENT, MOOD AND LAZY CULTURE PERCEPTIONS

The remaining case studies in this review deal with motivation and its impact on person-organization fit and employee engagement. In the Chapter 7 case from Robbins & Judge (2023), we explore the paradigm of perceived laziness in the workplace.

This case highlights behaviors that are shunned or looked down upon by supervisors or peers in the workplace. When someone is unwilling to put energy into their work, they are certainly not engaged in their work! Lack of productivity, commitment to the team, or accountability to results can rub off on peers and begin to erode trust (Horsager, 2024). The counterpoint of the employee in this case is that he perceives himself to be complex and multi-faceted and is motivated by work that speaks to him. In this, we recognize the OB theory of job engagement – the investment of an employee's physical, cognitive, and emotional energies into job performance (Robbins & Judge, 2023). As we think back to the previous case on personality assessments, it might have been advantageous to understand his Big Five personalities profile!

Nonetheless, there is an employee engagement problem in this scenario. The role and opportunity of the I/O psychologist in this case is to determine if there is a person-job or

person-organization fit issue with this employee, or a more pervasive cultural problem that is emoting a general malaise. Determining which can provide direction for HR professionals to collaborate with employees and their supervisors to re-engage employees and ensure that the best fit possible for the employee and the organization is refined. If this is not possible, having an empathetic and clear conversation with this employee about finding a better job fit in another organization might well be the best outcome.

THEME 5: EMPLOYEE TURNOVER AND MOTIVATION

The final case study of this review from Robbins and Judge (2023) also dives deep into motivation. JP Transport, a nation-wide freight transportation company, has a very high truck driver turnover rate of 70% per year, estimated to cost the company $77,000,000 a year. Anything that they can do to improve this would mean significant bottom-line profitability, not to mention morale. So, the CEO made one notable change – raised salaries – meant to offset their transient lifestyle as a motivation to stay working at JP Transport. One year later, results had not improved whatsoever. Why? In order to better understand the perceptions of the drivers themselves, JP conducted a long-form survey and asked for feedback (Appendix A).

These selected survey results provided some incredible and valuable feedback (Appendix A.). Based on the survey results, JP Transport did not have a salary problem in motivating their drivers to stay onboard with the company, but a lack of attention to intrinsic motivators of a higher order.

The JP Transport case highlights a common misconception among employers – the idea that money will fix everything – in this case, employee turnover. The employer knows that a trucker's lifestyle is not for everyone. The feedback they received – more intrinsic motivators (Pink, 2009) such as a sense of community, of greater purpose that what they do is meaningful, and the autonomy and freedom to travel about the country – those are the real rewards of the job. Besides the salary surprise, they also found out they have a potential discrimination problem lurking in their midst with how female truck drivers are treated by customers and peers (Yue & Thelen, 2023). The role of the HR professional applying OB theory and concepts could be highly impactful in situations such as this.

Using the gift of feedback as real data, a CEO can work with their HR and I/O professionals to make positive changes that address the current culture's high turnover rate. Newton (2023) describes the use of four strategies to keep the culture you want while making transformative changes in the organization, namely:

- Clarifying what you want to keep
- Listen to Concerns
- Know when you're being nostalgic
- Marshal data

By using these strategies, HR professionals can help build incentives and benefit programs that speak to the intrinsic motivators identified. They can also design work to

be less monotonous and, more importantly, provide training to address the potential discrimination and workplace issues with protected classes (Aamodt, 2023). Utilizing the feedback data to make positive policy changes and work environments that help create better person-organization fit and employee engagement, turnover rates could improve with longer term, committed employees. This final case illustrates well the common thread of person-organization fit on employee engagement.

ORGANIZATIONAL BEHAVIOR CASE STUDIES SUMMARY: IMPLICATIONS ON PERSON-ORGANIZATION FIT AND EMPLOYEE ENGAGEMENT

In summarizing these five case studies from *Organizational Behavior* (Fig.1, Robbins & Judge, 2023), the OB thread of person-organization fit and its impact on employee engagement is evident. The I/O psychologists' role in training managers and facilitating such cases to help find resolution is significant. They include:

- helping employees and organizations deal with values conflict to retain top talent,
- helping leaders and workers recognize and level up EI skills in the workplace,
- ensuring personality assessments with valid empirical evidence are used appropriately as hiring tools,
- helping manage mood in complex person-job fit scenarios to improve workplace culture, and
- investigating and strategizing ways to reduce expensive employee turnover by better understanding their motivations to retain employees.

The OB theories and concepts utilized by I/O professionals add tremendous value to organizations and the quality of work-life for employees by ensuring person-organization fit, thereby optimizing employee engagement. As the modern workplace evolves socially and technologically, continued research on the implications of person-organization fit on employee engagement is warranted to further build on these classic organizational behavior constructs.

Figure 2. Organizational Behavior₂ Case Studies Summary
Implications on Person-Organization Fit and Employee Engagement

Case Study	OB Roles & Implications	Attitudes	Perceptions	Emotions	Motivations
1. Work-Life	Values Conflict	Ambitious	Choice Paradox	Guilt Regret	Achievement
2. Review Shock	Emotional Intelligence	Surprise Denial	Needs Improvement	Feels Fake	Meeting Expectations
3. Personality	Empirical Evidence	Challenging Personalities	Tool is Fix	Popular Enthusiasm	Personality v. Experience

4. Mood, Perceptions	Moods Outcomes	Shunned Commitment	Complex	Malaise	Job Engagement
5. Turnover	Beyond Salary	Lifestyle	Money is Fix	Surprise Culture	Purpose Community

[2]Robbins & Judge, 2023

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APPENDIX A. JP TRANSPORT DRIVER SURVEY – SELECTED RESPONSES[2]

Luis (Driving for Seven Years) *"I love my job! I know many people might be surprised by that from the outside, but I think JP does a good job of making people feel a part of a community. You get to know the other drivers, even if you do not see them that often. The company also makes you feel like what you're doing matters. Even though it is hard to see because we're sort of behind the scenes, truckers play a big role in helping keep the country running with all of the supplies we deliver."*
Cameron (Driving for Fifteen Years) *"I have been in this job for a while, so there are some things that I like about it. It is pretty decent pay for not having a college education. I never liked the idea of working a desk job, so the fact that I get to see different parts of the country and I am not stuck in an office is a pretty decent perk of the job. Over the years, though, I've seen there's more and more regulation. When I started, it was nice because I didn't have some manager hovering over my shoulder, telling me what to do. Now there are these ELDs [electronic logging devices] that keep track of driving hours. I mean, I know there's not much the company can do about that because the government mandated it. Still, it means less flexibility and pay for me. I can only work fourteen hours a day. I spend three of those hours at the shipping dock, and I do not get paid unless I'm driving. I know they're trying to make it safer and prevent accidents, but it'd be nice if I could get paid for those hours or at least not have them counted toward my hours."*
Shelby (Driving for Five Years) *"So, obviously, there are not a whole lot of women driving trucks, but I like it pretty much. I like driving and having the freedom 'to be my own boss.' I always want to try to do the job better and faster than before. As far as challenges, I will say I've had to deal with my fair share of rude comments and gross behavior. First off, the men are rather skeptical of a female driver, so it's not the most welcoming for women, and it's like I have to prove myself all the time. Truck stops are just not a place you want to be because there are a lot of sketchy things that go on there."*
Terrell (Driving for Three Years) *"Wow, I cannot believe it has only been three years. It feels like twenty! Probably no surprise, but this job is incredibly boring and monotonous. If I have to hear some of these talk shows and music again, I will lose it. After a while, even listening to the radio, podcasts, and audiobooks can't make it interesting. I want to find a job where variety is a good thing, unlike the trucking industry. Anything out of the ordinary, like a roadblock, for example, almost always ends up being a headache."*

[2]Robbins & Judge, 2023

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OUT OF THE DARKNESS: INCREASING HEALTHCARE ACCESS TO BEHAVIORAL HEALTH PATIENTS

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ABSTRACT

Ever since the start of the COVID-19 pandemic, behavioral health-related cases in hospitals have seen an exponential rise. Due to several factors, hospitals and hospital systems have struggled to meet this sudden demand. As the demand for behavioral health-related services continues to rise, it will be necessary for hospitals and hospital systems to increase access to care that behavioral health patients are currently not experiencing. One side effect of this lack of care has been months-long waiting lists for behavioral health services such as psychiatry and therapy. Many of these patients who seek out these services are often in emotional crises, such as suicidal thoughts or self-harm attempts, and do not have access to care that would help keep them safe and get them the help that they desperately need. Ultimately, this burdens independent inpatient behavioral healthcare facilities and hospital emergency departments. In a healthcare system now prioritizing value and quality, this lack of access for these behavioral health patients is creating a financial burden on the healthcare system due to the increased number of preventable inpatient hospitalizations and increased utilization of emergency services. Solutions may include increasing the options of behavioral health services offered on an outpatient basis to expand access to care to these patients. One way this could be evaluated is to measure the number of behavioral health encounters in a hospital system's emergency department every month. This data could also be analyzed by evaluating the number of behavioral health patients who were admitted to inpatient units monthly. The goal would be that by increasing access to care for these behavioral health patients, the utilization of emergency department services would decrease, thus decreasing the number of patients needing to be admitted to inpatient behavioral health units.

Keywords: behavioral health, access to care, vertical integration, horizontal integration

INTRODUCTION

Access to care for behavioral health patients has long been a concern. With barriers to access to care ranging from the high cost of treatment, the lack of insurance coverage, the lack of providers available, and the overall societal stigma of mental health, behavioral health patients have struggled to find appropriate care for their concerns. It is becoming more of an issue now as many of these patients are in crisis and represent a danger to themselves, and often cannot afford the luxury of time to search for treatment. This issue has led to an exponential increase in behavioral health patients utilizing emergency centers and hospitals for their care. In turn, costs have been steadily

increasing for the healthcare system as patients are often left searching for higher levels of treatment than they most likely need. By increasing access to care and resources for these patients, unnecessary hospitalizations may be prevented. This would help reduce, at some level, the costs that inpatient hospitalizations incur, but also help patients have more successful treatment experiences.

In many hospital systems, the lack of access to care for behavioral health issues has become a serious concern. Before the COVID-19 pandemic, an unidentified children's hospital system averaged about 50 behavioral health encounters per month across its three emergency rooms within the hospital system. Ever since the pandemic, that number has ballooned to an average of over 500 behavioral health encounters per month, and that number is only growing. Part of the problem is that the hospital system has not needed to deal with this kind of demand for behavioral health services for pediatric patients before. While the hospital system has had outpatient psychiatry departments and psychology departments, they were not equipped to cope with this exponential increase in the number of emergent behavioral health cases. In particular, what has been observed is that there is a significant gap in the levels of service that the system provides. Currently, patients can either be placed on behavioral health precautions in one of the inpatient units or be seen on an outpatient basis in either the psychiatry or psychology clinics. Most of the patients who come looking for behavioral health services are in a crisis where weekly treatment is not sufficient; however, they also do not meet the criteria to be admitted to the hospital. An unforeseen consequence of this disconnect is that the psychiatry and psychology clinics have become overwhelmed, and it has become commonplace for a new patient to be on a waitlist to see a provider for several months. The impact of this surge in demand is that patients are unable to get the care they need due to the lack of resources at the disposal of the hospital system.

This lack of access to care for behavioral health patients has become such an issue that the hospital system's Board of Directors has recently made behavioral health services a preeminent part of their most recently released strategic plan for the next several years. As a nonprofit hospital, the hospital system is responsible to its stakeholders (in this case, primarily community members and patients along with their families) to provide excellent patient care at an appropriate level of service. It is becoming clear that the community is demanding an increase in behavioral health services, and the hospital system must rise to meet that demand. There are benefits to increasing access to behavioral healthcare apart from meeting the obligations to the stakeholders. From a strictly financial perspective, there is an incentive to increase access to care for behavioral health patients. The nation's healthcare system, over the years, has been moving from a fee-for-service reimbursement model to a value and quality-based system. To briefly summarize, this means there is a greater emphasis on providing high-quality and cost-effective care rather than seeing as many patients as possible to increase reimbursement. Those healthcare organizations that can demonstrate an ability to consistently provide high-quality care have the opportunity to receive reimbursement at a higher rate. As one of the nation's largest children's hospital systems in the country, this kind of reimbursement model has a significant impact on the operations of the hospital system. By increasing access to care for behavioral health patients, the hospital system could increase the quality and value of its behavioral health services. Thus, they would be able to negotiate better reimbursement rates from payors such as Medicaid and Medicare, along with other commercial payors.

The reality is that this issue will take months, even years, to begin to see the effect of increasing investments in access to care for behavioral health patients. One of the easiest ways to see if access is improving would be to observe if the monthly average of emergency room behavioral health

encounters was beginning to decline, coupled with an increase in outpatient behavioral health visits and a decrease in the number of patients needing inpatient hospitalization. It would be unrealistic to expect any quick changes. This paper outlines what could reasonably be expected to happen as a result of implementing the recommended solutions.

LITERATURE REVIEW

Fragmented Care System

One of the weaknesses of the current healthcare system is that the system is fragmented, and each discipline operates in its own sphere or "silos". For example, medical providers and behavioral health providers often work in their own spheres, and there is very little, if any, collaboration between the two disciplines. If a patient wants their medical providers and behavioral health providers to collaborate, they often have to be their own liaison between the two teams. Certain actions have widened the gulf between the medical and behavioral health elements of the healthcare system. Recently, there has been a push to integrate medical records and health information technology (HIT) through the use of electronic health record systems (EHR). To incentivize this effort, the 2009 HITECH Act provided financial incentives for the adoption of EHR systems, but behavioral health providers and similar organizations were excluded from these financial incentives, making the adoption of EHRs cost-prohibitive for these providers and organizations (Knickman et al., 2017).

Because of the aforementioned prohibitive costs, it is not uncommon for mental health professionals and behavioral health hospitals to continue to employ paper charting methods, where the majority of the healthcare system has moved to adopting EHR platforms. For starters, this can delay any coordination of care for behavioral health patients. If patients request that their behavioral health records be sent to another provider, that behavioral health clinician or facility would need to find the physical copy of that record, scan it in, and then fax or email it to the recipient. This delay in the coordination of care ultimately puts a greater burden on the patients and their families. It requires them to remember previous diagnoses, previous medications used, and a detailed history of previous treatments (Frost et al., 2023). This lack of system interoperability can lead to errors throughout treatment that could have been avoided.

Undersized & Underprepared Behavioral Health Workforce

One of the biggest challenges when it comes to behavioral health and the lack of access to care is the availability of mental health providers. Since the COVID-19 pandemic, one of the biggest concerns of the healthcare system from a macro level is the number of providers experiencing burnout. The problem with provider burnout is that there is a tendency for providers to leave the workforce if they experience burnout for too long. Behavioral health is one of the specialties that experiences one of the highest levels of burnout and can even affect the depression and anxiety levels of the very patients they are trying to treat (Zivin et al., 2023).

This is a concerning phenomenon since many behavioral health providers are choosing to leave the profession entirely because of this burnout. This burnout includes all providers in the behavioral health landscape: psychiatrists, psychologists, social workers, and counselors/therapists. In a feedback loop, when these providers leave the profession, it places a greater strain on the remaining providers. Such providers are left to cope with the new increase in their own burnout levels. The

consequence of this cycle is that more providers become more prone to leave the profession due to their increasing burnout. Job satisfaction is often a key indicator of employee retention for healthcare organizations, and a majority of behavioral health clinicians report low job satisfaction at an alarming rate (Scanlan et al., 2021). As behavioral health providers leave the industry and those professionals are not replaced, patients are left to deal with the consequences. As the number of behavioral health providers dwindles, there are increasingly fewer provider options in the marketplace from which the patient can choose.

Due to the lack of behavioral health providers in the healthcare system, primary care providers are often becoming the "first line of defense" when it comes to treating behavioral health patients. However, the providers are not adequately trained to deal with behavioral health concerns and crises. Parikh et al. (2021) reported that primary care providers identify less than 25% of patients with depression or anxiety concerns despite probably having the most contact with these patients, especially considering that most depression and anxiety cases lack severe symptoms that are readily identified. As a result, referrals for behavioral health concerns experience a wide range of variability as these providers struggle to properly assess suicidality (Parikh et al., 2021). This struggle can often lead to patients not being identified as needing services or even being referred to an inappropriate level of care.

One of the areas that experiences the highest discrepancy of available mental health professionals is rural areas. One of the biggest problems with individuals in rural areas being able to access behavioral health services is that the nearest mental health professional could be hundreds of miles away. Many of these patients in rural areas often experience physical and behavioral health problems that require more frequent and continuous care (Howren et al., 2022). Some challenges for these patients to access behavioral health services include a lack of transportation, fewer provider options, and a lack of insurance. This lack of providers puts a greater burden on primary care physicians as they are typically the only providers that may be readily available for these patients. Often, these physicians are not appropriately trained in the use of psychotropic medications and may underutilize psychosocial treatments for these patients (Shiner et al., 2022). Behavioral health services are being underutilized. It has been shown that only 1 in 10 patients in rural areas who need behavioral health treatment are using behavioral health services (Shiner et al., 2022).

Payment Models

The goal for any provider or healthcare organization is financially driven at some level: the ability to make a profit. Behavioral health services are not exempt from the need for positive margins. Behavioral health services are typically one of the lowest reimbursed services in the healthcare system. This can have an impact on providers, particularly primary care providers. They may be less willing to see behavioral health patients if they are unable to get reimbursed at an appropriate level. It has been shown that raising the reimbursement rate for primary care providers by even $10 increases the utilization of behavioral health services by 2.9% (Maclean et al., 2023).

The current reimbursement model is moving from a fee-for-service structure to a value-based care model. The idea is that those providers and organizations that can lower costs and increase value can get services reimbursed at a higher rate. However, such a payment model provides inherent problems for the behavioral health sector. For one, since reimbursement rates are so low for behavioral health providers within this payment model, many providers are opting out of insurance

panels altogether and are operating as cash payment businesses. Psychiatry has the most providers that do not accept insurance, and many other behavioral health providers operate within their private practices and do not have the resources to participate in the value-based payment model (Pincus & Fleet, 2023). Ultimately, as a result, costs are being shifted onto the patients, and they are opting not to seek out services because of the cost. So, within a system that attempted to drive down costs, it had the opposite effect on behavioral health patients and drove up costs.

Wait Times

One of the biggest problems with the healthcare system, regardless of the sector, is the wait times it takes for an individual to see a provider. This problem is more evident when a patient is trying to see a specialist for the first time. Behavioral health is not immune to this problem. One could argue that the exorbitant wait times that behavioral health patients experience could be even worse when compared to other specialists. It is not uncommon for patients to wait for over 6 months to be able to see a behavioral health specialist, such as a psychiatrist, and these wait times could lead to an unsuccessful connection with the appropriate specialist (Daskalska et al., 2024). The concern is that patients who initially might be motivated to seek out treatment could become unmotivated to seek out treatment in the future as a result of a long wait list for providers. Another reason why this delay is so problematic is that behavioral health patients often reach out to see providers when they are in a crisis, and their physical and/or emotional safety could be in jeopardy. Such long wait times can increase the likelihood that a behavioral patient does not follow through with obtaining the appropriate treatment, putting patients with more complex or severe behavioral health cases in serious physical and/or emotional safety (Daskalska et al., 2024).

PROPOSED SOLUTIONS

Understandably, the challenges discussed above paint a grim picture. However, the good news is that options can be explored to increase access to care for these patients. For such a large organization like the hospital system in question, there is even more flexibility in options that can be considered compared to individual practitioners or behavioral health organizations that may not have such flexibility.

One solution to be considered is the horizontal and vertical integration of a health system to increase access. This hospital system only has low-level outpatient behavioral health providers. If a child needs inpatient treatment, they can be stabilized and monitored for a couple of days before being transferred to an inpatient behavioral health facility. Regarding vertical integration, one of two approaches can be considered. One approach would be to build a stand-alone inpatient behavioral health hospital. Later, additional outpatient programs could be implemented as the inpatient behavioral health hospital proved successful. A downside is that it would incur a heavy upfront capital cost to the hospital system. Surely, the expenditure to build such a facility would be significant, but that is not the only high cost to be considered. There would be high costs in the number of staff involved to operate such a facility, including psychiatrists, therapists, social workers, nurses, psych techs, medical assistants, etc. The upside is that since it is the highest level of care for behavioral health, the reimbursement rate would be significant and have the greatest probability of delivering a positive margin. Another approach to vertical integration would be more of a bottom-up approach. It would include creating intensive outpatient clinics such as Partial Hospitalization Programs (PHP) and Intensive Outpatient Programs (IOP). The benefit to these types of clinics is that they would fill the level of care gap that currently exists between the

psychiatry/psychology clinics and inpatient observation in the hospital. There have been benefits to having such intensive outpatient clinics. Studies have shown that 3% to 23% of those who participate in these programs fail to avoid admission to a higher level of care, while 75%-77% successfully avoid admission altogether (Costa et al., 2020). These programs are helping patients avoid inpatient hospitalizations and higher levels of care. In the world of the value-based care model, decreasing costs by preventing hospitalizations and higher levels of care is a boon for a healthcare organization reimbursed using a capitated model. If data shows reduced overall cost due to fewer hospital admissions, the organization would increase its margin on behavioral health services.

In conjunction with the aforementioned vertical integration, horizontal integration might be a potential solution as well. For the hospital system, what this would look like is having behavioral health therapists placed in each pediatrics office in the system. The hospital system has over 50 outpatient pediatrics offices in its system. As mentioned before, primary care providers are typically not adequately trained to appropriately handle behavioral health cases (Parikh et al., 2021). A good example is a parent who brought their child in to be treated for ADHD symptoms. Many pediatricians are not comfortable assessing ADHD symptoms or prescribing medications for ADHD, as they have not had the psychopharmacological training to competently prescribe those medications. Many times, their comfort level will only extend to refilling current ADHD medication prescriptions. While this is only one example, this could be generalized for antidepressants, mood stabilizers, antipsychotics, etc. By having behavioral health clinicians established in each of these outpatient pediatric offices, they could help the pediatricians appropriately manage any behavioral health crises that might be presented in the clinic that day. In addition, they could help the pediatricians make appropriate referrals to other behavioral health resources. There are several benefits to having behavioral health clinicians in these pediatric offices. For starters, this instantly increases access to care for these patients. Rather than having to be placed on an extensive waitlist after seeing their pediatrician, they can easily schedule an appointment with a behavioral health clinician who is already in-house at that clinic. It has also been shown that patients are more compliant with treatment when there is a behavioral health clinician integrated with a primary care provider. Patients are compliant with treatment 40% of the time compared to being compliant 20% when referred to a community provider (Parikh et al., 2021). One of the biggest issues with behavioral health treatment is that patients are often not fully compliant with treatment. So, while the aforementioned compliance may not seem significant, doubling the treatment compliance rate is significant. Overall, the biggest benefit is that more patients struggling with behavioral health crises would be identified and placed in appropriate care. In turn, it would be expected that the number of patients needing hospitalization or inpatient level of care would be reduced. Oftentimes, patients present for emergency care or hospitalization because they have not been able to secure the appropriate care at an outpatient level of care. Apart from the clinical and patient care aspect, such an approach can benefit the hospital system financially. Placing behavioral health providers in each pediatric office requires much less financial expenditure than building an inpatient facility. It can also impact far more patients than such a facility. It can also increase the organization's negotiating position with insurance companies when it comes to payor rates. In the current value-based reimbursement model, the number of hospitalizations is one of the biggest indicators of value. If the organization could show that placing these providers in each of the outpatient pediatric offices has significantly decreased the number of patients presenting to the emergency room or being hospitalized over time, it could demonstrate that they are providing high-value care. This outcome could lead to re-negotiating higher reimbursement rates with payors.

While telehealth is now widely utilized, it is worth discussing how telehealth could be leveraged for behavioral health care. Before the COVID-19 pandemic, telehealth was not widely used for behavioral health treatment. Part of the problem was that licensing boards for behavioral health providers heavily regulated telehealth services, and that reimbursement was very limited by providers (Antonacci et al., 2023). However, due to the pandemic, telehealth became a much more utilized service method. However, there are still some barriers that have prevented a wider utilization of telehealth services for behavioral health treatment. One of the biggest problems is the need for language services. Language barriers impact the quality of telehealth services, but having access to appropriate interpreters has been demonstrated as a significant driver of the utilization of telehealth services (Barry et al., 2024). With other divisions of the hospital having access to a wide variety of different language interpreters, behavioral health providers being able to secure interpreters for patients who need language services should be something that could be easily facilitated. In a field that relies so much on verbal communication to conduct treatment, the need for appropriate language services cannot be understated.

One exciting way that telehealth is starting to be utilized for behavioral health concerns is direct-to-consumer telehealth services. Now, from a broader perspective, this is not a new concept. Medicine has been using direct-to-consumer platforms such as Teladoc to provide around-the-clock medical services for patients. However, using such a platform for behavioral health concerns has only begun to be studied. One of the biggest issues with behavioral health is the lack of providers available to patients. Direct-to-consumer behavioral health telemedicine can help alleviate this by offering available providers outside of normal business hours while offering on-demand services compared to waiting for an in-person provider (Hohman et al., 2022). This model is extremely beneficial as most crises for patients happen outside of regular business hours when most behavioral health professionals are no longer available. This leaves patients needing to go to urgent care centers or the emergency department to get care. To highlight this fact, it has been shown that 60% of direct-to-consumer behavioral health encounters happen during the evenings or weekends (Hohman et al., 2022). While it is understandable that such a model would be used for crisis management and urgent care, it can also be used for outpatient repeat visits. Over half of patients who utilized direct-to-consumer behavioral health services returned for follow-up visits, and a quarter of those had returned for five visits or more (Hohman et al., 2022). This is something that the hospital system could leverage using telehealth services. One way to facilitate this shift is for the hospital system to have its own health insurance plan through Medicaid, a Medicaid Accountable Care Organization (ACO). It would be easy to create a direct-to-consumer platform for all patients in their health plan. This would create an option for those who would be unable to afford traditional behavioral health services while also providing an around-the-clock service when they could be in crisis. The hospital system could either contract behavioral health providers to be available outside of normal business hours or use existing clinical staff to operate such a behavioral health platform.

IMPLEMENTATION PLAN

The vertical and horizontal integration of behavioral health services for the hospital system provides the most immediate assistance. The hospital system would be able to increase access to care for patients by increasing the number of providers that would be available for these behavioral health patients.

The easiest place to begin is the horizontal integration of behavioral health providers in each of the hospital system's outpatient pediatric clinics. This will require some multidisciplinary cooperation, as there are no clinicians integrated into these clinics at this time. Cooperation is needed between the psychology division chief and the director of outpatient services. The role that the psychology division would play is that they would provide direct oversight and training for the mental health providers who would be in these outpatient clinics. The director of outpatient services, along with each of the clinic managers, would be able to know how to best utilize these providers within the structure and workflows of each of these outpatient clinics.

Piloting this kind of solution would be important before scaling it to include all of the clinics in the hospital system. Several clinics would be identified as pilots, having behavioral health providers in the outpatient clinic space. If the data trends in the right direction after a period of a year, then that solution could be generalized to place behavioral health providers in each of the outpatient pediatric clinics. One way it could be measured to determine success is to look at the time it takes for a behavioral health patient to get an appointment with a behavioral health provider. The whole point of having these providers in these outpatient clinics is not only to help providers make appropriate referrals but to quickly see patients who come to the clinic for behavioral health concerns. If the wait time is reduced, then it means more patients can see providers promptly. Another way to measure if this integration is accomplishing its desired goal would be to see if the behavioral health providers are being utilized in the clinic. These providers being utilized means more patients have regular access to appropriate behavioral health providers. It is expected that every outpatient clinic will have a behavioral health provider established within the next 2–3 years.

The vertical integration would be the implementation of an Intensive Outpatient Program (IOP) specifically meant for more intensive behavioral health cases that the outpatient clinics would not be able to manage. As mentioned above, such a clinic requires multidisciplinary cooperation, but on a wider scale. It would require collaboration between the psychology division, psychiatry division, medical staff, the outpatient clinics, and the inpatient hospital units. In the beginning, cooperation would only be needed between the psychology and psychiatry divisions. This is due to the staff that would be needed to staff this kind of clinic. Staff for an IOP clinic would need to include at least 1 psychiatrist, a psychiatric nurse practitioner, several therapists, a nurse, potentially a medical assistant, several front desk staff, a psych tech, and any other specialty therapy services that were to be offered within the clinic. The psychology division would be in charge of recruitment for most of the staff of this clinic, whereas the psychiatry clinic would be responsible for recruiting the psychiatry and medical staff of the clinic. It should be noted that recruitment would not be limited to external candidates. Based on the preferences of the division chiefs, it may be preferred to start with internal recruitment before moving to external recruitment.

The biggest challenge is that this type of clinic does not currently exist in any format within the hospital system. So, it would be important for the hospital to hire a consultant to guide the implementation of this behavioral health program. Their role could be to help the hospital system develop policies and procedures, such as restraint and seclusion policies and procedures, to ensure that they are compliant with The Joint Commission standards for accreditation. Apart from that, it would be important to begin recruiting the clinical staff who would be important to develop the clinical aspects of the program. This would include the therapists and psychiatrists who would make up part of the clinical team. They could help develop the clinical curriculum to be used with the patient, formulate rules and expectations for the patients while enrolled in the program, develop

any crisis workflow for any patient that might present to the clinic in a crisis, and identify any exclusionary criteria for patients that would not be appropriate to participate in this level of care. Once the program is ready to go live, the next step would be to launch a pilot version of the program to work out any problems or setbacks that might occur once the clinical teams start to see patients. Patients referred to this pilot version of this program would be personally selected by the psychiatry division chief. Also, more basic behavioral health cases would be selected for this pilot program. This would be patients diagnosed with depression or anxiety, rather than any psychotic disorder or bipolar disorder. Once the pilot phase is over, a year after launching the program, referral bases for the program would be opened to inpatient units of the hospital, the three emergency centers, and all of the outpatient pediatric clinics in the system. This would require the directors of the psychology and psychiatry divisions to market this new clinic to the other divisions within the hospital system. It would also require educating doctors on the criteria for appropriate referrals to this clinical program. The idea is that by the end of 5 years, the program would be fully functional and accredited by The Joint Commission.

One way progress could be tracked would be to see the volume of patients that the clinic was seeing. If the clinic can maintain a full cohort of patients, that means more patients can get in and have treatment. Another measurement would be to look at the monthly number of patients who present to the emergency department for behavioral health encounters. If that monthly average begins to go down, then that would be an indicator that the clinic is accomplishing its goal as designed.

CONCLUSION

A growing concern in the healthcare industry has been the lack of care for patients, particularly patients who have been underserved, such as racial and economic minority groups. Patients with behavioral health concerns have been disproportionately affected by this lack of access to care. Factors such as an underprepared workforce, a fragmented and isolated healthcare system, and long wait times have plagued patients looking for behavioral health services. However, some solutions can close this care gap. Some of these solutions are vertical and horizontal integration of behavioral health services for hospital systems, expanding telehealth care options, and introducing direct-to-consumer telehealth behavioral health services. Horizontal and vertical integration of services for hospital systems appears to be a viable path to increase access to behavioral health services. The hope is that by doing this, the number of hospitalizations would decrease and that patients would be referred to appropriate levels of care by trained professionals.

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CYBERBULLYING: EXAMINING SOCIAL MEDIA USAGE AND TROLLING INCIDENCE

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ABSTRACT

Social media is now used by more than two-thirds of the world population. One unfortunate consequence, however, has been the incidence of cyberbullying as evidenced by trolling. Because undergraduate business students will be future users and managers of social media, this study was undertaken to empirically examine social media participation and trolling incidence. Results demonstrate that undergraduates primarily utilize six sites with total social media time consistent during each of the last five years. Although the time spent using social media varied by year and by social media site, the total minutes have ranged from 272 to 294 minutes per day per year. In terms of trolling, results show correlations between usage minutes and gender relative to the quantity of trolls received. Moreover, while trolling incidence varied by year and by social media platform, both the percentage of students being trolled and the quantity of trolls received per person have been steadily increasing. These results suggest that there is an increasing level of online social discord and that educators should be cognizant and responsive to potential resultant negative student mental health concerns. A second implication is that social media is evolving in usage with Facebook and Twitter-X seeing dramatic decreases in participation and usage minutes while TikTok and LinkedIn have been increasing in popularity. Finally, undergraduate business student social media behavior appears vastly different than that of the general population with students spending almost twice the number of minutes on social media.

Key Words: Student Trolling, Social Media Usage, Empirical Study, Cyberbullying, Online Behavior, Business Students

INTRODUCTION

Social media participation has reached extraordinary levels. In October 2025, it was estimated that there were 5.66 billion social media users or 69% of the world's population (Petrosyan, 2025). This is an increase of 259 million new users joining social media in the previous 12 months equating to an annualized growth of 4.9% with an average rate of 7.8 new users every single second (Datareportal.com, 2025).

Specifically, according to Statista, the platforms with the most active monthly users are Facebook (3.1 billion), Instagram (3.0 billion), WhatsApp (3.0 billion), YouTube (2.6 billion), TikTok (2.0 billion), WeChat (1.4 billion), Telegram (1.0 billion), Facebook Messenger (.9 billion), Snapchat (.9 billion), Reddit (.8 billion), and Douyin (.7 billion) (Dixon, 2025a). In terms of time and gender, users spend an average of 144 minutes per day with females using Snapchat, Pinterest, Instagram, and TikTok and males using Twitter-X, LinkedIn, Facebook, and YouTube (Woodward, 2025) Overall, females spend 2.08 hours and males spend 1.81 hour per day.

Unfortunately, a variety of troubling behaviors have been associated with social media participation. In 2024, for instance, 34% of surveyed adults in the U.S. indicated that social media has had a somewhat negative or very negative impact upon his/her mental health (Dixon, 2024b). One particularly insidious problem is that of cyberbullying as evidenced by trolling. The Merriam-Webster dictionary defines trolling as "to antagonize (others) online by deliberately posting inflammatory, irrelevant, or offensive comments or other disruptive content" or "to harass, criticize, or antagonize (someone) especially by provocatively disparaging or mocking public statements, postings, or acts" (2025).

A 2023 study of more than 5,000 U.S. students ages 13 to 17, for example, found that 55% experienced cyberbullying at some point in his/her lifetime with 27% being cyberbullied in the most recent 30 days (Pathcin, 2024). The cyberbullying included mean or hurtful comments posted online (30%), exclusion from group chats (29%), rumors spread online (28%), and someone embarrassing or humiliating them online (27%). Adolescent girls, rather than boys, were more likely to have experienced cyberbullying in his/her lifetime (59% versus 50%, respectively). A survey of U.S. adults further found that 41% of Internet users had personally experienced any kind of online harassment with 27% reporting to have experienced severe forms of online harassment such as physical threats, sexual harassment, stalking, and sustained harassment (Dixon, 2023). Research has also found that cyberbullying increases suicide attempts by 8.7 percent (Nikolaou, 2017).

Previous research studies have examined factors related to trolls such as who are trolls, why do they troll, what are the trigger mechanisms, and so on. This study, on the other hand, was conducted to empirically profile social media usage and troll victimization. Undergraduate business students were selected as subjects because current business students are the future professionals that will be utilizing social media in business. Ultimately, these findings will be helpful in determining if students are adequately prepared to face these challenges when they enter the corporate workforce. This research was conducted to examine several questions. What are the primary social media sites utilized and what is the incidence of trolling within each site both in terms of the percentage of students and volume of trolls? Are there relationships between the factors of gender, academic class, and time spent on social networking to the volume of trolls received? Results are important in determining if there is a need for further proactive education to improve student behavior.

PREVIOUS RESEARCH

As a baseline to better understand undergraduate business student online behavior, the authors conducted an exploratory study (Case and King, 2017). Results showed that all students indicated using at least one social media site with the average undergraduate spending 176 minutes (nearly 3 hours) per day on social media sites. Although undergraduate business students used nearly 20 social media sites, there were five sites that were used by most students. These included Snapchat (95% of students), Instagram (88% of students), Facebook (81% of students), Twitter (76% of students), and YouTube (67% of students). Relative to trolling, the highest percentage of site users being trolled included YikYak (63% of users) and Twitter (32% of users). The social media sites that other individuals were most actively trolled included 4chan (100% of respondents), YikYak (75% of respondents), Twitter (67% of respondents), Facebook (64% of respondents), Reddit (64% of respondents), Tumblr (57% of respondents), and Instagram (49% of

respondents). Overall, 41% of students reported being trolled and 73% indicated noticing others being trolled at least once during the past six months. In terms of volume, on average, a student was trolled more than one time per month (8 times per student during the prior six months) and each student reported seeing an average of 37 trolling incidences per month (223 during the past six months) of others being trolled.

A subsequent three-year author-conducted study examined gender differences with respect to social media usage and trolling (Case, King, & Case, 2019). When comparing gender, although participation varied by social media site, a larger percentage of females versus males subscribed to each social media sites except YouTube and Reddit. Overall, while males spent 188 minutes on social media per day, females spent 27 more minutes (215 minutes per day) or 14% more time than males. In terms of troll incidence by gender, while 40% of males and 26% of females indicated being trolled at least once during the semester, the quantity of trolls received per student being trolled was nearly identical, 17.8 and 17.7 per month per student, respectively. Finally, females were correlated to more minutes on social media while males were correlated with receiving a larger volume of trolls.

Recent research studies have also examined trolling. Researchers have conducted studies that relate to anonymity, human and non-human entity interaction, the Dark Tetrad of personality, predictors of trolling, and mindfulness.

Relative to anonymity, Nitschinsk, Tobin, & Vanman (2022) conducted an experiment using Australian undergraduate students. Participants in the anonymous condition trolled more than those in an identifiable condition. Analyses also revealed that sadism and global trolling were positively associated with trolling in the chat room, but psychopathy showed no association.

In addition, research shows that online trolling is often an unintended consequence of interactions between human and non-human entities (bots, buttons, notifications, tech features) that are joined in the performance of trolling behavior (Golf-Papez & Veer, 2022). The entities include troll(s), target(s), a medium of exchange, audience(s), other trolls, trolling artifacts, regulators, revenue streams, and assistants. The actors (i.e., troll, target, medium) play a role in initiating and other actors (un)intentionally sustain trolling by celebrating it, boosting it, facilitating it, and normalizing it. The findings highlight the role of nontraditional actors in the performance of misbehaviors and suggest that effective management of online consumer misbehaviors such as trolling will include managing the socio-technical networks that allow and fuel these misbehaviors. Trolling acts may be stopped or interrupted by making the online place less or not at all friendly to trolling and suggest that regulators should give the impression that a particular channel is actively monitored (e.g., displaying the online moderator's status as online) and that sanctions for trolling are applied swiftly (e.g., auto-banning users who keep trolling after being warned once).

An examination of German-speaking participants also indicated a clear correlation between global trolling and all facets of the Dark Tetrad personality (Machiavellianism, narcissism, psychopathy, and sadism) as well as with aggressive and self-defeating humor styles (Volkmer, Gaube, Raue, & Lermer, 2023). However, no significant relationship between experiencing exclusion/inclusion and trolling motivation emerged. Findings suggest that psychopathy and sadism scores have a significant positive effect on immediate trolling motivation after the experimental manipulation, whereas Machiavellianism and narcissism did not explain variation in

trolling motivation. Moreover, being socially excluded had generally no effect on immediate trolling motivation, apart from participants with higher immediate trolling motivation, for whom the experience of social exclusion actually reduced trolling motivation.

Other predictors of trolling were examined by Marrington, et.al. (2023). Results showed in the past year, 24.2% of Australian adolescents (aged 13–18 years old) reported being trolled and 13.4% reported having trolled others. Gender, psychopathy, sadism, self-esteem, cognitive empathy, affective empathy, and "negative social potency" (i.e., enjoyment of antisocial rewards) combined, explained 30.7% of variance in adolescents' trolling behaviors. Psychopathy was characterized by diminished empathy, impulsivity, thrill-seeking, interpersonal manipulation, grandiosity, and emotional shallowness. When accounting for shared variance, gender (male), high psychopathy, and high negative social potency were significant predictors of trolling, aligning with findings of adult samples. Contrary to adult samples, sadism was not found to be a unique predictor of adolescents' trolling. For adolescents, the variance in trolling explained by sadism was nonsignificant when controlling for negative social potency.

Finally, mindfulness was studied. Results showed that when examining Chinese college students, trait mindfulness was negatively related to online trolling and that this relationship was partially mediated by anger rumination (Liu et.al, 2022). Moreover, the effect of anger rumination on online trolling was strengthened when online disinhibition was high. Mindfulness was defined as one's ability to keep attention and awareness focused within the present moment, observing and experiencing the thoughts, emotions, and physical states that occur at each moment purposefully, receptively, and non-judgmentally. Anger rumination was defined as the tendency to dwell on one's angry experience and moods, as well as the causes and consequences of anger events. Online disinhibition refers to the tendency to feel less inhibited and exhibit certain behaviors that they would not normally display in the offline world.

RESEARCH DESIGN

This study employs a survey research design. The research was conducted at a private, northeastern U.S. university. A Student Social Media Usage and Troll Incidence instrument was developed by the authors and administered via an online link to undergraduate students enrolled in a School of Business course. The surveys were collected each semester during a five-year, ten-consecutive semester period (from Spring 2021 through Fall 2025). The courses included a variety of subjects such as Business Information Systems, Introduction to Financial Accounting, Introduction to Marketing, Macroeconomics, and Business Policy. A convenience sample of class sections and faculty members was selected and, to ensure consistency, the same questions were asked during each of the semesters. Because of the sensitivity of the subject and to encourage honesty, no personally identifiable data were collected and respondents were informed that surveys were anonymous, participation was voluntary, and responses would have no effect on his/her course grade. As a result, the response rate was over 80% each semester.

The survey instrument was utilized to collect student demographic data such as gender and academic class. In addition, the survey examined student Internet behavior regarding online social media sites. Students were asked to estimate the average number of minutes spent daily on fourteen social media sites and list any other social networking sites used by the student. WhatsApp was added to the survey in 2024 because of increased student use. Results were summarized by social media site and correlations were calculated to determine potential

relationships between study factors (i.e., gender and social media usage minutes). To examine potential trends, the data was segmented by calendar year. Finally, repeated measures were not examined because of the anonymity of respondents, it could not be determined if a given student participated during multiple semesters.

RESULTS

A sample of 1,065 usable surveys was obtained. Overall, 71% of the respondents were male and 29% were female. The response rate by year, except for freshmen participation during the pandemic 2021-2022 years, was relatively equally distributed among academic class. Overall, 24% of respondents were freshmen, 23% were sophomores, 31% were juniors, and 22% were seniors.

Responses were first examined with respect to the percentage of students using the various social media sites per year. Table 1 illustrates that in 2021, 96% of students used Snapchat, 97% used Instagram, 51% used Facebook, 66% used Twitter-X, 77% used YouTube, 79% used TikTok, 34% used LinkedIn, 10% used Pinterest, 15% used Google+, 13% used Reddit, 0% used Tumblr, 12% used YikYak, 20% used Other, and 0% used Voat. In terms of social media site utilization percentage of students by year, six social media providers increased by 2025. LinkedIn increased from 34% to 64%, Pinterest increased from 10% to 17%, Reddit increased from 13% to 14%, Tumblr increased from 0% to 2%, YikYak increased from 12% to 35%, and WhatsApp increased to 12%. Seven social media sites decreased in percentage of students. Snapchat decreased from 96% to 93%, Facebook decreased from 51% to 39%, Twitter-X decreased from 66% to 41%, YouTube decreased from 77% to 74%, TikTok decreased from 79% to 76%, Google+ decreased from 15% to 11%, and Other decreased from 20% to 16%. Instagram and Voat remained consistent at 97% and 0%, respectively.

TABLE 1
Percent of Students Using Social Media by Year

Social Media Site	2021	2022	2023	2024	2025
Snapchat	96%	97%	94%	93%	93%
Instagram	97%	91%	94%	95%	97%
Facebook	51%	40%	40%	36%	39%
Twitter – X	66%	61%	53%	44%	41%
YouTube	77%	77%	73%	73%	74%
TikTok	79%	72%	72%	73%	76%
LinkedIn	34%	41%	55%	60%	64%
Pinterest	10%	7%	14%	13%	17%
Google+	15%	4%	9%	11%	11%
Reddit	13%	19%	11%	17%	14%
Tumblr	0%	1%	3%	1%	2%
YikYak	12%	57%	26%	33%	35%
Other	20%	20%	17%	16%	16%
Voat	0%	0%	1%	0%	0%
WhatsApp	-	-	-	11%	12%
Overall Average	100%	99%	99%	99%	99%

Results illustrate that for every year of the study, there were six sites that are used by most students. These include Snapchat (93-97% of students per year), Instagram (91-97% of students per year), Twitter-X (41-66% of students per year), YouTube (73-77% of students per year), TikTok (72-79% of students per year), and LinkedIn (34-64% of students per year). The lesser utilized social media sites were Facebook (36-51% of students per year), Pinterest (7-17% of students per year), Google+ (4-15% of students per year), Reddit (11-19% of students per year), Tumblr (0-3% of students per year), YikYak (12-57% of students per year), Other (16-20% of student per year), Voat (0-1% of student per year), and WhatsApp (11-12% of students per year). Overall, the percentage of students using social media each year was between 99-100% of students.

Table 2 presents the volume of minutes per day that a student indicated he/she used each social media site. In 2021, for example, users of each of the social media venues reported spending 66 minutes per day on Snapchat, 56 minutes on Instagram, 18 minutes on Facebook, 39 minutes on Twitter-X, 64 minutes on YouTube, 66 minutes on TikTok, 10 minutes on LinkedIn, 18 minutes on Pinterest, 32 minutes on Google+, 14 minutes on Reddit, 0 minutes on Tumblr, 7 minutes on YikYak, 67 minutes on Other, and 0 minutes on Voat. By 2025, the number of minutes per day on Snapchat increased by 3 minutes, Instagram increased by 7 minutes, Facebook decreased by 3 minutes, Twitter-X decreased by 17 minutes, YouTube decreased by 12 minutes, TikTok increased by 23 minute, LinkedIn increased by 8 minutes, Pinterest decreased by 2 minutes, Google+ increased by 6 minutes, Reddit decreased by 5 minutes, Tumblr increased by 14 minutes, YikYak increased by 1 minute, Other increased by 59 minutes, and Voat remained at 0 minutes. Overall, the average minutes per day increased from 277 minutes to 285 minutes (4.75 hours), an increase of 3%. Of note, the average minutes peaked at 294 minutes per day at the end of the pandemic.

TABLE 2
Minutes per Day Utilizing Social Media by Year

Social Media Site	2021	2022	2023	2024	2025
Snapchat	66	69	77	65	69
Instagram	56	57	59	65	63
Facebook	18	17	18	15	15
Twitter – X	39	28	29	29	22
YouTube	64	54	62	57	52
TikTok	66	69	88	83	89
LinkedIn	10	13	19	16	18
Pinterest	18	15	12	12	16
Google+	32	29	30	44	38
Reddit	14	31	15	16	9
Tumblr	0	10	3	42	14
YikYak	7	13	12	8	8
Other	67	125	128	78	126
Voat	0	0	3	9	0
WhatsApp	-	-	-	41	22
Overall Average	277	272	294	279	285

Next, the percentage of students receiving trolls at each social media site by year was examined. In terms of the percent of students that were trolled from 2021 to 2025, Snapchat decreased from 28% to 26% of the users being trolled, Instagram increased from 23% to 26%, Facebook decreased from 29% to 8%, Twitter-X decreased from 22% to 15%, YouTube decreased from 8% to 6%, TikTok increased from 16% to 21%, LinkedIn increased from 5% to 6%, Pinterest decreased from 9% to 2%, Google+ decreased from 25% to 6%, Reddit increased from 7% to 10%, Tumblr remained consistent at 0%, YikYak decreased from 31% to 21%, Other increased from 18% to 27%, Voat remained consistent at 0%, and WhatsApp decreased from 17% to 14%. Overall, the percentage of students trolled increased from 43% to 48% of students during the study time frame.

The quantity of trolls received for only those individuals that were trolled is presented in Table 3. Relative to trolling volume during a six-month period per year, Snapchat user volume increased from 5.4 to 16.1 incidences, Instagram user volume decreased from 13.4 to 11.7 incidences, Facebook user volume increased from 3.0 to 5.4 incidences, Twitter-X user volume increased from 5.3 to 14.6 incidences, YouTube user volume increased from 13.6 to 15.8 incidences, TikTok user volume increased from 6.6 to 11.2 incidences, LinkedIn user volume increased from 2.5 to 4.3 incidences, Pinterest user volume remained consistent at 5.0 incidences, Google+ user volume increased from 21.5 to 90.5 incidences, Reddit user volume increased from 1.0 to 6.3 incidences, Tumblr user volume remained consistent at 0 incidences, YikYak user volume decreased from 10.3 to 4.9 incidences, Other user volume increased from 7.0 to 28.8 incidences, Voat user volume remained consistent at 0 incidences, and WhatsApp increased from 7.6 to 8.2 incidences. Overall, the quantity of trolling incidents increased by 38% from 20.6 to 28.4 during the study time frame, with the lowest incidences occurring during the pandemic.

TABLE 3
Quantity of Trolls for Only Students Trolled by Year during a Six-Month Period

Social Media Site	2021	2022	2023	2024	2025
Snapchat	5.4	11.7	16.2	10.4	16.1
Instagram	13.4	7.0	10.0	6.4	11.7
Facebook	3.0	4.3	13.9	3.3	5.4
Twitter – X	5.3	4.7	10.7	14.0	14.6
YouTube	13.6	6.1	4.6	11.6	15.8
TikTok	6.6	10.7	11.2	12.3	11.2
LinkedIn	2.5	7.7	3.2	3.3	4.3
Pinterest	5.0	0.0	0.0	3.5	5.0
Google+	21.5	0.0	15.3	37.0	90.5
Reddit	1.0	2.4	3.0	12.5	6.3
Tumblr	0.0	0.0	0.0	44.0	0.0
YikYak	10.3	11.1	7.4	2.8	4.9
Other	7.0	3.7	10.9	13.8	28.8
Voat	0.0	0.0	1.5	0.0	0.0
WhatsApp	-	-	-	7.6	8.2
Overall Average	20.6	20.3	29.0	21.2	28.4

Finally, Spearman Rho correlations were calculated to determine if there are correlations between study factors (i.e., gender, academic class, and social media usage minutes) and the quantity of trolls that each student received. As indicated in Table 4, there was no significant correlation with academic class relative to trolling volume. However, gender and user minutes spent using social media had statistically significant correlations (significant at the .05 and .01 level, respectively) to the quantity of trolls that one receives. In other words, males were more likely to be trolled and the more time spent on social media increased the likelihood of being trolled.

TABLE 4
Spearman Rho Correlations between Study Variables and Troll Volume per Student

Study Factor	Troll Volume
Gender	.071*
Academic Class	.037
Minutes Using Social Media	.171**

* Correlation is significant at .05 level (2-tailed).
** Correlation is significant at .01 level (2-tailed).

CONCLUSIONS AND FUTURE RESEARCH

Results illustrate that there are six sites each year that were used by most students. In 2021, these included Instagram (97% of students), Snapchat (96% of students), TikTok (79% of students), YouTube (77% of students), Twitter-X (66% of students), and Facebook (51% of students). By 2025, the ranking changed slightly to Instagram (97% of students), Snapchat (93% of students), TikTok (76% of students), YouTube (74% of students), LinkedIn (64% of students), and Twitter-X (41% of students). Of note, Facebook participation decreased from 51% to 39% of students while LinkedIn increased from 34% to 64% of students. The remaining sites were not commonly used by undergraduates for all study years. Overall, however, nearly 100% of students indicated using social media.

The time spent using social media varied by year and by social media site. In 2021, for example, the sites with the most minutes expended per day were Other (67 minutes), Snapchat (66 minutes), TikTok (66 minutes), YouTube (64 minutes), Instagram (56 minutes), and Twitter-X (39 minutes). On the other hand, in 2025, the sites with the most minutes expended per day were Other (126 minutes), TikTok (89 minutes), Snapchat (69 minutes), Instagram (63 minutes), and YouTube (52 minutes). Total minutes remained relatively consistent from 272 to 294 minutes per day per year.

An examination of trolling found that in terms of the percent of students that were trolled in the primarily used sites in 2021, 31% were trolled in YikYak, 29% were trolled in Facebook, 28% were trolled in Snapchat, 23% were trolled in Instagram, 22% were trolled in Twitter-X, and 16% were trolled in TikTok. By 2025, 27% were trolled in Other, 26% were trolled in Instagram, 26% were trolled in Snapchat, 21% were trolled in TikTok, and 21% were trolled in YikYak. Overall, while 43% indicated being trolled at least once during the semester in 2021, the percentage increased to 48% in 2025. In terms of the quantity of trolls received per student being trolled, the volume varied by year and by social media site. In 2021, for example, students reported having 21.5 Google+ incidences, 13.6 trolling incidences in YouTube, 13.4 Instagram incidences, and

10.3 YikYak incidences during the past six months. By 2025, there were 90.5 Google+ incidences, 28.8 Other incidences, 16.1 Snapchat incidences, 15.8 YouTube incidences, 14.6 Twitter-X incidences, 11.7 Instagram incidences, and 11.2 TikTok incidences. Overall, the quantity per student increased from 20.6 incidences in 2021 to 28.4 incidences in 2025.

Finally, a correlation analysis of study factors suggests that gender and the total minutes on social media are each positively correlated to the volume of trolls received. However, academic class was not correlated to the quantity of trolls received.

There are three important implications from these findings:

1. One implication is there is an increasing level of social discord. During the five-year study, both the percentage of students reporting being trolled and the reported troll volume received per person greatly increased. The percentage of students increased from 43% to 48%, even though minutes per day per student remained consistent during the five-year study period. More disturbing is that the volume of trolls received increased by 38%. Chart 1, for example, depicts the stability of the minutes per day and Chart 2 exhibits the increasing quantity of trolls received by year for each of the sites used primarily by students. It is possible that student frustration is rising, social media users feel empowered by the ease and relative anonymity of trolling, the lack of enforcement emboldens social media users, and/or that students are more sensitive in his/her perception of trolling. This suggests that educators may need to be increasingly concerned about student mental health because of students receiving troll comments that may negatively affect the student. It is possible that students may need counseling and possibly education on how to deal with living in this era of increasing negativity.
2. A second implication is that social media is evolving in usage. Facebook, one of the first and major social media platforms, and Twitter-X have seen dramatic decreases in participation and usage minutes while TikTok and LinkedIn have been increasing in popularity. It is possible that Facebook is now being perceived as passe and the Twitter-X is decreasing in popularity because Elon Musk removed trolling and misinformation guardrails designed to restrict the flow of mis- and disinformation. This includes stripping away what was once a free account verification process designed to combat impersonation and replacing it with paid “blue check” accounts that guarantee posts will be prioritized by X’s algorithm (Czopek, 2023). It is also possible that undergraduates are impatient and seek new forms of enjoyment and/or social interaction such as TikTok. In terms of LinkedIn, it is likely that students are recognizing the increasing importance of social networking as a factor in obtaining employment given the potential of artificial intelligence disrupting the job market.
3. The third implication is that undergraduate business student social media behavior is vastly different than that of the general population. While the average daily usage is 144 minutes for adults, students spend almost twice the number of minutes on social media. Moreover, even though Facebook is the most subscribed social media application worldwide, it is used by only 39% of business undergraduates. Finally, while previous studies have suggested that adolescent females are more likely to be cyberbullied, this study demonstrates that male students are more susceptible. This suggests that educators should not assume that generalized social media studies and/or behavior publicized in the media are necessarily applicable to undergraduates and that undergraduates have the same challenges. This is important given the correlation between minutes using social media and the volume of trolls received and that undergraduate males versus females are

more likely to be trolled.

CHART 1
Minutes Per Day on Social Media

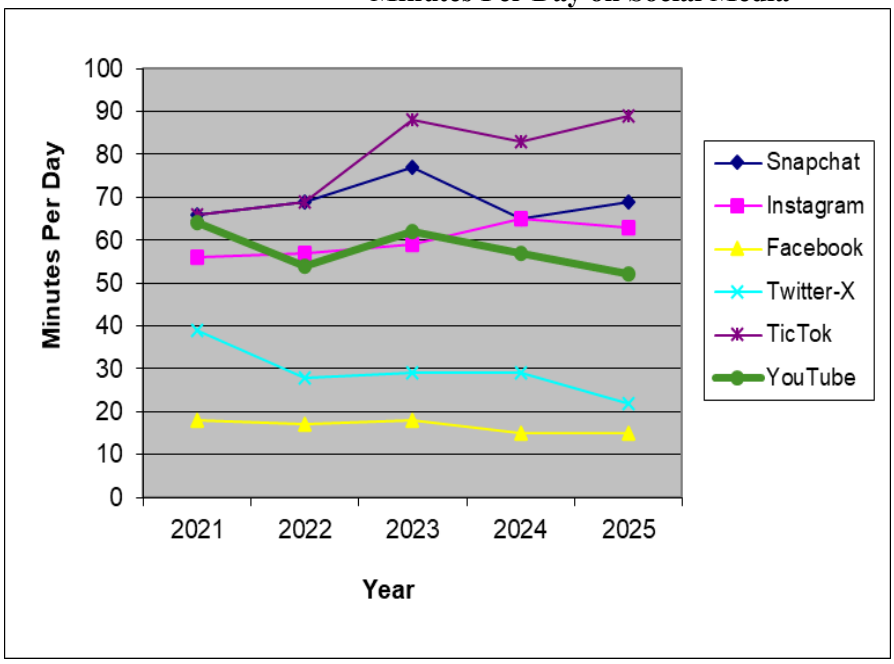
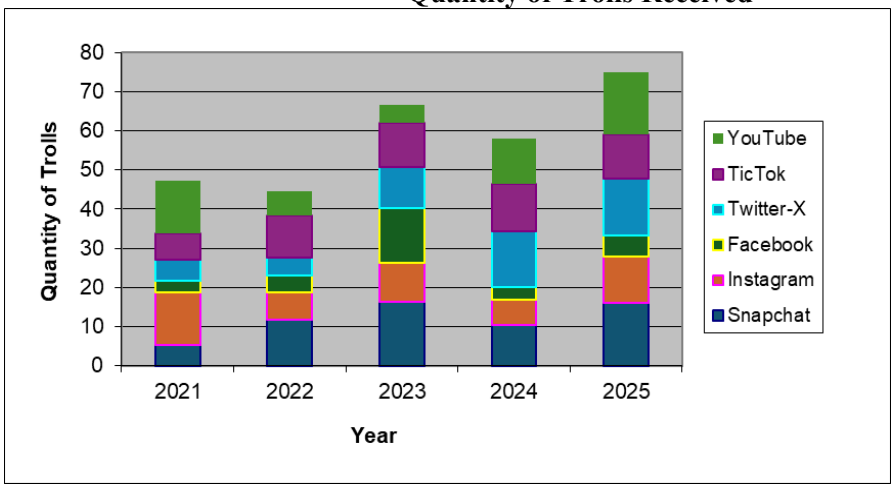


CHART 2
Quantity of Trolls Received



The limitations of this study are primarily a function of the sample, sample distribution, and type of research. The use of additional universities and a more equal gender distribution would increase the robustness of results. Another limitation relates to the self-reported nature of the survey. Future research is needed to explore why the reported social discord is rising both with respect to the number of students being trolled and the volume that each student receives. Moreover, research is needed to determine which measures in the education process may be most

effective in promoting positive online social network behavior and effectively dealing with the receipt of troll comments. Overall, however, the study provides a profile to better understand undergraduate student social media usage and trolling.

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DEMOGRAPHIC FACTORS AND MOTIVATION LOSS IN VIRTUAL TEAMS

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ABSTRACT

Social loafing—the reduction of individual effort in group contexts—poses a persistent challenge for virtual teams, where reduced social cues and limited identifiability can amplify motivation loss. This study examines the relationship between demographic characteristics, interaction patterns, and individual social loafing in virtual teams. Survey data were collected from alumni of a private liberal arts university working in virtual teams across diverse industries ($N = 114$). Results from analyses of variance indicated significant differences in individual social loafing by gender, education level, and frequency of in-person interaction. A multiple regression analysis further revealed that gender, age, and education significantly predicted individual social loafing, whereas team size did not. Males, younger individuals, and those with higher education levels reported higher levels of individual social loafing. These findings suggest that motivation loss in virtual teams is shaped by demographic and interactional factors rather than structural characteristics alone.

Keywords: Social loafing, virtual teams, demographics, teamwork, motivation

INTRODUCTION

Advances in technology have facilitated the expansion of virtual work in the 21st century. This has transformed how work teams coordinate, communicate, and perform. Virtual teams offer flexibility, and therefore access to a larger and perhaps more expert workforce, but they can also amplify motivational losses due to reduced identifiability and weaker social presence. Social loafing—defined as the tendency for individuals to exert less effort in collective settings than when working alone—has therefore become a central concern in this space. While much of the recent work in this stream of literature has focused on technological interventions and tools, this effort refocuses on simple demographic characteristics and their utility in reducing social loafing.

Prior research has identified myriad structural and technological antecedents of social loafing, including group size, task design, anonymity, and accountability mechanisms. However, attention has focused on individual demographic characteristics, such as gender and education, interact with virtual team structures to shape motivation loss. Moreover, many studies treat social loafing as a static outcome rather than a dynamic construct influenced by team processes and interaction frequency. (Aggarwal & O'Brien, 2008; Comer, 1995).

Social Loafing: Conceptual Foundations

Max Ringelmann first described the social loafing phenomenon in the early 20th century (Ringelmann, 1913), and the concept has consistently received research attention in the Organizational Behavior literature (Sheppard, 1993, Karau and Williams, 1993, Murphy et.al, 2003). Social loafing refers to the reduction of individual effort when individuals work collectively rather than independently. Early social loafing research largely treated the phenomenon as static and situational, focusing on factors such as group size, task visibility, and reward structures. For example, Karau and Williams (1993) synthesized early experimental work to show that this motivation loss emerges when individual contributions are difficult to identify, a conclusion further elaborated by Shepperd (1993) in his motivational analysis of collective productivity loss. However, more recent perspectives conceptualize social loafing as a motivational state that can fluctuate over time in response to team dynamics, feedback, and composition. This shift is particularly relevant for virtual teams, where structural features amplify many of the antecedents associated with motivation loss.

From a demographic standpoint, gender differences in motivation have been linked to sex-role congruence and task context. Research on group composition suggests that effort allocation is sensitive to perceived role fit and interaction norms rather than biological sex per se. In virtual teams, where relational cues are attenuated, these dynamics may be expressed through differential engagement with communication, coordination, and accountability behaviors (Gilson, et.al, 2015, Szewc, 2013). Empirical data from virtual team research indicate that males report higher levels of both individual and perceived team social loafing, while increased female representation within teams is associated with lower reported loafing. Rather than reflecting inherent gender differences, these findings are consistent with evidence that women, on average, engage more strongly in relational maintenance and cohesion-oriented behaviors, which enhance informal accountability even in technologically mediated environments.

Gender differences in social loafing have been examined less frequently than structural or technological antecedents. Vancouver et al. (1991) demonstrated that motivation losses vary as a function of group composition and task gendering, a pattern that aligns with Karau and Williams's (1993) broader conclusion that effort regulation is sensitive to contextual norms rather than stable individual traits. Meta analyses of virtual teams indicate that males report higher levels of individual and perceived team social loafing, while teams with greater female representation report lower overall loafing. Alnuaimi et al. (2010) argued that these differences reflect moral disengagement and coordination dynamics in technology-supported teams, rather than inherent gender-based motivation differences.

Motivation Loss in Virtual Contexts

Virtual teams are characterized by geographic dispersion, reliance on computer-mediated communication, and limited face-to-face interaction. Bell and Kozlowski (2002) conceptualized these teams as fundamentally different from collocated groups in their coordination and leadership demands, a distinction reinforced by Gilson et al. (2015) in their integrative review of virtual team research.

Studies comparing face-to-face and virtual collaboration demonstrate that perceived loafing has stronger negative effects on group cohesion, satisfaction, and affective outcomes in virtual environments, particularly when communication media are low in richness. When teams rely on

text-based or asynchronous communication, uncertainty about others' effort increases, leading team members to make attributional judgments that can undermine trust and engagement.

The broader virtual team literature identifies trust, communication quality, leadership, and technological support as critical success factors. Szewc (2013) emphasized that these elements jointly determine whether virtual teams are able to sustain performance over time, particularly in the presence of coordination and motivation challenges such as social loafing. Leadership and team design also play central roles. Effective virtual leaders establish clear goals, promote accountability, and encourage reflexivity. Teams that engage in regular reflection about goals, roles, and processes are better able to detect and correct motivational losses before they become entrenched.

Recent integrative reviews further clarify the structural and coordination challenges that underlie motivation loss in virtual teams. Drawing on an analysis of more than 250 studies, Morrison-Smith and Ruiz (2020) identified geographic, temporal, perceived, and configurational distance as core barriers to effective virtual collaboration. These distance-related challenges exacerbate difficulties in monitoring effort, sustaining trust, and maintaining shared awareness—conditions that heighten the risk of both actual and perceived social loafing in distributed teams.

While much of the recent research has focused on these structural and coordination challenges, the aim of this study is to examine the impact of as variety of demographic factors on the perceptions of social loafing of individuals working in a virtual team context. The present study integrates theory on social loafing, virtual teams, and demographic factors to generate hypotheses related to individuals working in virtual teams. Specifically, this research examines whether (a) gender, (b) frequency of in-person interaction, and (c) education level are associated with individual social loafing. By embedding these findings within the broader virtual team literature, this paper hopes to advance a more nuanced understanding of demographic factors motivation loss in virtual teams.

METHOD

Participants and Procedure

Participants were alumni of a small liberal arts university in the Western United States. Included were individuals working in virtual teams across a range of organizational and educational contexts (N = 114). The sample included 63 males and 50 females (one participant did not report gender). Participants completed an online survey measuring individual and team social loafing, along with demographic variables including gender, education level, and frequency of in-person team meetings.

Measures

Individual Social Loafing**.** Individual social loafing was measured using a 12-item scale (SL1–SL12) adapted from George (1992.) Responses were aggregated to from a composite score, with higher values indicating greater self-reported social loafing.

Team Social Loafing. Perceived team social loafing was measured using a parallel 12-item scale assessing respondents' perceptions of teammates' effort. This measure was also adapted and modified form George (1992).

Demographic Variables. Gender was coded as 1 = male and 2 = female. Education level was measured on an ordinal scale. Frequency of in-person meetings captured how often team members met face-to-face.

Exploratory factor analyses indicated that both social loafing scales were strongly unidimensional. For the Individual Social Loafing scale, the first factor had an eigenvalue of 5.41, with a sharp decline in subsequent factors. Cronbach's alpha for the scale was .87, indicating strong internal consistency.

The Team Social Loafing scale demonstrated even stronger unidimensionality, with a first-factor eigenvalue of 7.14. Cronbach's alpha was .94, reflecting excellent reliability. These results confirm that both scales are psychometrically sound and suitable for research on motivation loss in virtual teams.

RESULTS

A one-way analysis of variance (ANOVA) revealed a significant difference in individual social loafing by gender, $F(1, 111) = 17.54$, $p < .001$. Males ($M = 20.90$, $SD = 8.41$, $n = 63$) reported significantly higher levels of individual social loafing than females ($M = 14.96$, $SD = 6.62$, $n = 50$). No significant differences were found when team social loafing and gender were analyzed (Table 1).

Table 1

One-Way ANOVA of Individual Social Loafing by Gender

Source	SS	df	MS	F	p
Between Groups	706.14	1	706.14	17.54	< .001
Within Groups	4469.86	111	40.27		
Total	5176.00	112			

Note. Individual social loafing scores were significantly higher for males than females.

The frequency with which teams met in person was also significantly associated with individual social loafing. Teams that met in person more frequently reported lower levels of individual social loafing, $F(p < .05)$. This result underscores the role of physical interaction in enhancing accountability and reducing motivation loss, even in predominantly virtual teams.

A one-way ANOVA indicated significant differences in individual social loafing across education levels, $F(3, 110) = 3.14$, $p = .028$ (Table 2). Participants at higher education levels reported higher mean social loafing scores, while those at mid-level education reported the lowest levels. Given uneven group sizes across education categories, these results should be interpreted with caution but suggest that experience and expectations may shape effort regulation in virtual teams. Education also emerged as a significant predictor in the multiple regression analysis ($B = 3.34$, $p = .046$), indicating that education level uniquely contributes to individual social loafing beyond gender, age, and team size.

Table 2

One-Way ANOVA of Individual Social Loafing by Education Level

Source	SS	df	MS	F	p
Between Groups	382.47	3	127.49	3.14	.028
Within Groups	4473.53	110	40.67		
Total	4856.00	113			

Note. Education levels reflected increasing levels of formal education. Results should be interpreted cautiously due to unequal group sizes.

To assess whether this gender difference in individual social loafing remained robust when controlling for other demographic and structural variables, gender was entered into a multiple linear regression model alongside age, team size, and education level. Gender remained a significant predictor of individual social loafing ($B = -5.36$, $p = .001$), indicating that gender differences persist even when accounting for age, education, and team size. . The overall model was statistically significant, $F(4, 86) = 4.79$, $p = .002$, accounting for approximately 18% of the variance in individual social loafing ($R^2 = .18$) (Table 2). This result suggests that gender exerts an independent effect on perceived motivation loss in virtual teams. Younger participants, males, and individuals with higher education levels reported higher levels of individual social loafing.

Table 3

Multiple Linear Regression Predicting Individual Social Loafing

Predictor	B	SE B	β	t	p
Gender (1 = male, 2 = female)	−5.36	1.54	−.34	−3.48	.001
Age	−0.21	0.09	−.22	−2.33	.022
Education	3.34	1.65	.19	2.03	.046
Team Size	0.18	0.27	.06	0.67	.505

Note. $R^2 = .18$. Model $F(4, 86) = 4.79$, $p = .002$, Adjusted $R^2 = .14$. $N = 91$.

DISCUSSION

The purpose of this study was to examine how demographic characteristics and interaction structures relate to individual social loafing in virtual teams, with particular attention to gender dynamics. By integrating analyses of variance with multivariate regression, the findings provide a more nuanced understanding of motivation loss in virtual contexts—one that moves beyond simple mean differences and toward a contextual, theory-driven account of effort regulation.

Across analyses, gender emerged as the most consistent and robust predictor of individual social loafing. Males reported significantly higher levels of individual social loafing than females, and this effect persisted even after controlling for age, education, and team size in the regression model. Importantly, this pattern should not be interpreted as evidence of inherent gender differences in motivation or work ethic. Rather, the findings are best understood through a gender × distance framework grounded in social loafing and virtual team theory.

Virtual teams amplify psychological distance by reducing social presence, informal monitoring, and the visibility of individual effort. Prior research suggests that effort regulation in such contexts depends heavily on relational cues and informal accountability mechanisms. Women, on average, are more likely to engage in relational maintenance, coordination, and cohesion-oriented behaviors—processes that help mitigate the uncertainty created by distance and reduced cue richness. These behaviors may function as compensatory mechanisms in virtual environments, sustaining accountability even when formal structures are weak. In contrast, men may be more sensitive to reduced evaluability and weakened social norms, increasing susceptibility to motivation loss when effort visibility is low.

This interpretation aligns with prior work demonstrating that gender differences in social loafing are contingent on task context, group norms, and evaluability rather than stable dispositional traits. The present findings extend this literature by showing that gender differences persist in real-world virtual teams and remain predictive even when other demographic and structural variables are taken into account.

The persistence of gender effects in the multivariate model suggests that gender differences in reported social loafing are not merely artifacts of team size or demographic composition, but reflect deeper interactional dynamics in virtual work. Drawing on distance-based frameworks of virtual collaboration, gender may function as a moderator of how psychological distance is experienced and managed. Prior research suggests that women, on average, engage more strongly in relational maintenance, informal monitoring, and cohesion-oriented behaviors, which may reduce the motivational uncertainty created by virtual distance. In contrast, men may be more sensitive to reduced evaluability and weaker social cues, increasing susceptibility to motivation loss when accountability is diffuse. Importantly, these patterns should not be interpreted as dispositional differences, but as contextually contingent responses shaped by interaction norms, communication structures, and opportunities for social presence.

The findings also clarify the role of interaction structure in shaping social loafing. Frequency of in-person interaction was significantly associated with individual social loafing in the ANOVA

analyses, whereas team size was not a significant predictor in either bivariate or multivariate models. This pattern suggests that how teams interact matters more than how large they are**.**

From a theoretical perspective, this distinction is critical. Traditional social loafing research emphasizes group size as a primary driver of motivation loss, yet virtual team contexts complicate this relationship. Physical interaction provides opportunities for social presence, informal monitoring, and norm reinforcement that are difficult to replicate through purely mediated communication. Even infrequent face-to-face contact may recalibrate accountability expectations, reducing both actual and perceived loafing. These findings support distance-based frameworks that emphasize interaction structure and perceived proximity rather than purely structural characteristics.

Education and age also emerged as significant predictors of individual social loafing in the regression analysis. Higher education levels were associated with higher reported loafing, while age was negatively related to loafing. These results suggest that experience and expectations may shape how individuals regulate effort in virtual teams. One possible interpretation is that individuals with higher education levels may experience greater autonomy and role specialization, which can reduce perceived interdependence and weaken informal accountability. Younger individuals, particularly those early in their careers, may be more likely to test boundaries in environments where monitoring is ambiguous. While these interpretations are necessarily tentative, the findings underscore the value of examining demographic variables not as static predictors, but as factors that shape how individuals experience and respond to virtual work structures.

Finally, this study makes several contributions to the literature on social loafing and virtual teams. First, it demonstrates that gender differences in social loafing persist in contemporary virtual work contexts and remain significant under multivariate controls. Second, it challenges the primacy of team size as a determinant of loafing, highlighting the greater relevance of interaction structure and psychological distance. More broadly, the findings support emerging perspectives that conceptualize social loafing as a dynamic, context-dependent phenomenon rather than a fixed individual tendency. Motivation loss in virtual teams appears to be shaped by the interplay of demographic characteristics, interaction patterns, and accountability cues—factors that can be influenced through intentional team design.

FUTURE RESEARCH

Future research on social loafing in virtual teams would benefit from a more systematic and theory-driven examination of demographic variables as core explanatory mechanisms rather than ancillary controls. The present findings suggest that gender, age, and education meaningfully shape how individuals experience accountability, effort visibility, and psychological distance in virtual work. Extending this line of inquiry can advance both theory and practice by clarifying when and why motivation loss emerges across different demographic profiles.

Future studies should conceptualize gender not as a static individual difference, but as a contextual moderator that shapes responses to distance, anonymity, and evaluability. Drawing on classic social loafing foundations (Ringelmann, 1913; Latané, Williams, & Harkins, 1979), future research should examine how gender interacts with communication norms, leadership behaviors, and task interdependence in virtual teams. Longitudinal and mixed-method designs could help determine

whether gender differences in reported loafing diminish as teams develop shared norms, feedback systems, and trust over time.

Age emerged as a significant predictor of individual social loafing, suggesting that career stage and work experience warrant closer attention. Future research should disentangle chronological age from professional tenure, virtual work experience, and organizational role. Younger workers may experience virtual environments as more ambiguous with respect to norms and expectations, increasing susceptibility to effort withdrawal. In contrast, more experienced workers may rely on internalized professional norms that sustain effort even under reduced monitoring. Future studies should examine nonlinear and interaction effects among age, role seniority, and leadership responsibility to better understand how experience buffers against motivation loss in distributed teams.

The positive relationship between education level and social loafing highlights an underexplored paradox in the literature. Higher education often confers greater autonomy, specialization, and role discretion, which may reduce perceived interdependence in virtual teams. Future research should investigate whether education serves as a proxy for role differentiation, cognitive task complexity, or expectations of self-regulation.

Finally, future research should prioritize longitudinal designs, experience-sampling methods, and multi-source data to capture the dynamic nature of social loafing over time. Incorporating objective performance indicators alongside self-reports would further strengthen inferences about demographic influences on effort regulation. Revisiting foundational social loafing frameworks in light of contemporary virtual work—while explicitly integrating demographic variables—represents a critical step forward for the field.

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THE DARK TRIAD, BELIEF IN A JUST WORLD, AND THE ATTITUDE TOWARD CHEATING OF UNIVERSITY STUDENTS

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ABSTRACT
This study examines college students from a large regional university in southwest USA (n=566). We examined both students' psychological profiles via the Dark Triad (Machiavellianism, Narcissism, and Psychopathy) and the Belief in a Just World (BJW) and compared them to the Attitudes Toward Cheating (ATC) scale. We made comparisons based on the difference of means and regressions. We found the Psychopathy is highly correlated to academic cheating, while Machiavellianism and Narcissism are not .

Key words: Dark Triad, Belief in a Just World, academic cheating, survey, college student

INTRODUCTION

Academic cheating is a global problem (Orok et al, 2023), but its importance extends beyond the classroom. College students are the future workforce and leaders in society (McCabe, Butterfield, & Trevino, 2006). Their unethical behaviors now could be problems for the future (Ludlum, McKee, & Gwinner, 2025). Based on current research, we should be worried. Cheating on campus is rampant (Gregory et al., 2025). Brown & Choong (2005) found that 95.9% of private U.S. university students and 96.7% of public U.S. university students had admitted at least one dishonest practice. Some findings have lower percentages depending on which dishonest acts are included or excluded.

Which students cheat? Can we predict which students cheat the most or the least? Can psychology, specifically the Dark Triad and the Belief in a Just World provide an answer to who cheats? What patterns can we find? To support this analysis, we will first review the relevant literature. Next, we will examine the survey methods. Then, we will discuss the findings. We conclude by suggesting further research in this area.

REVIEW OF LITERATURE

Academic dishonesty (AD) is well-known. In this paper, we use the terms "academic dishonesty" and "cheating" interchangeably. In the classic study, Bowers (1964) surveyed over 5000 students across 99 US campuses and found 66% of students had cheated at least once. More recently, McCabe and his co-authors examined multiple large groups on AD. McCabe (1997) surveyed 16 campuses to compare business and

engineering students and found that 84% of business students and 72% of engineering students admitted to cheating within the last year. McCabe, Butterfield, & Trevino (2006) surveyed over 5000 students from 32 colleges and found 56% of business students and 47% of non-business students admitted to cheating at least once during the last year. McCabe, Trevino, & Butterfield (2001) reported on a variety of contexts, including differences of major, emphasis or lack of honor codes, and numerous individual factors, always with a similar result: most college students cheat.

Academic ethics research studies are plentiful and varied in results. Often studies find different percentages of self-professed cheating, based on the behaviors of academic dishonesty described in the questions. In addition, the social desirability bias is strong on any project which requires self-reporting of bad behaviors. There is no way to actually confirm cheating behaviors without violating privacy of all concerned. Still, we strive for more detailed information on students' unethical actions.

Despite the varied definitions of unethical behavior and different populations, we have found some patterns that emerge. Individual factors have been correlated with academic dishonesty. Age matters. Older students are less likely to commit academic dishonesty (Kisamore et al, 2007; Olafson et al, 2013; McCabe & Trevino, 1997; Klein et al, 2007; Landa-Blanco et al, 2020). Consistent with this finding, the year in school also matters. First year college students are more likely to cheat than upperclassmen (Adama et al, 2023).

One factor that gathers a great deal of attention is gender. Most studies (but not all) have found that males commit AD more than females (Hensley et al, 2013; Bowers, 1964; McCabe & Trevino, 1997; Whitley, Nelson, & Jones, 1999). However, within the same major, gender differences are more modest (McCabe, Trevino, & Butterfield, 2001).

Religion should be an important factor in AD, as ethics are often grounded in religion. However, the method of reporting has resulted in mixed results. Religious identity (which denomination a student chooses) has little effect on AD (Yu et al, 2017; Huelsman et al, 2006; Bruggerman & Hart, 1996). This does not mean religion is immaterial. Choosing one religion from a list of many does not significantly affect AD. However, religious attendance / participation is positively correlated to academic honesty (Bloodgood et al, 2008; Burton, Talpade, & Haynes, 2011, Rettinger & Jordan, 2005). In addition, more intense religious feelings (regardless of denomination) were tied to more self-reported academic honesty (Rettinger & Jordan, 2005).

The psychology behind cheating behaviors is complex and includes a variety of surveys on different populations and a number of key scales to measure those differences. We will focus on two, The Dark Triad and the Belief in a Just World.

The Dark Triad

The Dark Triad (DT) refers to a cluster of three socially aversive yet distinct personality traits—Machiavellianism, Narcissism, and Psychopathy (Paulhus & Williams, 2002; Roberts et al., 2006; Schimmenti et al., 2019; Schreiber et al., 2020). These traits are considered subclinical, meaning they fall along a continuum from normal to abnormal personality functioning rather than representing pathological disorders

(Jordan et al., 2022). Machiavellianism is marked by a manipulative and strategic approach to relationships, where individuals use deceit and exploitation to achieve personal goals (Christie & Geis, 1970; Jakobwitz & Egan, 2006; Schimmenti et al., 2019; Schreiber et al., 2020; Furnham et al., 2013). People high in this trait tend to be pragmatic and calculating (Schimmenti et al., 2019; Schreiber et al., 2020), with manipulativeness and self-control viewed as central characteristics (Collison et al., 2018). Psychopathy, by contrast, involves impulsivity, emotional coldness, lack of empathy, and minimal remorse or guilt—tendencies that often lead to antisocial behavior and disregard for moral or social norms (Hare & Neumann, 2008; Schimmenti et al., 2019; Schreiber et al., 2020). The third component, Narcissism, centers on an inflated sense of self-importance, grandiosity, and a persistent need for admiration, combined with a deficit in empathy (Raskin & Hall, 1979; Schimmenti et al., 2019; Schreiber et al., 2020; Miller et al., 2011). To assess these traits, researchers commonly use instruments such as the 27-item Short Dark Triad (SD3) (Jones & Paulhus, 2014) or the more concise "Naughty Nine," which includes three items each for Machiavellianism and Psychopathy (Jonason & Webster, 2010; Küfner et al., 2015). Narcissism is often measured with the Narcissistic Personality Inventory (NPI) (Raskin & Hall, 1979), one of the most established tools in this field.

Although the three Dark Triad traits capture different dimensions of personality, they are moderately to strongly correlated, with Machiavellianism and Psychopathy showing particularly high overlap (Muris et al., 2017; Sleep et al., 2017). Some of this similarity may result from how these constructs are measured, as many instruments emphasize shared elements such as manipulative or exploitative interpersonal styles (Paulhus & Jones, 2014). Empirical studies consistently link these dark traits to adverse psychosocial outcomes, including interpersonal conflict, erratic behavior, and poor emotional regulation (Furnham et al., 2013; Muris et al., 2017). Network analyses have further refined understanding of their interrelations, revealing that antagonism—a trait encompassing grandiosity, attention-seeking, and callousness—plays a central and potentially influential role in the network of dark personality features (Jordan et al., 2022; Hayes et al., 2021; Plouffe et al., 2019; Wissing & Reinhard, 2017; Zeigler-Hill & Noser, 2018). These findings suggest that antagonism may be a unifying element underlying much of the Dark Triad's social dysfunction (Jordan et al., 2022).

Longitudinal studies tracking personality development from early adulthood to midlife indicate that the Dark Triad traits generally decline with age, reflecting the "maturity principle" observed in personality psychology (Braig et al., 2024). In particular, Machiavellianism and Psychopathy show steady linear decreases over time, while Narcissism remains relatively stable on average (Braig et al., 2024). Notably, individuals who experience larger declines in Machiavellianism and Psychopathy also tend to report corresponding reductions in depressive symptoms, hinting at a broader developmental shift toward social maturity and emotional stability (Braig et al., 2024). Building on this framework, some scholars have argued for expanding the model to a "Dark Tetrad" by adding Sadism—a trait defined by deriving pleasure from others' suffering—on the grounds that it captures an additional and uniquely destructive dimension not fully represented within the original Triad (Johnson et al., 2019).

Belief in a just world

The Belief in a Just World (BJW) is a cognitive framework grounded in the justice motive theory, which suggests that individuals have a fundamental psychological need to perceive the world as orderly and fair—a place where people generally get what they deserve and deserve what they get (Lerner & Miller, 1978; Lerner, 1980; Furnham & Procter, 1989; Furnham, 2003; Hafer & Bègue, 2005; Guo et al., 2022). This belief serves an important adaptive purpose: it allows people to view their surroundings as predictable and controllable, providing the psychological stability needed for long-term goal pursuit and personal planning (Lerner & Miller, 1978; Lerner, 1980; Hafer & Gosse, 2011). The development of this belief begins early in life. As children learn that norm-abiding behavior leads to future rewards, they form what Lerner (1980) described as a "personal contract" with the world—an implicit expectation that fairness will prevail. Conceptually, BJW functions as an internal psychological resource that helps individuals navigate life's challenges and engage effectively within their social environments (Lerner, 1977). Dalbert (2001) categorized its key roles into three interrelated functions—the assimilation, trust, and motive functions—which together help preserve the belief in justice even in the face of adversity (Munscher, 2022).

BJW is typically divided into two dimensions: the Personal Belief in a Just World (PBJW) and the General Belief in a Just World (GBJW) (Lipkus, Dalbert, & Siegler, 1996; Dalbert, 1999; Sutton & Douglas, 2005; Donat et al., 2016; Guo et al., 2022; Rienhardt, 2023). PBJW reflects the conviction that one personally experiences fairness in life (Lipkus, Dalbert, & Siegler, 1996; Dalbert, 1999; Sutton & Douglas, 2005). People tend to endorse this belief more strongly than GBJW, consistent with a self-serving bias (Furnham & Procter, 1992; Donat et al., 2016; Kaliuzhna, 2020). PBJW has been consistently linked to positive psychological and behavioral outcomes. It predicts higher levels of subjective well-being (Bègue, 2002; Dalbert, 1999; Lipkus et al., 1996; Dalbert & Donat, 2015; Schindler & Reinhard, 2015) and greater engagement in prosocial actions (Guo et al., 2022; Bègue, 2014). It also fosters motivation to pursue justice and heightens sensitivity to unfairness (Dalbert, 1999; Dalbert & Umlauft, 2009), leading to more ethical conduct, such as reduced academic dishonesty (Donat, Dalbert, & Kamble, 2014; Munscher et al., 2020; Bartholomaeus et al., 2019; Kiral Ucar et al., 2019; Rezrazi & Gangloff, 2020; Kamble & Dalbert, 2012; Sutton & Winnard, 2007). By contrast, GBJW represents a more generalized belief that justice operates broadly across society (Lipkus et al., 1996; Dalbert et al., 1987; Dalbert, 1999; Sutton & Douglas, 2005). This dimension has been associated with less favorable outcomes, including rigid or punitive social attitudes, antisocial tendencies (Bègue & Muller, 2006; Hafer & Sutton, 2016), and in some studies, greater tolerance for dishonest behavior (Dalbert et al., 1987; Wenzel et al., 2017).

Measurement of BJW has evolved over time, largely due to limitations in traditional self-report methods. Early instruments such as the Revised Just World Scale (Rubin & Peplau, 1975) and Dalbert's (1999) scales differentiating PBJW and GBJW have been criticized for their reliance on explicit agreement with normative statements about fairness. Research suggests that people often consciously reject overly idealized

statements about justice while still being guided by an implicit belief in fairness at a motivational level (Lerner, 1980; Lerner, 1987; Lerner, 1998; Linhares et al., 2022). This discrepancy has led to the development of alternative approaches, including the use of Implicit Association Tests (IAT) to assess automatic, non-conscious aspects of BJW (Greenwald et al., 1998; Guo et al., 2022; Fazio & Olson, 2003), as well as scales built around culturally familiar sayings that better capture latent beliefs (Linhares et al., 2022). Empirical findings continue to highlight the adaptive potential of PBJW. For instance, perceptions of fairness from instructors—known as lecturer justice—strengthen the relationship between PBJW and reduced academic dishonesty among university students (Munscher et al., 2020; Peter et al., 2013). Overall, PBJW functions as a resilient psychological buffer, promoting just and prosocial behavior even in times of major social stress, such as during the COVID-19 pandemic (Munscher et al., 2020).

The current project's first goal is to build on this knowledge of psychology and academic dishonesty. This project will examine a broad research question. Do psychological factors (Dark Triad, Belief in a Just World) influence a students' view on academic cheating?

SURVEY AND METHODOLOGY

The participants were from a large, regional comprehensive university in the southwest of USA. The university has over 15,000 students in six colleges granting both bachelor's and master's degrees. Our survey included a large convenience sample of students.

Table 1. Demographic data of sample (n=566).

Major	Business 63%	Non-Business 37%	
Year in School	First 22%	Second 9%	Third 28.5%
	Fourth 22.3%	Fifth 18%	
Gender	Males 40%	Females 58%	
Relationship	Married 13.8%	Has children 12.5%	
Religion	Christian 44.4%	Non-Religious 29.6%	All others 26%
Employed	Part time 40%	Full time 28.8%	Unemployed 31.5%
Parents' education	Legacy 61.3%	First generation 38.7%	Military experience 5.8%
English first language	Yes 77.5%	No 22.5%	

Business majors and upperclassmen were overrepresented in our sample. Females outnumbered males 60% to 40%. Our group consisted of primarily traditional students

(58.2% were aged 18-22). However, our university had a significant portion of non-traditional students (age 23+) and 13.8% of the respondents were married, and 12.5% of students had children. Most of the students (68%) worked while attending school. In religion, Christianity was the dominant group with 44%, while 29% identified as non-religious. Other students were spread among other faiths. Most students (57.6%) reported going to a church service less than once a month, and only 15% identified with being "strongly religious." Over a third of students (38.7%) were the first in their family to attend college. Only 6% had military experience. In sexual orientation, 80.5% identified as hetero, while 12.5% identified as LGBTQ+, with the remainder preferring to not answer.

Political opinions were dispersed, with 24% identifying as conservative, 34% as moderate, and 23% identifying as liberal, with a large group of 18% preferring not to answer. When political parties were included, the largest group (25.7%) chose not to answer, 8.6% identified as Trump Republicans, 13.8% picked traditional Republicans, 10.3% for the Democrat party, and 20% independent, and a few smaller factions.

PROCEDURES

The convenience sample was taken from classes at the school affiliated with the authors during the fall of 2023. Students completed the questionnaire during class time. The survey was voluntary and anonymous. Inducements were offered to the students to participate which included a small amount of extra credit in a current course and the opportunity to win one of ten $20 Starbucks gift cards. A total of 566 surveys resulted. After excluding respondents who left more than 50% of the survey blank, we finished with a sample of 512. The text of the questions is included in the tables.

MEASURES

For academic integrity, we replicated the 18 item Attitudes Toward Cheating (ATC) scale from Simha, Armstrong, & Albert (2012). This scale listed questionable behaviors and asked students to rank them on a three-level scale, Not Cheating, Trivial Cheating, and Serious Cheating. The scales were reliable with the original student sample and in subsequent replications. Simha, et al., (2012) found that business students had more lax attitudes toward cheating and cheated more often than leadership students. We added one behavior to the list, namely discussing the contents of an exam with another student who had not taken it yet.

The Dark Triad was composed of three separate scales, Machiavellianism, Narcissism, and Psychopathy. All three scales used a five item Likert scale. The Dark Triad's three scales appeared to have face and content validity. As a test for internal consistency, we conducted Cronbach's alpha for each of our scales, shown in Table 3.

Belief in a Just World (BJW) is a six-item scale developed by Dalbert, Montada, & Schmitt (1987), which measures a person's belief that the world is fundamentally just. This scale uses a 6-point Likert scale from strongly disagree to strongly agree. As a test for internal consistency, we conducted Cronbach's alpha for the BJW scale, shown in Table 4.

We used SPSS version 28 for analysis.

FINDINGS AND DISCUSSION

Eliminating all biases in a survey on unethical behavior is impossible. We were best able to minimize the socially appropriate response bias by using a large group survey, anonymous results, and confidential submissions. We begin by first looking at the overall results of our construct, Attitudes Toward Cheating (ATC). See the complete results below in Table 2.

Table 2. Attitudes Toward Cheating Results.

Attitude Towards Cheating Questions (n = 512)	Not Cheating	Trivial Cheating	Serious Cheating	Mean	SD
ATC1.Copying homework assignments from others	7.8	51.2	41.1	1.324853	0.610487
ATC2.Allowing others to copy homework assignments from you	11.5	55.1	33.4	1.207031	0.631921
ATC3.Collaborating with others on assignments meant to be completed alone	27.7	53.7	18.6	0.914063	0.674122
ATC4.Collaborating with others on tests meant to be completed alone	6.9	19.6	73.5	1.679688	0.585989
ATC5.Using unauthorized cheat-sheets on an exam	5.2	11.0	83.8	1.794521	0.50376
ATC6.Looking at or copying from other's exam copies	4.6	10.7	84.7	1.805882	0.48914
ATC7.Allowing others to look at or copy from your exam copy	6.0	18.5	75.5	1.700587	0.569124
ATC8.Obtaining exam questions illicitly beforehand	5.7	16.0	78.3	1.731898	0.549991
ATC9.Using unauthorized electronic equipment for use in exams	4.8	13.5	81.7	1.099804	0.756553
ATC10.Fabricating bibliographies on assignments/papers	7.7	28.7	63.6	1.772994	0.515766
ATC11.Copying from a source without citing the source	10.3	35.7	54.0	1.562745	0.635388
ATC12.Obtaining papers from the web and turning them in as your own work	4.8	11.7	83.5	1.434442	0.665028
ATC13.Making others write your papers for you, and then turning them in as your own work	6.4	16.4	77.2	1.786275	0.508675
ATC14.Referencing materials without reading them	28.4	49.4	22.2	1.713725	0.56798
ATC15.Falsifying grade scores	5.5	12.7	81.8	0.935421	0.709693
ATC16.Changing one's answers after getting the grade in order to increase one's score	9.8	24.4	65.8	1.764244	0.531876
ATC17.Making false and fraudulent	21.2	34.9	43.9	1.554902	0.669226

excuses to postpone assignments and/or tests					
ATC18.Falsifying school documents	12.1	20.9	67.0	1.233333	0.769294
ATC19. Telling another student about the content of an exam	24.3	41.9	33.7	1.542074	0.698521

The mean scores across items suggest that students generally recognize most of these behaviors as cheating, with many items averaging above 1.0 (closer to "serious cheating"). However, some behaviors (e.g., ATC_03: collaborating on assignments or ATC_15: referencing unread materials) had noticeably lower average scores, suggesting that students may normalize or minimize these forms of dishonesty. Since attitude toward cheating (ATC) was measured using 19 different items, we constructed a composite measure, ATC_Score, to represent the overall attitude toward cheating as a single variable. ATC_Score is the composite average score based on the 19 items labeled ATC1 through ATC19, as presented in Table 2

The Cronbach's alpha for Attitude Toward Cheating (ATC) is 0.925. This value indicates excellent internal consistency, suggesting that the 19 items reliably measure a single underlying construct—how seriously students view various forms of cheating. A high alpha implies that respondents answered the items in a consistent pattern, perceiving behaviors like plagiarism, falsification, and unauthorized collaboration in a unified way.

Table 3. Dark Triad Table.

Dark Triad, 28 item scale	**Mean**	**S.Dev.**
1.It's not wise to tell your secrets.	3.82	.902
2.Generally speaking, people won't work hard unless they have to.	3.41	1.042
3.Whatever it takes, you must get the important people on your side.	3.16	1.012
4. Avoid direct conflict with others because they may be useful in the future.	3.37	1.004
5. It's wise to keep track of information that you can use against people later.	2.72	1.075
6. You should wait for the right time to get back at people.	2.64	1.121
7. There are things you should hide from other people because they don't need to know.	3.77	.981
8. Make sure your plans benefit you, not others.	2.75	1.029
9. Most people are suckers.	2.44	1.025
10. Most people deserve respect. (R)	1.92	.929
Machiavelli Scale (1-10) Cronbach's alpha = .751	3.000	.5631
11. People see me as a natural leader.	3.34	1.004
12. I hate being the center of attention. (R)	2.57	1.054
13. Many group activities tend to be dull without me.	2.61	.947

14. I know that I am special because everyone keeps telling me so.	2.54	1.050
15. I like to get acquainted with important people.	3.35	.981
16. I feel embarrassed if someone compliments me. (R)	2.92	1.097
17. I have been compared to famous people.	3.44	1.041
18. I am an average person. (R)	3.38	1.036
19. I insist on getting the respect I deserve.	3.29	1.010
Narcissism scale (11-19) Cronbach's alpha =.300	3.04	.3990
20. I like to get revenge on authorities.	2.09	1.012
21. I avoid dangerous situations. (R)	2.39	1.038
22. Payback needs to be quick and nasty.	2.03	.982
23. People often say I'm out of control.	1.84	.936
24. It's true that I can be cruel.	2.29	1.162
25. People who mess with me always regret it.	2.23	1.100
26. I have never gotten into trouble with the law. (R)	2.13	1.245
27. I like to pick on losers.	1.64	.899
28. I'll say anything to get what I want.	1.93	1.025
Psychopathy scale (20-28) Cronbach's alpha = .827	2.063	.6796

Next, we report the results of the Belief in a Just World scale. The scale included six items. Text of the questions and the results are shown below.

Table 4. Belief in a Just World.

Statement	Mean	Stnd.Dev.
1. I am confident that justice always prevails over injustice.	3.36	1.497
2. I think basically the world is a just place.	3.78	1.406
3. I am convinced that, in the long run, people will be compensated for injustices.	3.64	1.556
4. I firmly believe that injustices in all areas of life (e.g. professional, family, politics) are the exception rather than the rule.	3.74	1.431
5. I believe that, by and large, people get what they deserve.	3.33	1.265
6. I think that people try to be fair when making important decisions.	4.06	1.270
Cronbach's Alpha for the six items scale was .761		

The Belief in a Just World scale revealed that our sample generally believed in fairness. However, when asked whether people get what they deserve (pragmatism), the results showed a lower mean, indicating less support for that view. The differences in the six items were rather small, so perhaps drawing big conclusions based on the numerical differences is overblown. The Cronbach's Alpha for the six-item scale was .761, higher than the standard .700 used for social science research.

Table 5. Dark Triad Traits and Belief in a Just World (BJW)

Variable	Count	Mean	Median	SD
Machiavellianism	512	2.994336	3	0.560496
Narcissism	512	3.048177	3	0.400338
Psychopathy	512	2.056858	2	0.672043
BJW	512	3.651693	3.666667	0.952671

Machiavellianism and Narcissism had moderate average scores (~3.0), suggesting a balanced distribution of these traits in the sample. Psychopathy had a notably lower mean (~2.1), indicating lower levels of impulsivity and emotional detachment among respondents. The BJW score had a wide range (1 to 6) with a mean around 3.7, indicating moderate belief that the world is fair and people get what they deserve. The relatively high standard deviation (0.95) in BJW score suggests significant variation in moral worldview among students. The nonparametric Spearman method was used to account for the ordinal nature of several variables and to ensure robustness against non-normality. Values in each cell are Spearman correlation coefficients (ρ), and values in parentheses are associated p-values for statistical significance.

Table 6. Spearman Correlation Coefficients.

	Machiavellianism	Narcissism	Psychopathy	BJW	ATC_Score
Machiavellianism	1	0.2010	0.3933	0.1440	-0.1080
Narcissism	0.2010	1	0.1787	0.2343	-0.0226
Psychopathy	0.3933	0.17872	1	0.0148	-0.2046
BJW	0.1440	0.23432	0.0148	1	0.1564
ATC_Score	-0.1080	-0.02263	-0.2046	0.1564	1

Our major findings include the following: Psychopathy shows the strongest relationships with attitudes towards cheating, a negative correlation with ATC Score (ρ = –0.2046): Students with higher levels of psychopathic traits tend to view academic dishonesty as less serious.

Machiavellianism is also related to attitudes towards cheating, though more modestly: A negative correlation with ATC Score (ρ = –0.1080): More Machiavellian students tend to be more permissive in their views of cheating. Narcissism does not exhibit strong or consistent relationships with attitudes towards cheating, suggesting that grandiosity and self-focus may not be key drivers of academic dishonesty in this sample.

Belief in a Just World (BJW) displays meaningful moral influence. A positive correlation with ATC Score (ρ = 0.1564): Students who believe the world is fair are more likely to view cheating as serious misconduct.

The significance tests for the Spearman correlations reveal that most correlations are statistically significant ($p < .05$), especially those involving ATC_Score and Psychopathy. A few correlations are not significant, such as: Narcissism and ATC_Score

($p = 0.609$), and Psychopathy and BJW ($p = 0.738$). This indicates that while some traits meaningfully relate to students' attitudes towards cheating, others (e.g., Narcissism) may not have a strong linear rank relationship.

To further test the relationship of psychology and the attitudes toward cheating in our sample, we conducted three regression models.

Regression Model 1

To examine whether personality traits and belief systems influence how seriously students perceive various academically dishonest behaviors, we estimated an ordinary least squares (OLS) regression model with ATC_Score as the dependent variable. The model includes four independent variables: Machiavellianism, Narcissism, and Psychopathy (representing the Dark Triad of personality traits), as well as Belief in a Just World (BJW).

$$ATC\_Score_i = \beta_0 + \beta_1 Mach_i + \beta_2 Narc_i + \beta_3 Psych_i + \beta_4 BJW_i + \varepsilon_i$$

This model allows us to assess whether students who are more manipulative, self-centered, or impulsive are less likely to view common forms of academic dishonesty as serious violations, and whether belief in fairness moderates such perceptions.

Table 7. Regression Model 1.

Variable	Coefficient	Std. Error	t-Statistic	P-Value	95% CI Lower	95% CI Upper
const	1.523906	0.148721	10.24674	1.61E-22	1.231721	1.816092
Machiavellianism	0.002212	0.034658	0.063833	0.949128	-0.06588	0.070303
Narcissism	-0.02313	0.046069	-0.5021	0.615817	-0.11364	0.067379
Psychopathy	-0.10943	0.028197	-3.88102	0.000118	-0.16483	-0.05404
BJW	0.073447	0.019133	3.838741	0.000139	0.035857	0.111037

The overall model was statistically significant, F-statistic = 7.99, $p < 0.001$, and explained approximately 5.9% of the variance in ATC_Score ($R^2 = 0.059$). Psychopathy emerged as a strong negative predictor of cheating perception ($\beta = -0.109$, $p < 0.001$), indicating that students scoring higher in psychopathy were significantly less likely to view academically dishonest behaviors as serious offenses.

In contrast, Belief in a Just World (BJW) was a significant positive predictor ($\beta = 0.073$, $p < 0.001$), indicating that students who believe the world is fair and just tend to judge academic misconduct more harshly. Neither Machiavellianism nor Narcissism was significantly related to perceptions of cheating in this model.

This model highlights that moral judgment about cheating is shaped by both antisocial traits and belief systems, with psychopathy and BJW representing opposite ends of the perceptual spectrum.

Regression Model 2

To explore whether students' belief in a just world (BJW) moderates the relationship between dark triad personality traits and their perceptions of academic dishonesty, we estimated an ordinary least squares (OLS) regression model with ATC_Score as the dependent variable. The model includes main effects for Machiavellianism, Narcissism, Psychopathy, and BJW, along with interaction terms between BJW and each personality trait. These interaction terms allow us to assess whether belief in a just world strengthens or weakens the relationship between specific antisocial traits and how seriously students perceive academic misconduct.

All independent variables are mean-centered prior to constructing interaction terms to reduce multicollinearity and aid in the interpretation of the main effects.

$$ATC\_Score_i = \beta_0 + \beta_1 Mach_i + \beta_2 Narc_i + \beta_3 Psych_i + \beta_4 BJW_i + \beta_5 (Mach_i \times BJW_i) + \beta_6 (Narc_i \times BJW_i) + \beta_7 (Psych_i \times BJW_i) + \varepsilon_i$$

Table 8. Regression Model 2

Variable	Coefficient	Std. Error	t-Statistic	P-Value	95% CI Lower	95% CI Upper
const	1.510055	0.01759	85.84498	5.56E-303	1.475495	1.544615
Mach_c	-0.02871	0.036356	-0.78968	0.430085	-0.10014	0.042719
Narc_c	-0.00799	0.046117	-0.17335	0.862446	-0.0986	0.082611
Psych_c	-0.10824	0.028677	-3.77444	0.000179	-0.16458	-0.0519
BJW_c	0.073039	0.019359	3.772953	0.00018	0.035006	0.111073
Mach_x_BJW	-0.06413	0.028459	-2.25336	0.024666	-0.12004	-0.00822
Narc_x_BJW	-0.03879	0.043223	-0.89752	0.369869	-0.12371	0.046126
Psych_x_BJW	0.099296	0.029811	3.330846	0.000929	0.040727	0.157865

Psychopathy is negatively associated with ATC_Score ($\beta=-0.108$, $p < 0.001$), suggesting that students who exhibit higher levels of psychopathic traits are significantly less likely to view academically dishonest behaviors as serious violations. Conversely, BJW is positively associated with ATC_Score ($\beta=0.073$, $p < 0.001$), indicating that students who believe more strongly in a fair and just world tend to judge dishonest academic behaviors more harshly.

Neither Machiavellianism nor Narcissism shows any significant main effects on ATC_Score. The interaction between Psychopathy and BJW is positive and significant ($\beta=0.099$, $p < 0.001$). This suggests that the negative effect of psychopathy on cheating perceptions weakens as belief in a just world increases. In other words, students high in psychopathy still tend to view dishonest behaviors as less serious, but this tendency is buffered among those who strongly believe in a just world.

The interaction between Machiavellianism and BJW is negative and significant ($\beta=-0.064$, $p = 0.025$). This implies that the (non-significant) main effect of

Machiavellianism becomes more strongly negative at higher levels of BJW. That is, among students who believe in a just world, higher Machiavellianism is associated with more lenient views toward cheating. This interaction between narcissism and BJW is not significant ($\beta=-0.039$, $p = 0.370$), suggesting no meaningful moderating effect of BJW on the relationship between narcissism and cheating perceptions.

Overall, the results suggest that BJW moderates the relationship between Psychopathy and cheating perception in a protective direction. BJW also moderates the relationship between Machiavellianism and cheating perception in a risk-enhancing direction. There is no interaction effect involving narcissism.

Regression Model 3

To examine whether combinations of dark triad personality traits interact in shaping students' perceptions of academic dishonesty, we estimated an ordinary least squares (OLS) regression model with ATC_Score as the dependent variable. The model includes main effects for Machiavellianism, Narcissism, and Psychopathy, along with all two-way interaction terms among these traits. In addition, we control for Belief in a Just World (BJW), a variable that has been shown in earlier models to be associated with stricter perceptions of academic dishonesty.

All independent variables are mean-centered prior to the creation of interaction terms to facilitate interpretation and reduce multicollinearity. This model specification allows us to assess not only the independent effects of personality traits and belief systems but also whether the influence of one trait on cheating perception changes depending on the levels of another trait.

$$\text{ATC\_Score}_i = \beta_0 + \beta_1\text{Mach}_i + \beta_2\text{Narc}_i + \beta_3\text{Psych}_i + \beta_4\text{BJW}_i + \beta_5\,(\text{Mach}_i \times \text{Narc}_i) + \beta_6\,(\text{Mach}_i \times \text{Psych}_i) + \beta_7\,(\text{Narc}_i \times \text{Psych}_i) + \varepsilon_i$$

Table 9. Regression Model 3

Variable	Coefficient	Std. Error	t-Statistic	P-Value	95% CI Lower	95% CI Upper
const	1.492718	0.018364	81.28386	7.79E-292	1.456639	1.528798
Mach_c	0.004089	0.036024	0.113505	0.909675	-0.06669	0.074864
Narc_c	-0.0109	0.048167	-0.22637	0.821007	-0.10554	0.083729
Psych_c	-0.12394	0.029182	-4.24726	2.58E-05	-0.18128	-0.06661
BJW_c	0.069549	0.019271	3.609038	0.000338	0.031688	0.10741
Mach_x_Narc	-0.10199	0.065685	-1.55268	0.121128	-0.23104	0.027063
Mach_x_Psych	0.080581	0.04388	1.836413	0.066885	-0.00563	0.166791
Narc_x_Psych	0.082194	0.072553	1.132884	0.257802	-0.06035	0.224737

Among the predictors, Psychopathy emerged as a significant negative predictor of ATC_Score, ($\beta=-0.124$, $p < .001$). This indicates that students with higher psychopathic traits are less likely to perceive academic dishonesty as serious misconduct. In contrast,

Machiavellianism and Narcissism showed no statistically significant main effects. Importantly, BJW was a significant positive predictor (β=0.070, $p < .001$), consistent with prior findings. Students who more strongly believe in a just world are more likely to view academic dishonesty as serious cheating, independent of their personality profiles. None of the two-way interaction terms among the dark triad traits were statistically significant. This suggests that combinations of Machiavellianism, Narcissism, and Psychopathy do not jointly alter students' perceptions of cheating in a meaningful way—each trait operates independently in this context.

Overall, the model highlights that Psychopathy and BJW are the primary psychological predictors of how seriously students view academic dishonesty, while trait combinations do not significantly compound these effects.

IMPLICATIONS FOR FUTHER RESEARCH

All survey projects have limitations. Academic dishonesty research is sensitive, and it is difficult to control for the social desirability bias (McCabe, Trevino, & Butterfield, 2002) despite our best efforts. Second, the results relied on self-reported data from the students. Self-reported data were not confirmed by any other means. Self-reported data always has problems of generalization and reliability. However, with student privacy concerns, as well as the content of the survey (unethical behaviors), anonymous surveys were the only possibility. Another limitation was that we only examined one institution. This school might not be representative of all universities. In addition, most were business students, however individual sub-disciplines (accounting, finance, economics, management, etc.) were not delineated. Differences in these sub-disciplines could be significant. Other discipline areas (science, math, history, language, etc.) were under-represented. Our sample also did not include a significant number of graduate students who could have far different views. In addition, our sample was mainly traditional students (young, unmarried, without children). Future projects should target the non-traditional students as their views should not be assumed to be the same as traditional students. Another limitation of this study is the non-random sample. A random sample could result in more generalization.

CONCLUSION

Is academic cheating common? We can confidently conclude that academic cheating is common and further that academic cheating attitudes are strongly correlated with the psychological makeup of the students.

Future projects should examine more cultures to confirm that academic cheating is a global problem, not just a few isolated countries. In addition, future endeavors should include other parameters to allow for more in-depth statistical analysis. Further, new projects should strive to gain a well-rounded sample to examine subgroups of students. Finally, any future projects should examine in detail the newest cheating behaviors of students. New technologies are adding new opportunities to cheat while on campus or off.

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PEDALING THROUGH HUMAN RESOURCE MANAGEMENT: FRAMEWORK FOR CONCEPTUAL INTEGRATION

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ABSTRACT

Human resource management (HRM) is widely conceptualized as a system of interdependent practices that influence organizational effectiveness. However, existing literature provides limited explanation of how these practices are cognitively integrated into systems level understanding. This paper develops a conceptual framework that integrates HRM systems theory with threshold concept theory and Bloom's taxonomy to explain how learners develop systems level understanding of HRM. HRM is conceptualized as a multi-level system composed of environmental, organizational, and individual domains that interact through five interdependent components: framework, staffing, employee development, compensation, and governance. System effectiveness is proposed to depend on alignment across these levels and components and on the ability to maintain coherence under changing conditions. Threshold concept theory explains how learners recognize relationships among HRM components that support integration, while Bloom's taxonomy describes progression from foundational knowledge to higher order reasoning about these relationships (Anderson & Krathwohl, 2001; Meyer & Land, 2003). A cycling analogy is used as a heuristic device to illustrate system interdependencies, although the theoretical contribution lies in conceptualizing HRM as an integrated relational system. The paper advances propositions specifying how environmental conditions shape HRM practices and how these practices influence individual and organizational outcomes. It also provides a unified explanation of how systems level understanding of HRM develops.

Keywords: human resource management, high performance work systems, threshold concepts, Bloom's taxonomy, cognitive development, systems thinking

INTRODUCTION

Learning is commonly defined as the acquisition of knowledge or skills through study, experience, or instruction (Oxford University Press, n.d.). However, higher order understanding requires more than the accumulation of discrete information. It requires the integration of concepts into coherent systems that support relational reasoning and applied understanding. Foundational cognitive processes such as remembering and understanding are necessary starting points, but they do not in themselves produce integrated conceptual structures (Bloom et al., 1956; Anderson & Krathwohl, 2001).

Bloom's taxonomy provides a structured model of cognitive development that progresses from knowledge and comprehension to application, analysis, evaluation, and creation (Bloom et al., 1956; Anderson & Krathwohl, 2001). This progression highlights how learning moves from basic recall toward increasingly complex forms of reasoning. Within this structure, higher order

thinking depends on the ability to analyze relationships among concepts and evaluate systems of interaction rather than isolated elements.

Threshold concept theory complements this perspective by explaining how learners move beyond fragmented understanding to achieve integrative and transformative insight within a discipline (Meyer & Land, 2003; Land et al., 2005). Threshold concepts enable learners to reorganize their understanding of a subject by revealing underlying relationships among ideas that were previously perceived as separate. However, learners often experience difficulty with this integration, resulting in incomplete or fragmented conceptual structures that limit progression to higher levels of understanding (Perkins, 2006). From a constructivist perspective, such difficulties arise because prior knowledge and partial conceptions shape how new information is interpreted and integrated (Bruner, 1961; Piaget, 1970).

This challenge is particularly evident in human resource management. HRM can be understood as a system of interdependent practices and policies designed to manage people and support organizational effectiveness (Cascio, 2006; Wright & McMahan, 1992). These practices operate within a broader HRM systems framework consisting of environmental, organizational, and individual levels that interact through key functional components including framework, staffing, employee development, compensation, and governance. Without an integrated systems perspective, learners and practitioners may understand HRM functions in isolation without recognizing how they collectively shape organizational outcomes. For example, selection decisions that are not grounded in accurate job analysis may fail to identify individuals whose competencies align with role requirements, resulting in reduced performance and inefficiency across the system. This paper focuses primarily on human resource management as an integrated system, with cognitive learning theory used to interpret how systems level understanding of HRM develops.

The purpose of this paper is to develop a conceptual framework that integrates human resource management systems theory with threshold concept theory and Bloom's taxonomy to explain how higher order understanding of HRM develops. Existing HRM literature describes functional components and system structures but provides limited explanation of how these components are cognitively integrated into systems level understanding. This gap is important because HRM knowledge is often acquired in fragmented form without clear understanding of interdependencies across functions and levels.

THEORETICAL FOUNDATIONS OF HRM AND COGNITIVE INTEGRATION

Threshold concepts are transformative points in learning that enable students to "see things in a new way" and reconceptualize their understanding of a subject (Meyer & Land, 2003, p. 1). While learners may acquire a general understanding of individual concepts, they often struggle to recognize the interconnections among these concepts, which can limit their ability to progress to higher levels of understanding (Perkins, 2006). Threshold concepts function as integrative cognitive structures that connect previously fragmented knowledge and enable deeper understanding and application in complex contexts (Land, Cousin, Meyer, & Davies, 2005).

Complementing this perspective, Bloom's taxonomy provides a framework for understanding how learners progress from foundational knowledge to higher order thinking skills such as application, analysis, synthesis, and evaluation (Bloom, Engelhart, Furst, Hill, & Krathwohl,

1956; Anderson & Krathwohl, 2001). This hierarchical progression provides a structure for understanding how learners move from foundational knowledge to higher order reasoning required for systems level HRM analysis.

In the context of HRM, threshold concepts function as critical junctions in this progression. For example, a learner may be able to define recruiting, satisfying the knowledge and comprehension levels of Bloom's taxonomy. However, without understanding how recruiting connects to job analysis, workforce planning, or organizational strategy (Wright & McMahan, 1992), the learner cannot fully engage in higher order cognitive processes such as analyzing recruitment needs, designing effective selection processes, or evaluating recruitment outcomes. In this sense, threshold concepts reveal the relationships between discrete HRM concepts, enabling learners to integrate and apply their knowledge across multiple contexts.

The conceptual framework presented in this paper builds on both threshold concept theory and Bloom's taxonomy. It emphasizes iterative learning cycles in which learners revisit foundational HRM concepts while progressively integrating them into more complex and applied forms of understanding (Bruner, 1961). By making the interconnections among HRM processes explicit, the framework supports both conceptual mastery and the development of higher order cognitive skills. This framework supports both conceptual mastery and the development of higher order cognitive skills, together supporting a systems based view of HRM that emphasizes relational understanding across functional domains.

The contribution of this framework is the integration of organizational HRM structure with cognitive learning processes to explain how systems level understanding of HRM develops. Specifically, HRM systems are conceptualized as multi-level structures composed of environmental, organizational, and individual domains that are understood through five interdependent functional components. Threshold concept theory explains how learners recognize relationships among these components that enable integration, while Bloom's taxonomy describes the progression of cognitive development through which this integration becomes more complex. Together, these frameworks provide a unified explanation of how HRM systems are both structured in organizations and understood through learning processes.

HRM SYSTEM STRUCTURE

HRM processes involve multiple interacting components operating under changing conditions, which are illustrated in the following cycling analogy. The analogy compares environmental conditions, organizational systems, and individual actions in HRM to external cycling conditions, bicycle mechanics, and rider behavior. This comparison is intended to simplify interpretation of system interactions rather than to define them. The analogy is used solely for illustration and does not define the theoretical structure.

MULTI-LEVEL STRUCTURE OF HRM SYSTEMS

HRM involves multiple levels of challenge. Obstacles emerge at different points, requiring adaptation and adjustment. These challenges occur at the environmental, organizational, and individual levels. Environmental challenges reflect unpredictable weather and road conditions that influence the entire journey. Organizational challenges represent the bicycle's gears, brakes, and frame, shaping the structure and efficiency of movement through the system. Individual

challenges reflect the cyclist's stamina, skill, and decision making, influencing how effectively they respond to conditions during the ride.

These levels are not rigid categories but interdependent aspects of the system. Environmental conditions shape organizational responses, which influence individual performance, while individual actions can in turn affect organizational effectiveness and also reshape both organizational and environmental conditions. Organizations that effectively navigate across these levels are better positioned to maintain direction and sustain performance in complex conditions. Each level is discussed in detail below.

Environmental level challenges represent the most macro influence on HRM and originate outside the organization. These include workforce diversity, globalization, legal regulations, changing work and family roles, skill shortages, and rapid technological change (Abbas, Shah, & Othman, 2021). For example, a tightening labor market for digital skills may require organizations to expand recruitment internationally and invest in upskilling programs to remain competitive and compliant.

Within the cycling analogy, environmental challenges resemble external conditions such as wind, rain, terrain, and temperature. Environmental forces shape organizational outcomes and interact with internal and individual factors.

Organizational level challenges are internal factors that shape how HRM systems are structured and implemented. These include competitive strategy, restructuring, decentralization, technology, outsourcing, and organizational culture (Wright & McMahan, 1992; Becker & Huselid, 1998). Effective alignment of these elements is necessary to respond to both internal demands and external conditions. For example, a firm adopting a cost leadership strategy may redesign workflows and HR policies to increase efficiency, standardize roles, and control labor costs while maintaining performance outcomes. A breakdown in coordination can disrupt group momentum and reduce overall performance, similar to dysfunction within an organization when systems and culture are misaligned.

Individual level challenges focus on employee factors such as motivation, performance, ethics, job security, and person–organization fit (Colquitt et al., 2001; Cropanzano & Wright, 2001). These directly influence organizational effectiveness. For instance, low motivation or reduced self-efficacy can hinder performance, although these outcomes are often shaped by broader organizational and environmental conditions. As an example, uncertainty created by restructuring may reduce employee engagement, even when individual capability remains high. Conversely, a well prepared and motivated cyclist can maintain performance despite challenging terrain, demonstrating the influence of individual capacity within a broader system.

The interaction among levels highlights the interconnected nature of HRM challenges. Overall, HRM challenges function as an interconnected system rather than isolated categories.

CYCLING ANALOGY: THEORETICAL INTEGRATION AND SYNERGY

Threshold concept theory explains how learners move from fragmented understanding of HRM toward integrated systems thinking through recognition of relationships among concepts rather than isolated elements (Meyer & Land, 2003; Perkins, 2006). In this context, environmental,

organizational, and individual levels function as interrelated dimensions that shape how HRM is understood and applied (Wright & McMahan, 1992).

This progression aligns with Bloom's taxonomy by describing how cognitive development moves from basic knowledge of HRM concepts to higher levels of application, analysis, and evaluation of interactions among those concepts (Anderson & Krathwohl, 2001). At higher levels of cognition, understanding depends on the ability to evaluate how HRM processes operate across interconnected system levels rather than in isolation.

Synergy refers to the condition in which aligned HRM components and system levels produce outcomes that exceed the effects of individual elements operating independently (Becker & Huselid, 1998). In this sense, HRM effectiveness depends on recognizing and managing interdependencies across environmental, organizational, and individual dimensions so that coordinated functioning can occur across the system.

THEORETICAL FRAMEWORK AND PROPOSITIONS

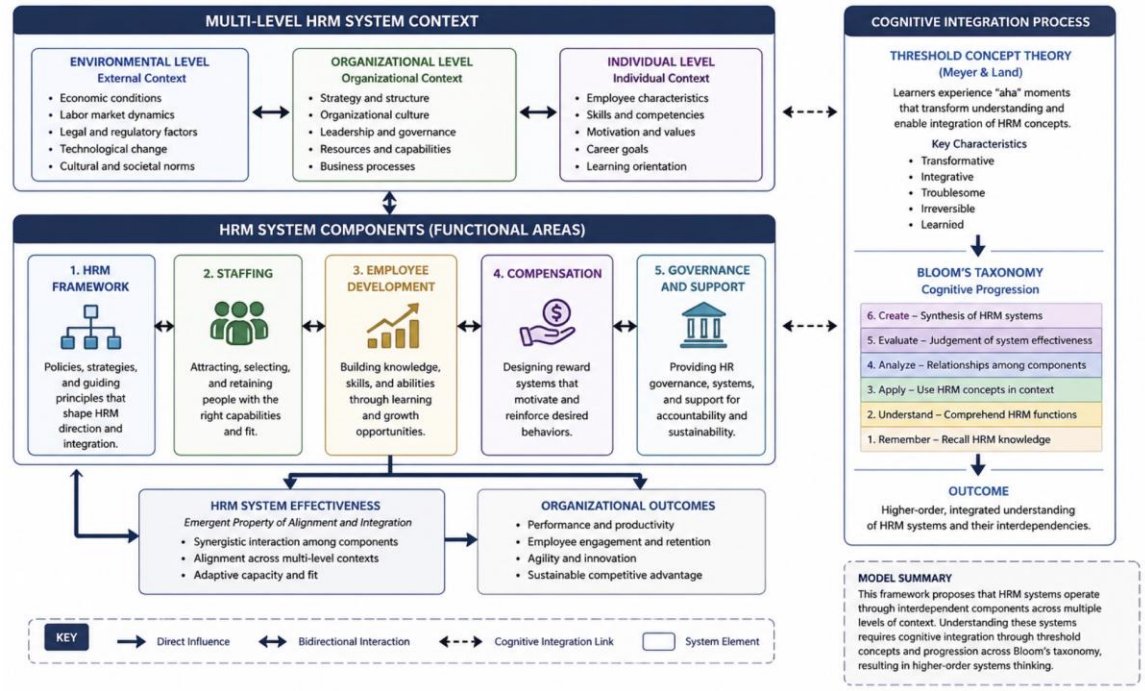
Integrated HRM Learning and Systems Framework

This paper advances a conceptual framework in which HRM is understood as an integrated cognitive and organizational system structured by three interdependent levels of analysis: environmental, organizational, and individual. These levels operate through five functional HRM components, including framework, staffing, employee development, compensation, and governance. The contribution of this framework is the integration of organizational HRM structure with cognitive learning processes to explain how systems level understanding of HRM develops.

Propositions

P1 Environmental conditions influence HRM practices.
P2 HRM practices influence individual level outcomes such as performance.
P3 HRM practices influence organizational level outcomes.
P4 Threshold concepts facilitate the integration of HRM functions by enabling recognition of relationships among practices rather than isolated understanding.
P5 The HRM framework influences the effectiveness of staffing, development, compensation, and governance decisions.
P6 HRM effectiveness is influenced by the coordinated implementation of the framework, staffing, development, compensation, and governance components.

Figure 1. INTEGRATIVE LEARNING SYSTEMS FRAMEWORK Linking Organizational HRM Systems with Cognitive Integration and Development



The model in Figure 1 illustrates HRM as a multi-level system in which organizational effectiveness emerges from the interaction of environmental, organizational, and individual contexts with five core HRM functional components: framework, staffing, employee development, compensation, and governance. These components are positioned as interdependent rather than isolated functions, meaning that changes in one area influence the operation and outcomes of the others. The model integrates threshold concept theory and Bloom's taxonomy to represent cognitive development as learners progress toward understanding relationships across HRM system levels and components. Together, these elements position HRM as both an organizational structure and a learning system in which higher order understanding emerges through the integration of system level relationships.

THEORETICAL FRAMEWORK

The proposed framework integrates HRM system theory with cognitive learning theory to explain both organizational functioning and conceptual development. HRM is conceptualized as a multi-level system composed of environmental, organizational, and individual domains that interact dynamically through five functional HRM components. Effectiveness within this system is determined by the degree of alignment across levels and components, as well as the organization's ability to maintain adaptive coherence under changing conditions.

From a cognitive perspective, understanding of HRM evolves through threshold concept integration, which enables learners to move from fragmented functional knowledge to systems

level reasoning. This progression is supported by hierarchical cognitive development as described in Bloom's taxonomy, which structures how individuals move from knowledge acquisition to evaluative reasoning about HRM interdependencies.

The cycling analogy provides a structural representation of this framework by illustrating how coordinated interaction among system components produces organizational movement and stability. However, the theoretical contribution of the model lies not in the analogy itself but in the identification of HRM as a relational system governed by alignment, interaction, and cognitive integration.

FIVE COMPONENTS OF HUMAN RESOURCE MANAGEMENT

HRM can be described through five essential components: framework, staffing, employee development, compensation, and governance. These components provide a conceptual structure for understanding how HRM functions contribute to organizational objectives and performance (Cascio & Boudreau, 2021). Effective HRM requires intentional alignment of each component with the organization's strategic direction. For example, organizations pursuing a differentiation strategy often design staffing practices to identify employees whose capabilities support unique value creation. Structured and job related selection methods, including work sample tests, are widely regarded as effective approaches. Research on selection systems emphasizes that aligning predictors with job requirements improves hiring outcomes (Stone, Lukaszewski, & Stone Romero, 2006). This alignment ensures that HRM practices support organizational goals rather than operate independently.

While all five components are important for a comprehensive understanding of HRM, this paper focuses on HRM within organizational settings. The following sections examine each component in depth and use a cycling framework to support conceptual clarity and application.

Framework

The first foundational component of HRM is the framework. In HRM scholarship, the framework includes job analysis, job descriptions, and legal requirements. These elements provide the structural basis for staffing, employee development, compensation, and governance (Brannick & Levine, 2002; Stone & Dulebohn, 2016). Job analysis identifies tasks, responsibilities, and competencies required for job performance and informs the development of job descriptions and HR decision making across selection, training, appraisal, and compensation systems.

Legal requirements are a central part of the HRM framework because they guide HR practices toward compliance and reduce the risk of discriminatory outcomes. Title VII of the Civil Rights Act of 1964 prohibits employment discrimination based on protected characteristics such as race, color, religion, sex, and national origin (Equal Employment Opportunity Commission, 2023). HR professionals must ensure that job requirements reflect essential job functions and are supported by validated job analyses to strengthen legal defensibility in employment decisions (Barreto et al., 2009; Ployhart & Schneider, 2012).

Accurate job analysis and well-developed job descriptions are essential for effective HR outcomes. When these tools are poorly developed or outdated, organizations may hire underqualified individuals or exclude qualified candidates. Risk increases when job requirements

are not clearly linked to job relevant performance criteria or when they lack validation (Dipboye & Aguinis, 2015; Cascio & Aguinis, 2008). Distinguishing between essential and non essential job requirements is also important for reducing bias in selection and other HR processes (Gatewood et al., 2015). Evidence based HRM research emphasizes integrating job analysis with legal and contextual considerations to support fair and effective employment decisions (Ostroff, Shin, & Kinicki, 2014).

The HRM framework therefore functions as the foundation for all HRM activities and aligns with the broader HRM systems framework described earlier. It provides the structural basis that allows recruitment, staffing, development, compensation, and governance to function in a coordinated manner. Job analysis informs recruitment and selection decisions, job descriptions support role clarity, and legal standards ensure fairness and compliance. When these elements are aligned, HR processes operate as an integrated system that supports overall organizational effectiveness.

Staffing

The second component of the HRM process is staffing. Staffing includes recruitment, selection, placement, employee separations, downsizing, and outplacement (Dessler, 2020; Cascio & Boudreau, 2021). Effective staffing ensures that organizations attract qualified personnel and maintain fairness, equity, and organizational performance.
Recruitment involves attracting candidates to organizational roles. One important recruitment practice is the use of realistic job previews. These previews describe both positive and challenging aspects of a position. Research indicates that realistic job previews improve expectation accuracy, support self-selection, and reduce early turnover (Meglino, Ravlin, & DeNisi, 2000).

Selection involves identifying applicants who meet essential job requirements as defined in accurate job descriptions. Job descriptions support selection by clarifying role expectations and informing hiring decisions. When they are maintained and updated, they also contribute to role clarity, improved performance, and stronger employee engagement (Tubre & Collins, 2000). Together, realistic job previews and accurate job descriptions support fair and effective staffing decisions.

Staffing decisions are also vulnerable to bias, even when non job related factors influence outcomes. Research shows that applicant characteristics unrelated to performance can still affect hiring decisions. For example, Krueger, Stone, and Stone Romero (2014) found that body weight can influence hiring decisions despite having no relationship to job requirements. Similarly, Stone and Stone Romero (2007) and Stone, Stone Romero, and Lukaszewski (2007) demonstrate that gender, age, and cultural biases can affect recruitment and selection processes. This evidence highlights the importance of structured and evidence based staffing systems.

Organizations should use validated selection methods such as work samples and structured interviews. Work samples assess actual job related performance, while structured interviews improve consistency and reduce subjective judgment. These methods increase validity in hiring decisions and support fairness in employment outcomes (Stone & Stone Romero, 2007). Internal recruitment can also be used when appropriate, as it supports employee morale, development opportunities, and organizational knowledge retention.

In HRM, staffing functions in a similar way. Employees are selected, placed, and developed based on their competencies and fit with organizational needs. Just as cycling teams rely on riders with the appropriate skills and coordination to achieve collective performance, organizations depend on selecting individuals whose abilities align with job requirements and team objectives. When staffing decisions are aligned with organizational needs, performance improves and coordination strengthens. When alignment is weak, organizational effectiveness is reduced.

Employee Development

The third component of the HRM process is employee development, which includes performance management, training and development, and motivation. Performance management is operationalized through performance appraisals that are designed using job descriptions to ensure that evaluation criteria align with job requirements (Cardy, 2020). This alignment ensures that performance expectations reflect actual work demands and supports both assessment and development functions.

One structured appraisal method is the behaviorally anchored rating scale (BARS). BARS links specific observable behaviors to defined levels of performance, which helps clarify what effective job performance looks like in practice (Flanagan, 1954; Tandon, 2015; Klieger, DeNisi, & Jawahar, 2018). This structure supports both evaluation and development because it identifies specific behavioral gaps that employees can address when performance standards are not met.

Another method is 360 degree feedback, which collects performance information from multiple sources, including supervisors, peers, subordinates, and customers (Levy & Williams, 2004; DeNisi & Murphy, 2017). This approach provides a broader perspective on performance by integrating multiple viewpoints. However, interpretation can be challenging because feedback from different sources may not always be consistent (DeNisi & Kluger, 2000; Hazucha, Hezlett, & Schneider, 1993). As a result, employees often require support from supervisors or mentors to interpret feedback and translate it into actionable development plans (Bracken et al., 2001).

Performance management also involves determining the causes of performance outcomes. A key distinction is whether performance issues stem from individual factors or organizational factors (Colquitt et al., 2001). Individual factors may include insufficient skill, lack of understanding, or low motivation. Organizational factors may include unclear expectations, inadequate training, or insufficient resources.

This aligns with the HRM systems framework described earlier. In HRM, this same logic applies. Managers evaluate whether performance issues are caused by individual capability or motivation, or by organizational conditions such as training, resources, or clarity of expectations. Once the cause is identified, appropriate interventions can be applied, such as training, coaching, resource provision, or adjustments to work processes. This ensures that performance management is diagnostic and development focused rather than purely evaluative.

Compensation

The fourth component of the HRM process is compensation. Compensation refers to the total set of rewards provided to employees, including monetary and nonmonetary elements. A central

function of compensation systems is to reward performance and to design and administer employee benefits.

One foundational theory used to design compensation systems is equity theory. Adams (1963) proposed that individuals evaluate fairness by comparing their inputs, such as education and experience, to their outputs, such as salary and job status, relative to a referent other. These comparisons may occur within the same organization, referred to as internal equity, or across organizations, referred to as external equity. Equity perceptions shape motivation and behavior.

When individuals perceive inequity, equity theory identifies four possible responses. First, individuals may change their inputs by adjusting effort. Second, they may change their outputs by seeking increased rewards. Third, they may change their perceptions of inputs or outputs by cognitively reframing the situation. Fourth, they may leave the situation by resigning or seeking another position (Adams, 1963; Greenberg, 1990). These responses demonstrate how perceptions of fairness influence work behavior and retention.

The concept of equity can be illustrated using a bicycle analogy. A bicycle seat represents a reward outcome, while the rider represents the employee evaluating fairness. Riders may compare their seat quality to that of others within the same team or across different teams, reflecting internal and external equity. If a rider perceives that their effort and experience are not matched by seat quality relative to others, they may experience reduced motivation. In response, they may adjust effort, seek changes in equipment, reinterpret the situation, or leave the team. This illustrates how perceived fairness influences behavior and retention.

Another major motivational theory in compensation design is expectancy theory. Vroom (1964) proposed that motivation depends on three beliefs. Expectancy refers to the belief that effort leads to performance. Instrumentality refers to the belief that performance leads to outcomes. Valence refers to the value placed on those outcomes. Motivation is stronger when individuals believe effort will lead to performance, performance will lead to rewards, and those rewards are desirable (Porter & Lawler, 1968; Lunenburg, 2011). Self-efficacy and trust in reward delivery further strengthen these relationships (Gerhart & Fang, 2015).

Equity theory and expectancy theory explain compensation from different perspectives. Equity theory emphasizes fairness by focusing on how rewards compare across individuals and groups. Expectancy theory emphasizes motivation based on the perceived link between effort, performance, and valued outcomes. In compensation systems, both fairness and perceived reward effectiveness are important. Employees are more likely to be motivated when rewards are both perceived as fair and seen as attainable and valuable.

This reflects the HRM systems framework described earlier. Compensation influences motivation by linking rewards to performance while maintaining perceptions of fairness across employees. Equity perceptions shape responses such as changes in effort, cognitive adjustment, or turnover, while expectancy beliefs influence motivation based on the perceived relationship between effort, performance, and valued outcomes. Effective compensation systems integrate both fairness and expectancy mechanisms to support performance, engagement, and retention.

Governance

In HRM, governance functions as a protective system that supports safe and stable working conditions. It reduces risk, safeguards employee rights, and promotes well-being so that employees can focus on their work responsibilities. By ensuring protection and stability, governance enables sustained performance and organizational effectiveness.
Governance within HRM encompasses employee relations, employee rights, workplace safety, and employee well-being. Employee relations focus on communication, conflict resolution, and the development of a workplace culture that supports collaboration, trust, and sustained engagement.

Employee well-being includes psychological and emotional functioning in addition to workplace relationships. Anxiety and depression are common in the workforce, and research indicates that workplace conditions can contribute significantly to depressive outcomes (Stone, Lukaszewski, & Krueger, 2023). This evidence highlights the importance of proactive HRM practices. Effective governance therefore includes access to mental health resources, support programs, and preventive interventions designed to support resilience and psychological stability.

Employee rights are protected through legal frameworks that establish standards for fairness, dignity, and safety in the workplace. These include protections against discrimination, requirements for fair compensation practices, and guarantees of safe working conditions free from harassment and harm (Ramesh, 2022; U.S. Department of Labor, 2026).

Workplace safety and health systems are another essential component of governance. Organizations implement safety training, enforce workplace policies, conduct hazard assessments, and maintain continuous improvement processes to reduce risk. Integrated safety and wellness programs that combine physical safety initiatives with psychological support have been shown to improve safety outcomes and employee resilience (Neal & Griffin, 2006; Huang et al., 2010; Kahn et al., 2006).

Together, employee relations, legal compliance, safety systems, and well-being initiatives form an integrated governance structure that protects employees and supports organizational stability. This structure ensures that organizations not only comply with legal and ethical standards but also maintain conditions that promote trust, safety, and psychological well-being. By coordinating these elements, governance supports both risk management and the creation of a stable work environment in which employees can perform effectively.

CONCLUSION

HRM functions as a dynamic system that requires both strategic alignment and flexibility. While HRM practices should remain consistent with organizational strategy, they must also adapt to environmental, organizational, and individual changes that emerge from both internal and external sources. Organizations that balance alignment with adaptability are better positioned to sustain performance in complex and changing environments.

HRM can be understood as an integrated system in which each component contributes to overall effectiveness. Decisions in staffing, employee development, compensation, and governance are interconnected, meaning that changes in one area can influence outcomes in others. Recognizing

these relationships allows organizations to manage resources more effectively and maintain coherence across HRM practices, thereby supporting organizational performance.

This systems based understanding is reinforced through threshold concepts, which help learners recognize the interrelationships among HRM components and move beyond isolated knowledge. Bloom's taxonomy further explains how this understanding develops by describing progression from foundational knowledge and comprehension to higher levels of application, analysis, and evaluation. Together, these frameworks support the development of advanced cognitive skills that are necessary for interpreting complex organizational situations and making informed HR decisions.

The practical importance of this integrated perspective is evident in HRM decision making. Staffing, performance management, compensation, and governance decisions must be considered in relation to one another because each can affect outcomes in the others. When these interdependencies are recognized, organizations are better able to respond to challenges, maintain consistency across HR practices, and support overall effectiveness.

Overall, HRM operates as an interconnected and adaptive system that requires continuous attention and coordination. A comprehensive understanding of both its components and their relationships enables more effective application of HRM principles, stronger alignment with organizational objectives, and improved responsiveness to complex workplace demands.

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AN ANALYSIS OF STAFFING SHORTAGES AND BURNOUT IN HEALTHCARE

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ABSTRACT

Since the COVID-19 pandemic, healthcare organizations have faced intensifying pressure to retain high-quality workers, particularly those who served on the front lines. Because salaries and wages represent the largest share of hospital operating expenses, healthcare executives bear direct responsibility for managing workforce costs while sustaining a stable, engaged workforce. This paper examines the causes and consequences of staffing shortages and burnout in healthcare settings, drawing on pre- and post-pandemic retention data and workforce transition statistics to establish the scope of the problem. The objective of this paper is to evaluate evidence-based retention strategies, including wellness programs, innovative staffing models, and targeted retention initiatives, and to assess their financial feasibility and organizational impact. Real-world implementation examples are analyzed to compare outcomes between organizations that have adopted these strategies and those that have not. Additionally, this paper explores the practical considerations of implementing such strategies internally versus through third-party partnerships. The findings are expected to demonstrate that proactive investment in employee support and retention is not only operationally necessary but financially justified, and that these strategies can meaningfully reduce staffing shortages and burnout rates across healthcare organizations.

Key words: Healthcare worker burnout, staffing shortages, employee retention, wellness programs, turnover rates

INTRODUCTION

In recent years, the healthcare workforce has been under a microscope. One topic under question is why there is a need for more workers and why it is difficult to retain quality employees. It is estimated that there is a shortage of 5.9 million nurses and 4.3 million doctors across the country. On top of this, the COVID-19 pandemic caused 18% of healthcare workers to leave their jobs. "Several studies have identified a correlation between mental health issues and the COVID-19 pandemic in healthcare workers (Elhadi et al., 2020)." Furthermore, this workforce is expected to dwindle further due to the future retirement of employees in the field (Vries et al., 2023). Lastly, fewer young employees are entering the healthcare workforce. The younger generations see the nursing profession as unattractive because the salary and job status are too low (Vries et al., 2023). So, what can a hospital organization do to compensate for these issues?

The first step is realizing that the future state of the nursing profession should be a top concern for any hospital CEO, and the issue will not fix itself. This problem should draw the concern of patients, too, because it seems to directly affect them as well. Nursing homes reported decreased health outcomes for patients for facilities that reported staff shortages, but not for those that reported lower total staff levels (Chen et al., 2023). The Joint Commission or the Centers for Medicare and Medicaid Services (CMS) requires adequate staffing to meet accreditation standards. If a hospital is understaffed, the executive team must make some tough decisions. These decisions vary based on the severity of the staffing shortage. Slight shortages may lead to hospitals requiring current employees to expand their hours until they can find other means, like hiring locum tenens (temporary) physicians. Hospitals may have to temporarily terminate specific offerings like elective surgeries, clinical procedures, or adjust hours of operations. Worst-case scenarios lead to whole units being shut down or temporarily shut down. Although there are strategies that healthcare CEOs can utilize to counteract staffing shortages when they happen, taking action to prevent these scenarios is vital for long-term growth.

CEOs can help prevent staffing shortages and burnout with a few well-implemented strategies. It is imperative to deeply dive into why these problems are occurring if the reasons are not obvious. Reasons such as inadequate support, insomnia, depression, anxiety, and increased administrative burdens all cause healthcare workers to burn out (Murthy, 2022). A few of these can be directly related to staffing shortages. This paper will look at what can be done by the healthcare organization to mitigate these occurrences or prevent them altogether.

Supporting the mental well-being of healthcare employees is not simply a benefit — it is a professional and organizational imperative. Healthcare is, by its very nature, an emotionally demanding field; workers bring genuine compassion and deep personal commitment to their roles, and that investment, while admirable, comes at a cost. In an environment where emotional engagement is not incidental but inherent, the full spectrum of human response — joy, grief, frustration, and moral distress — is an everyday reality. Organizations that fail to acknowledge this do so at the peril of their workforce and, ultimately, their patients. It is therefore essential that healthcare organizations build robust, intentional support structures that meet employees where they are. These efforts should be thoughtfully designed and meaningfully resourced, spanning a continuum from formal wellness programs and access to mental health services to internal recognition initiatives that affirm the value of the work being done every day (Elhadi et al., 2020).

LITERATURE REVIEW

A review of recent literature about healthcare worker burnout and staffing shortages was conducted. This review showed that there are both persistent challenges and emerging solutions within healthcare organizations. The COVID-19 pandemic has expedited existing issues and led to a universal increase in burnout and turnover among healthcare professionals. Various studies have highlighted the high prevalence of this phenomenon. For instance, one study found that the COVID-19 pandemic caused 18% of healthcare workers to leave their jobs (Vries et al., 2023). Many studies suggest that nurses and other front-line workers are among the most impacted by this burnout. Additional literature states that staffing shortages will have downstream effects on patient care.

Although most scholars would agree that there are staffing issues, the causes behind this are still debated. One study points to a generational gap as one of the main reasons for staffing shortages and burnout. Perhaps COVID-19 emphasized these issues, but the underlying cause is how

generations differ. Other studies show that the lack of support from the healthcare organization and peers is the cause of the shortages. They believe that COVID-19 caused widespread mental health and wellness issues among healthcare workers, and their organization dropped the ball. Either by not addressing these concerns quickly enough or by not having better practices ahead of time.

Literature regarding financial burdens due to healthcare burnout and turnover was also reviewed. It is important to note that this paper did not intend to find the total financial cost associated with the COVID-19 crisis, just that turnover is costly to a healthcare organization. One study looked at the average cost of a nurse leaving a hospital, and the price was quite significant. When you add this dollar amount to the data that shows the number of workers leaving this industry, one can infer the financial impact that COVID-19 had on the industry.

Strategies on how to mitigate employee burnout and increase employee retention were reviewed. Several articles suggest that there is not one secret technique to reduce this, but instead support from various directions. One study indicated that healthcare organizations implement wellness programs and emotional support services. This can be used to increase coping skills to assist with some of the mental health burdens associated with front-line healthcare workers. Others suggest a closer unity of peers through a mentor-mentee type program. The program would allow two people to connect in ways that they may not have through their normal job functions. This would cause new peer relationships, a safe place to ask questions, and growth opportunities for employees.

Multiple articles state that healthcare organizations should focus more on the employees' careers in order to retain more employees. One way of doing this is to implement an onboarding program to support new hires. The organization should welcome them with open arms and help start their career on the right path. The organization should assist its employees with any long-term career goals. If the organization is willing to support and encourage continual growth for its employees, then these employees will be less likely to leave.

After reviewing several articles, it is agreed that COVID-19 led to an increase in burnout and turnover rates for healthcare workers. Although there were no studies or solutions that showed a perfect solution to higher rates, there are lots of examples of what can be done to mitigate these numbers. So, depending on the healthcare organization's size and current level of need, there are several proven options.

PROPOSED SOLUTIONS

"The cost of turnover can have a profound impact on diminishing hospital margins and needs to be managed. According to the survey, the average cost of turnover for a bedside RN is $61,110, an 8.6% increase, resulting in the average hospital losing between $3.9m – $5.7m. Each percent change in RN turnover will cost/save the average hospital an additional $289,000/yr." (NSI Nursing Solutions, Inc., 2024). Solutions to employee burnout and staffing shortages vary immensely. There are a plethora of reasons for this to happen. Therefore, most of the solutions reviewed are customizable to a certain department, specialty, education level, situation, and age. The concepts mentioned in this article are ideas that should be utilized when appropriate. This paper will focus on the employees who work on the front lines, like nurses, doctors, medical assistants, clerical workers, and housekeepers.

If burnout or staffing shortages are affecting these employees, the first place to investigate is their workplace support. Workplace support is the support given to employees from their employer to assist them in their daily functions and needs. This goes well beyond snacks and coffee in the break room. What we mean by this is what is being done to support these employees who have to support others on their worst days. These employees have conversations with patients and family members who have just had a traumatic event, are sick, or are watching a loved one go through a tough time. Patients are genuinely thankful for what they did, but these conversations take a toll on people. Therefore, healthcare organizations must support their employees through various methods.

Frontline healthcare workers deal with high-stress levels compared to the average working adult. A straightforward way to help the elevated stress levels is to let the employees know about any emotional support tools that the company offers. This may be as simple as giving out a list of therapists for healthcare professionals or healthcare workers' mental health specialists. They can provide tailored support to these employees who are at risk for burnout, compassion fatigue, anxiety, depression, or PTSD due to the nature of their work. Additionally, there should be mandated group wellness courses for employees. There are a variety of wellness programs out there to choose from. Some programs are available virtually for organizations that want to offer this to employees who are remote or hybrid. When these courses focus on empowerment and coping skills for high stress, it leads to lower turnover rates (Vries et al., 2023).

Another helpful retention tool is the use of mentorships. A nursing mentor-mentee program that is built on a reciprocal relationship has a positive impact (Vries et al., 2023). An example is when a nurse manager is paired with a nurse to meet virtually once a week for six weeks. Preferably, these two employees work at different facilities but in similar departments. The organization should give goals to accomplish during these meetings. The goals need not be too time-consuming so that this relationship will be more relationship-based. The hope is that this builds a new relationship where both parties can learn from each other through an outside perspective. Both will get to hear about how other locations or departments function, which will lead to sharing good ideas and ultimately help the organization as a whole. These outside perspectives will help with understanding the other's role, purpose, and needs, too. For example, a nurse (mentee) may not fully understand the reasoning for a new protocol from their local supervising nurse manager. Rather than ignoring the new protocol, the nurse can ask their mentor to explain everything from a different angle. On the other hand, the mentor gets to hear how directives are perceived by an employee and what support they need to do their job better.

One study found that more than 50% of newly graduated nurses quit their jobs within the first year (Vries et al., 2023). Since most of this comes from the culture shock of going from a student to a nurse, eliminating this percentage is impossible. On the contrary, this trend may get worse as time goes on. Another study showed that Generation X (1965 to 1980) and Generation Y (1981 to 1996) report more psychological stress than their Baby Boomer (1946 to 1964) counterparts (Stevanin et al., 2018). Employees are from diverse generations, geographic locations, professional backgrounds, and ethnicities, and perceive fair treatment differently. Before the 1990s, employees would remain with organizations for 20 to 30 years because they wanted to retire and collect a pension (Boyd, 2017). So, it is important to take into account your employees' specific population pool. However, adding onboarding programs can significantly reduce these rates regardless of their generation. Onboarding programs are used to transition an employee into a new job or department. This can include wellbeing programs that focus on work-life balance, options to eliminate or reduce

mandated overtime, training courses, peer-to-peer meetings to build community, or other initiatives. These processes should be utilized hand in hand with the mentor and mentee program.

Another direction that healthcare organizations need to consider is whether their employees see a reason to stay long-term. One study found that 47 percent of organizations with established career paths report “lower or much lower” voluntary turnover than organizations of similar size and industry (Decker, 2024). Therefore, organizations should offer career paths for those who want to climb up the corporate ladder. Managers should be able to discuss options that are best for their employees and map out a plan to achieve their goals. Furthermore, organizations should offer continued education programs to their employees to assist them on their path. Providing employees with opportunities for career advancement is a strong predictor of retention within organizations (Aziedjo, 2024). For example, an organization may offer tuition reimbursement for employees looking to continue their education. There are also great manager and leadership training programs that offer completion certifications. All of these would increase employee engagement and retention rates.

IMPLEMENTATION PLAN

The implementation of a workplace support system will involve a few different departments; it is recommended to make an interdepartmental committee or group that oversees this project. These departments include Human Resources, Hospital Administration, Employee Assistance Program (EAP), and mental health consultants or vendors. The first step is to conduct a staff survey to identify areas that need support. It’s essential to do this step because the administration may be unaware of what their staff needs. An anonymous survey may be helpful to those who need additional help but are hesitant to ask. For example, a hospital may give options for those struggling with depression or anxiety. However, after they conducted their survey, they found a high demand for alcohol addiction and couples therapy. These conditions may not be caused directly by work, but they will affect the employee's ability to work.

This survey will only be one data point that needs to be collected. The survey will be the data points of what the organization’s current strengths and weaknesses are. To get a broader viewpoint, the organization should try to calculate the utilization rates of previous or current mental health resources. Additionally, any past employee satisfaction and stress level scores would be insightful. Other data points that could be helpful are the total number of sick days or absences due to health conditions over the years. To get insights into past and potentially ongoing issues, exit interviews often point to weaknesses.

Once the surveys have been analyzed, it is time to find options to address your needs. Creating a list of references for mental health needs may be easy for most hospitals, as they typically have psych departments. Although it is perfectly normal to offer provider contacts that work for the same organization, it is best to offer outside resources too. Employees may feel more comfortable speaking with someone who does not work with their company. Additionally, they may be on their spouses' insurance, which means they may have insurance that your organization does not take. The first place to start is where the hospital is currently referring out to and admitting patients from their local community. Lastly, they should lean on the knowledge of their own employees, like EAP, community liaisons, nurses, medical staff, social workers, and others.

Over time, the best way to track the effectiveness of the implementation is to track a few data points. It is best to track resource usage through an internal human resources system. Although there are several companies that offer human resource assistance, it will be important to ask for this data point. Additionally, human resources should continue sending periodic surveys to track progression and current needs. Lastly, the organization's turnover rate will be a good assessment of the implementation. In all, this process should take around five to six months to implement. The first couple of months will be required to conduct the survey and assess the results. The next couple of months will be needed to research and finalize the list of resources. Then, the last months will be utilized for rollout and ongoing adjustments.

Group wellness courses will also fit into this initiative, but correspond a little differently. Human resources and the managers of the departments that will be utilizing these groups will run point. Depending on how the organization wants to go about this process determines the next steps. There are several companies that will come to your organization and operate these groups for your staff. Although this is much simpler and easier to implement, it does cost the department a pretty penny. Another alternative is that the hospital creates the curriculum on its own. This would require more time and effort from other departments like psychiatry, counseling, or EAP to create a curriculum that fits the needs of your organization.

Before creating a curriculum or hiring an outside vendor, it is important to know exactly what your team needs. Therefore, it is imperative to get some stats on what the staff is struggling with the most. One can find out this information from surveys that determine stress and burnout levels. Additionally, it would be helpful to look over any turnover or incident reports from the department. From these two data sets, one should be able to determine what areas the department needs to focus on to reduce workplace stress and burnout.

The implementation of this project should be reasonably quick, about one to three months. The first month should be used to collect the survey data and vet out vendors or create the curriculum. The next four to six weeks should be spent testing and implementing the program in one department. Once this has been completed and shown to be effective, then it must be repeated and implemented in other departments. The effectiveness of this can be calculated by attendance rates, future survey scores, and turnover rates post-implementation.

Mentorship programs are another great way to encourage camaraderie and reduce turnover. This project will be spearheaded by the administration team and all department heads who would like to participate in the program. The first step will be to design a formal mentor-mentee structure with goals to cover every week. Then the department heads will have to pair up the employees accordingly. The mentor-mentee is best from the same department and preferably from the same career path. Although this works for interdepartmental pairings, the best method is to choose two employees with similar backgrounds. The reason is that they will more likely have mutual topics or struggles to discuss, the goals translate to both job functions, the mentee can ask direct career questions to the mentor, and this builds communication across the department. Another recommendation is to connect mentees and mentors from separate locations. The distance allows them to share best practices and discuss issues freely.

The timeline to implement this program is around four to five months. The first couple of months will be used to develop the program's framework and identify participants. The following six to eight weeks will go through the program with the pilot participants. Lastly, the final weeks will be

used to evaluate the program and make any changes before launching it across all departments. The data that needs to be collected from this is retention rates for mentees and mentors, feedback from program participants, performance review improvements, and career advancements. These data points will show if the program is working and what needs to be adjusted to succeed more.

A structured onboarding program would reduce burnout and turnover of new hires. To successfully create an onboarding program, there will be several departments involved. Human Resources will be heavily involved in this process. Larger organizations may even designate specific Human Resources employees to their onboarding programs. This is mainly due to the complexity and diversity of these programs. Since all new employees must go through this, each department will need to be involved in the program's creation. This program should include a multi-week onboarding plan specifically designed for the employee's role within the healthcare organization. A portion of this program will be the same for each department. It's important to allow some flexibility or alterations by each department head. The few things that will translate across all departments are the company's mission, employment benefits, wellness programs, payroll setup, technology setup, and communication processes between departments. As for each department's specific needs, these will vary depending on the organization and what its long-term goals are. Some organizations may offer shadowing opportunities, skills labs, mandatory wellness check-ins, and mentor-mentee introductions.

To create this program, an organization should expect it to take around four months. The first half of this will be used to organize the program's standard content and offerings. The back half will be used to discuss the content needed for each department. It is also important to structure this program to address the issues that have been going on at the specific organization. Therefore, the organization should look into past data points to align this program more effectively. These data points include: 30-, 60-, and 90-day feedback from new hires, first-year turnover rates and reasons, job performance assessments, and peer feedback.

The hope is to see a trend that can be assessed and addressed through the onboarding program. For example, an organization may realize that its former employees struggled to keep up with their designated workloads. To assist with this, the healthcare organization may add mandatory time management workshops to its onboarding programs. The goal would be to establish better habits early so that the employee can complete their work in a more timely manner. To track the effectiveness of these changes, the organization should look at qualitative and quantitative feedback. Specifically, the change in turnover rate from before and after the program was established, and surveys from those involved in the program. Another interesting opinion to obtain would be from the department leaders and managers. If the program is successful, these employees should see a significant change in the quality of work from those that report to them, and hopefully, this will lead to higher patient outcomes.

Lastly, career pathways and continued education should be clearly laid out for all employees. Fitzhugh Dodson said it best when he said, "Without goals and plans to reach them, you are like a ship that has set sails with no destination." If the employer is not offering a long-term career plan, then why should they expect an employee to stay long-term? Due to this idea, an established career path will reduce turnover rates. To launch this program, an organization should get its human resources, finance, department managers, and partnership team together. The first step would be to create a clear career progression framework per department. This means that each department

should start with their lowest position and map a way to make it to their department head, which will include the minimum qualifications needed to be assessed for the next job title.

If additional education is needed, the organization should assist or, at the very least, offer a solution to get the desired level of education. Obviously, this will look different for each department, but each department should have an answer to this need. One option is to develop internal leadership training and succession programs within the company. This could include certifications, responsibilities, or optional training courses. A great example of this is CareFlite's ten-week accelerated Emergency Medical Technician (EMT) Academy (CareFlite, 2022). CareFlite is a medical transport company that offers not only ambulance services but also helicopter and plane transports as well. Their EMT Academy is a paid position that leads to full-time employment as an EMT for those who pass and get their national license.

If an internal program cannot meet the requirements for the employee to progress to their desired career, then other options should be explored. A straightforward way to help is to map out a road map with a mentor or superior. For example, if an employee starts as a medical scribe wanting to become a doctor, the hospital cannot fully supply this need internally. However, the hospital should be able to describe the process of schooling, residency, and career path options. Organizations can also help by leveraging their partnership opportunities. In this example, perhaps the hospital is associated with a university that has a medical program. The hospital can connect the employee with the correct people to help them with their goals. Healthcare organizations should also explore opportunities to assist their employees financially. This could look like certification incentives or tuition reimbursement for those who are pursuing further education in a related field to their work.

Launching a career pathway and a continued education program will take a while. The first couple of months should be utilized to conduct employee interest surveys. This would give the organization an idea of what direction their employees want to go in the future and what level of training they will need to reach their goals. After this has been determined, the organization can start mapping out the career paths for each department. Specifically, take note of what certifications or educational experience are needed. Internal education programs should be created when acceptable, and outside sources should be used when needed. Finally, leadership training should begin, and participants are encouraged to join. Depending on the size of the organization and the number of departments that are participating, this process should take around three to six months with continual adjustments ongoing.

These ongoing adjustments will be noticeable from the data gathered for this program. As mentioned, extensive surveys should be reviewed to see how many employees are interested in the program. Additionally, it would be good to know the internal promotion rates and employee engagement scores before the program's implementation. The number of exit interviews that specifically mention a lack of advancement or room for growth as their reasoning for leaving would be worth noting. These data points should be compared to those after the program has been initiated. It would also be important to do an annual talent review to monitor the number of promotions and succession readiness. This will lead to great data points for a career path progression audit to see if members are growing as expected through the program.

CONCLUSION

In conclusion, there is significant evidence to suggest that there is a healthcare staffing shortage and an increased burnout. These causes have increased since COVID-19, but they may be due to more than just this primary factor. These factors include things like generational differences, career advancements, and organizational support. Increased burnout rates not only affect the organization from a financial level, but there is support to suggest that it affects patient care, too. Therefore, there must be a call to action taken by healthcare organizations. There are several solutions to help address these issues. All of these solutions are realistic, customizable, and cost-effective in the long run. Continual evaluation and adaptation will be essential to ensure these solutions are successful.

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