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Sue Kong, Ph.D.

Adam Szpaderski, Ph.D.

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Editors of This Journal:

Sue Kong, Ph.D.
Associate Professor, College of Business
Kutztown University of Pennsylvania
United States

Adam Szpaderski, Ph.D.
Associate Professor, Department of Management
Institute of Social Sciences, SWPS University
Poland

Contents

Cross-Cultural Perspectives on Women in Leadership:
Evidence from the U.S. and Brazil

Cody Logan Chullen, East Carolina University, chullenc@ecu.edu
Dennis Barber III, East Carolina University
Flavia Cavazotte, Pontifical Catholic University of Rio de Janeiro
Tope Adeyemi-Bello, East Carolina University

ABSTRACT

This study examines how gender and national culture jointly shape perceptions of women in leadership roles, focusing on attitudes among participants from Brazil and the United States - two major economies with increasingly integrated workforces. Using the 21-item Women as Managers Scale (WAMS), survey data were collected from 1,427 individuals (1,052 from the U.S. and 375 from Brazil), the majority of whom had professional work experience. A multivariate analysis of variance (MANOVA) revealed significant differences in attitudes by gender and culture, with women and Brazilian participants consistently expressing more favorable views of female leaders. While gender emerged as a slightly stronger predictor than culture, notable interaction effects indicated that the influence of gendered leadership perceptions varies across cultural contexts. These findings offer valuable insights for organizations seeking to design culturally responsive leadership development and diversity initiatives, especially those operating across U.S.–Brazil borders. Although the sample was drawn from a university population, its high employment rate and diversity in professional roles make it a meaningful representation of the existing and emerging workforce. The study provides timely evidence on evolving leadership attitudes in two key global markets and extends prior research by highlighting how cultural norms interact with gender stereotypes to shape leadership perceptions.

KEYWORDS

Leadership, Gender, Culture, Attitudes, Perceptions, Management, Brazil, United States

Introduction

The economic and cultural ties between the United States (U.S.) and Brazil are deep and multifaceted, reflecting their status as the two largest economies in the Western Hemisphere. The U.S. is a leading source of foreign direct investment (FDI) in Brazil, holding the largest single-country stock of FDI, accounting for 29.1% of all FDI as of 2021 (U.S. Department of State, 2024). In 2023, U.S. FDI in Brazil totaled $87.9 billion, a 13.6% increase from the previous year, while Brazilian FDI in the U.S. reached $6.5 billion, a 35.3% rise from 2022 (U.S. Bureau of Economic Analysis, n.d.). This relationship has grown significantly in recent years and continues to do so, with bilateral trade reaching $92.0 billion in 2024 (Office of the United States Trade Representative, n.d.). In 2022, U.S. multinational enterprises (MNEs) operating in Brazil employed approximately 529,000 people, generating $196.3 billion in sales, while Brazilian MNEs in the U.S. employed around 104,700 people, generating $73.9 billion in sales (U.S. Bureau of Economic Analysis, n.d.). Additionally, approximately 65% of Fortune 500 companies have a presence in Brazil, including major firms like 3M, Amazon, General Motors, Intel, and Johnson & Johnson, all of which operate in both the U.S. and Brazil (Faugeres, 2023; Amcham BR-US, n.d.).

However, despite this robust economic relationship, significant gender disparities persist in both countries. In Brazil, the second largest economy in the Western Hemisphere and the eleventh largest globally (U.S. Department of State, 2024), gender inequality remains a critical challenge. For instance, women hold just 15.2% of officer, board, and fiscal council positions in publicly traded Brazilian companies, with 17.5% of these companies reporting no women on their boards (Brazilian Institute of Corporate Governance, 2023). Additionally, women in Brazil earn 19.4% less than men on average, with this gap widening to 25.2% in managerial roles (Secretariat of Social Communication, 2024).

These disparities extend to political representation and workforce participation. Despite comprising 51.5% of the population and 53% of the electorate, Brazilian women hold only 17.7% of seats in the Federal Chamber and 12.3% in the Senate (Quartucci, 2024). Furthermore, as of 2021, only 53% of women in Brazil had formal employment, compared to 72% of men, reflecting a persistent gap in job security and career advancement (Zimmerman, n.d.). Women occupy just 13% of senior leadership roles in Brazil's media industry, compared to 44% in the U.S. (Eddy et al., 2023; Pennacchio, 2023).

International comparisons further underscore these challenges. The World Economic Forum's (2024) Global Gender Gap Report ranks Brazil 70th out of 146 countries in overall gender equality, compared to 43rd for the U.S. This ranking reflects Brazil's lower scores in economic participation and opportunity (88th), educational attainment (54th), and political empowerment (74th), despite achieving a top ranking in health and survival (1st, tied). In contrast, the U.S. ranks significantly higher in economic participation (22nd) and educational attainment (1st, tied) but lags in health outcomes (77th) and political representation (63rd).

Despite these challenges, both Brazil and the U.S. remain attractive destinations for expatriates, with Brazil ranking 7th globally and the U.S. ranking 35th, according to the Expat Insider report (Bloom, 2024; InterNations, 2024). The significant volume of trade, investment, and corporate integration between these countries has created a dynamic environment where both men and women increasingly pursue international assignments. These cross-border opportunities have important implications for perceptions of leadership, as both gender and cultural norms significantly influence how leaders are evaluated in different contexts.

Given these intersecting economic, cultural, and gender dynamics, a deeper understanding of how gender and national culture shape leadership perceptions is essential. This paper seeks to contribute to this understanding by examining the complex interplay of gender, cultural expectations, and leadership perceptions in the U.S. and Brazil. The following sections will integrate psychological theories of leadership bias with cross-cultural frameworks to explore these dynamics, addressing research questions that seek to clarify the impact of gender norms and cultural context on leadership perceptions. This approach aims to provide a more nuanced understanding of the barriers women face in leadership roles and the strategies needed to overcome them.

Literature Review & Theory Development

Despite progress in gender equity, women remain underrepresented in leadership roles globally. This disparity is influenced not only by gender norms but also by the cultural environments in which leadership perceptions are formed. To understand how gender and national culture interact in shaping these perceptions, this literature review integrates psychological theories of leadership bias with cross-cultural frameworks. The study is guided by the following research questions:

RQ1: How do gender differences shape perceptions of women in leadership roles across Brazil and the U.S.?

RQ2: How do the cultural contexts in Brazil and the U.S. influence perceptions of women in leadership roles?

RQ3: How do gender and cultural context interact to influence perceptions of women in leadership roles in Brazil and the U.S.?

Gender and Leadership Perceptions

To address RQ1, the literature explores how gendered stereotypes and expectations shape evaluations of women in leadership. Role congruity theory (Eagly & Karau, 2002) posits that societal expectations of

women—communal, nurturing, deferential—conflict with stereotypical traits of effective leaders—assertive, dominant, and agentic. This incongruity results in negative evaluations of women when they seek or occupy leadership roles (Eagly & Carli, 2007; Heilman, 2012).

In Brazil, where traditional gender roles and institutionalized machismo persist, role incongruity seems particularly pronounced. Research has shown that Brazilian women in executive positions face heightened scrutiny, are less likely to be promoted, and experience significant resistance when occupying high-status roles (Huse & Solberg, 2006; Hryniewicz & Vianna, 2018). While the U.S. has made strides toward gender equality in the workplace, women leaders still encounter the "double bind"—criticized for being too assertive or too passive (Rudman & Glick, 2001). These perceptions reflect enduring stereotypes about women's competence and likability in leadership contexts.

Social role theory (Eagly, 1987) complements this framework by arguing that societal divisions of labor historically assigned communal roles to women and agentic roles to men. These expectations are reinforced through descriptive (what is) and prescriptive (what ought to be) stereotypes (Heilman, 2012). In Brazil, women leaders are often expected to be both competent and nurturing, which creates a contradictory set of expectations that can be difficult to navigate (Figueredo & Cavazotte, 2023; Huse & Solberg, 2006). In the U.S., although women are increasingly accepted in leadership positions, they still face pressures to conform to male-centric leadership norms (Koenig et al., 2011).

Social identity theory (Tajfel & Turner, 1979) provides further insight by suggesting that individuals evaluate leaders more favorably when they share salient group characteristics, such as gender. In male-dominated environments, both in Brazil and the U.S., this in-group favoritism reinforces existing power structures and limits opportunities for women (Koch et al., 2015). Similarly, the similarity-attraction paradigm (Byrne, 1971) explains that decision-makers tend to prefer and support individuals who resemble themselves demographically. In both countries, male leaders disproportionately mentor and promote other men, perpetuating gender inequality in leadership advancement (Eagly & Carli, 2007; Gerk et al., 2022; Ibarra, 1993; Carneiro & Santos, 2024) and corporate board representation (Hanashiro et al., 2024).

Cultural Contexts and Leadership Perceptions

To address RQ2, it is necessary to consider the broader cultural environments that influence leadership norms. Two foundational frameworks—Hofstede's cultural dimensions and the GLOBE study—provide cross-national tools to compare how societal values shape leadership perceptions.

Hofstede's (1980, 2001) model identifies key differences in national cultures. Brazil scores high on power distance, reflecting a cultural acceptance of hierarchical structures and authority. The U.S., by contrast, has low power distance and emphasizes individualism, promoting egalitarianism and personal achievement. These distinctions influence how leadership is defined and who is seen as fitting that role.

The GLOBE study (House et al., 2004) expands this understanding by introducing culturally endorsed leadership profiles and dimensions such as gender egalitarianism, assertiveness, and humane orientation. Brazil scores low in gender egalitarianism and moderately in assertiveness, reflecting a traditional and often paternalistic culture where leadership is closely associated with masculinity (House et al, 2004). Conversely, the U.S. ranks higher in both gender egalitarianism and assertiveness, although these values sometimes clash: women are expected to lead assertively but may face backlash when they do (Den Hartog et al., 1999; House et al., 2004).

Table 1. Cultural Comparison of Brazil & U.S.

Cultural Dimension	Brazil	U.S.	Source
Power Distance	High – hierarchical acceptance of unequal power	Low – preference for equality and flat hierarchies	Hofstede (2001)
Individualism	Low – collective identity and group loyalty	High – individual achievement and autonomy	Hofstede (2001)
Gender Egalitarianism (GLOBE)	Low – traditional gender roles remain strong	Moderate to High – more gender equality norms	House et al. (2004)
Assertiveness (GLOBE)	Moderate – indirect communication common	High – direct, competitive, and dominant behavior	House et al. (2004)
Humane Orientation (GLOBE)	Moderate – concern for others emphasized	Low to Moderate – emphasis on self-interest	House et al. (2004)

These cultural values shape expectations about how leaders should behave and influence how leadership effectiveness is interpreted. For example, in Brazil, high power distance reinforces deference to traditional authority, often disadvantaging women who challenge gendered hierarchies (Huang et al., 2020). In the U.S., while structural support for women in leadership is greater, lingering gender bias continues to affect evaluations of competence and likability (Koch et al., 2015).

Gender and Culture: Interactive Effects

RQ3 integrates the prior questions by examining how gender and cultural context jointly influence leadership perceptions. Neither gender norms nor cultural values operate in isolation; rather, they intersect to create a layered framework of expectations that can either inhibit or support women's advancement in leadership.

For example, the interaction of role congruity theory with cultural masculinity is more pronounced in Brazil, where traditional norms dictate both how women should behave and who qualifies as a legitimate leader. Brazilian women must navigate both prescriptive gender stereotypes and culturally sanctioned power hierarchies, leading to compounding disadvantages (Ibarra et al., 2013). In contrast, U.S. women may face more subtle forms of bias, such as role spillover, where cultural expectations for assertiveness clash with persistent norms about feminine warmth and likability (Rudman & Glick, 2001).

Moreover, organizational cultures shaped by national values also moderate the expression of gender stereotypes. For instance, in collectivist Brazil, group loyalty may further entrench in-group favoritism among male leaders, reducing access to mentorship and sponsorship opportunities for women (Gerk et al., 2022; Huang et al., 2020). In the U.S., individualism may increase access to opportunities, but the burden of proving leadership legitimacy often falls more heavily on women, who must continuously demonstrate competence in male-dominated spaces (Foschi, 2000).

This layered theoretical integration offers a robust lens through which to investigate the cultural contingencies of gender bias in leadership. It supports the proposition that efforts to promote gender equity must consider not only gendered expectations but also the cultural norms that reinforce or challenge them across national contexts.

Methods

Procedure

The data for this study were gathered through an opinion survey. Prospective participants received an email invitation outlining the study's purpose, which aimed to better understand job-related attitudes to enhance their future work experience. The invitation encouraged participation, assured them that their responses would remain completely confidential, and explained that the data would be sent directly to the researchers, with no access to individual responses granted to others. Both demographic and attitudinal information were collected. For demographics, participants were asked questions such as "What is your age?"; "What is your ethnicity?"; and "Are you currently employed? If so, how would you categorize your position?" Participants then filled out a questionnaire assessing their perceptions of women in managerial roles. The survey was administered electronically via Qualtrics.

Sample

Although all participants were university students, the high employment rate among them, combined with a significant number of non-traditional students (those with substantial work experience), warranted referring to them as 'workers.' In total, the study included responses from 1,052 U.S. workers (510 males, 542 females) and 375 Brazilian workers (170 males, 205 females). The participants were recruited from two institutions: (1) a large public university in the Southeastern U.S. and (2) a large private university in Southeast Brazil.

The average age of U.S. workers was 28.13 years (28.90 years for males, 27.41 years for females), while Brazilian workers averaged 25.49 years of age (25.58 years for males, 25.33 years for females). U.S. participants identified as 76.1% Caucasian, 12.3% African/African American, 4.3% Hispanic/Latino, and 7.4% from other ethnic groups. Brazilians identified as 76.3% branco (white), 13.4% pardo (brown-skinned), 6.7% preto (black), and 3.7% from other backgrounds.

To further justify the classification of participants as workers, it is worth noting that nearly 78% of U.S. participants were currently employed (43.5% in entry-level roles, 39% in supervisory or managerial positions, 2.7% in executive roles, and 14.9% in other roles). In comparison, 64% of Brazilian participants were employed. Additionally, U.S. participants were drawn from programs with a high proportion of non-traditional students—those with established work histories. Although some participants were not currently employed, as future members of the workforce approaching full-time employment, students represent a meaningful sample that reflects the future cultural and managerial landscape of organizations in their respective countries (Cordano et al., 2002).

Measures

Women as Managers Scale (WAMS)

Participants responded to 21 attitudinal statements regarding various perspectives on women in managerial roles, known as the Women as Managers Scale (WAMS) (Peters et al., 1974; Terborg et al., 1977). The scale consisted of 11 positively worded items and 10 negatively worded items (reverse coded), all rated on a 7-point Likert scale, ranging from 1 (Strongly Disagree) to 7 (Strongly Agree). Higher WAMS scores indicated more favorable attitudes towards women in managerial positions, while lower scores reflected less favorable views. Sample statements included, "It is acceptable for women to compete with men for top executive positions," "Women have the capability to acquire the necessary skills to be successful managers," and "On the average, women managers are less capable of contributing to an organization's overall goals than are men" (reverse coded). The reliability and construct validity of the WAMS have been well-documented in numerous studies (e.g., Ilgen and Moore, 1983).

To ensure the cultural equivalence of questionnaire items, a rigorous process of forward-translation and back-translation was implemented, involving multiple bilingual translators. The measure showed robust reliability overall ($\alpha = 0.89$), as well as for U.S. ($\alpha = 0.91$) and Brazilian ($\alpha = 0.77$) workers individually.

Results

First, as shown in Table 2, a Multivariate Analysis of Variance (MANOVA) was conducted to assess whether statistically significant differences existed between gender and culture groups on any individual items of the WAMS scale and the overall WAMS scale (i.e., the combined 21 items). The results revealed significant effects for gender ($F(21, 1403) = 8.16$, $p < .001$), culture ($F(21, 1403) = 8.74$, $p < .001$), and a significant interaction between gender and culture ($F(21, 1403) = 1.91$, $p < .01$).

Table 2. MANOVA for Gender and Culture Group Differences

MANOVA				
Variable	**Between-Subjects Effects**			**Partial Eta Squared**
	F	**df, error df**	**p**	
Gender	8.16	21, 1403	***	0.116
Culture	8.74	21, 1403	***	0.109
Gender X Culture	1.91	21, 1403	**	0.028

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 3 presents the mean scores and standard deviations for male and female workers, both for each individual item on the WAMS scale and for the overall WAMS scale (i.e., the combined 21 items). Univariate analyses (ANOVAs) revealed significant differences in gender on 18 of the 21 items and on the overall WAMS scale, with females expressing more favorable attitudes across all 18 items and the overall scale. These findings directly address RQ1, which asks how gender differences shape perceptions of women in leadership roles across Brazil and the U.S. The largest gender difference in mean scores was found for the item 'On average, a woman who stays at home full-time with her children is a better mother than one who works outside the home at least part-time (reverse coded),' while the smallest difference was observed for 'It is not acceptable for women to assume leadership roles as often as men (reverse coded).'

Table 4 provides the mean scores and standard deviations for workers in the U.S. and Brazil, both for each individual item on the WAMS scale and the overall WAMS scale. For the culture comparison, significant differences were found on 17 of the 21 items and on the overall scale, with Brazilian workers expressing more favorable attitudes on 15 items and the overall scale. These findings directly address RQ2, which asks how the cultural contexts in Brazil and the U.S. influence perceptions of women in leadership roles. The largest difference in mean scores between U.S. and Brazilian workers was for the item 'To be a successful executive, a woman does not have to sacrifice some of her femininity.' In contrast, the smallest differences were found for the items 'Women would no more allow their emotions to influence their managerial behavior than would men' and 'Women possess the self-confidence required of a good leader.'

Table 3. Means, Standard Deviations, and ANOVA Results by Gender

		Gender						
		Males N=680		Females N=747		Between-Subjects Effects		
	Survey Item	Mean	SD	Mean	SD	F	df, error df	p
1	It is less desirable for women than men to have a job that requires responsibility. (R)	6.01	1.35	6.15	1.42	0.00	1, 1423	n.s.
2	Women have the objectivity required to evaluate business situations properly.	6.08	1.32	6.37	1.15	8.89	1, 1423	**
3	Challenging work is more important to men than it is to women. (R)	5.73	1.54	6.33	1.18	36.33	1, 1423	***
4	Men and women should be given equal opportunity for participating in management training programs.	6.69	0.75	6.82	0.75	2.45	1, 1423	n.s.
5	Women have the capability to acquire the necessary skills to be successful managers.	6.59	0.87	6.81	0.75	14.71	1, 1423	***
6	On the average, women managers are less capable of contributing to an organization's overall goals than are men. (R)	6.26	1.28	6.70	0.76	36.01	1, 1423	***
7	It is not acceptable for women to assume leadership roles as often as men. (R)	6.37	1.15	6.48	1.22	0.58	1, 1423	n.s.
8	The business community should someday accept women in key managerial positions.	6.41	1.07	6.75	0.75	20.70	1, 1423	***
9	Society should regard work by female managers as valuable as work by male managers.	6.51	1.01	6.77	0.82	13.67	1, 1423	***
10	It is acceptable for women to compete with men for top executive positions.	6.59	0.86	6.78	0.73	5.67	1, 1423	**
11	The possibility of pregnancy does not make women less desirable employees than men.	5.34	1.87	5.91	1.74	22.75	1, 1423	***
12	Women would no more allow their emotions to influence their managerial behavior than would men.	5.14	1.79	5.58	1.66	24.28	1, 1423	***
13	Problems associated with menstruation should not make	6.11	1.36	6.63	0.98	36.50	1, 1423	***

Gender							
		Males N=680		Females N=747		Between-Subjects Effects	
	Survey Item	Mean	SD	Mean	SD	F	df, error df	p
	women less desirable than men as employees.							
14	To be a successful executive, a woman does not have to sacrifice some of her femininity.	5.94	1.48	6.26	1.45	7.82	1, 1423	**
15	On the average, a woman who stays at home all the time with her children is a better mother than a woman who works outside the home at least half time. (R)	5.32	1.75	6.31	1.24	112.12	1, 1423	***
16	Women are less capable of learning mathematical and mechanical skills than are men. (R)	6.36	1.19	6.73	0.88	22.65	1, 1423	***
17	Women are not ambitious enough to be successful in the business world. (R)	6.26	1.42	6.68	1.08	22.65	1, 1423	***
18	Women cannot be assertive in business situations that demand it. (R)	6.35	1.14	6.71	0.82	24.68	1, 1423	***
19	Women possess the self-confidence required of a good leader.	6.14	1.23	6.56	0.92	36.37	1, 1423	***
20	Women are not competitive enough to be successful in the business world. (R)	5.99	1.59	6.48	1.27	25.03	1, 1423	***
21	Women cannot be aggressive in business situations that demand it. (R)	6.15	1.35	6.57	0.92	24.27	1, 1423	***
-	*Overall WAMS Scale (all 21 items combined)*	6.11	0.81	6.49	0.51	63.61	1, 1423	***

* p < .05, ** p < .01, *** p < .001

Table 4. Means, Standard Deviations, and ANOVA Results by Culture

Culture							
		US N=1052		Brazil N= 375		Between-Subjects Effects	
	Survey Item	Mean	SD	Mean	SD	F	df, error df	p
1	It is less desirable for women than men to have a job that requires responsibility. (R)	6.01	1.34	6.28	1.51	11.83	1, 1423	***

Culture							
		US N=1052		Brazil N= 375		Between-Subjects Effects		
	Survey Item	Mean	SD	Mean	SD	F	df, error df	p
2	Women have the objectivity required to evaluate business situations properly.	6.12	1.31	6.53	0.96	30.19	1, 1423	***
3	Challenging work is more important to men than it is to women. (R)	5.96	1.42	6.28	1.30	15.43	1, 1423	***
4	Men and women should be given equal opportunity for participating in management training programs.	6.72	0.79	6.86	0.63	9.80	1, 1423	***
5	Women have the capability to acquire the necessary skills to be successful managers.	6.66	0.86	6.83	0.68	12.55	1, 1423	***
6	On the average, women managers are less capable of contributing to an organization's overall goals than are men. (R)	6.41	1.10	6.72	0.91	23.67	1, 1423	***
7	It is not acceptable for women to assume leadership roles as often as men. (R)	6.36	1.20	6.62	1.13	13.40	1, 1423	***
8	The business community should someday accept women in key managerial positions.	6.55	0.97	6.71	0.79	8.72	1, 1423	***
9	Society should regard work by female managers as valuable as work by male managers.	6.57	1.01	6.86	0.58	29.11	1, 1423	***
10	It is acceptable for women to compete with men for top executive positions.	6.64	0.85	6.82	0.62	14.82	1, 1423	***
11	The possibility of pregnancy does not make women less desirable employees than men.	5.57	1.82	5.82	1.83	4.85	1, 1423	**
12	Women would no more allow their emotions to influence their managerial behavior than would men.	5.38	1.72	5.32	1.78	0.68	1, 1423	n.s.
13	Problems associated with menstruation should not make women less desirable than men as employees.	6.31	1.23	6.58	1.12	14.90	1, 1423	***
14	To be a successful executive, a woman does not have to sacrifice some of her femininity.	5.97	1.51	6.49	1.26	35.07	1, 1423	***
15	On the average, a woman who stays at home all the time with her children is a better mother than a woman who works outside the home at least half time. (R)	5.81	1.57	5.91	1.64	0.58	1, 1423	n.s.
16	Women are less capable of learning mathematical and mechanical skills than are men. (R)	6.51	1.07	6.69	0.98	8.12	1, 1423	**

	Culture						
		US N=1052		Brazil N= 375		Between-Subjects Effects		
	Survey Item	Mean	SD	Mean	SD	F	df, error df	p
17	Women are not ambitious enough to be successful in the business world. (R)	6.55	1.05	6.28	1.74	12.68	1, 1423	***
18	Women cannot be assertive in business situations that demand it. (R)	6.48	1.02	6.71	0.93	16.03	1, 1423	***
19	Women possess the self-confidence required of a good leader.	6.35	1.07	6.41	1.18	0.67	1, 1423	n.s.
20	Women are not competitive enough to be successful in the business world. (R)	6.33	1.21	6.02	1.95	13.17	1, 1423	***
21	Women cannot be aggressive in business situations that demand it. (R)	6.35	1.16	6.42	1.19	1.04	1, 1423	n.s.
-	*Overall WAMS Scale (all 21 items combined)*	6.27	0.75	6.44	0.52	17.15	1, 1423	***

* p < .05, ** p < .01, *** p < .001

Finally, Table 5 presents the results for the interaction between gender and culture, revealing significant differences on 11 of the 21 items and on the overall WAMS scale. These findings directly address RQ3, which explores how gender and cultural context interact to influence perceptions of women in leadership roles in Brazil and the U.S., suggesting that the relationship between gender and attitudes toward women in managerial roles varies across cultural contexts.

Table 5. Means, Standard Deviations, and ANOVA Results by Gender X Culture

Survey Item	Gender X Culture										
	US Males N= 510		US Females N= 542		Brazilian Males N = 170		Brazilian Females N= 205		Between-Subjects Effects		
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	F	df, error df	p
1	5.87	1.35	6.15	1.31	6.44	1.26	6.16	1.68	11.59	1, 1423	***
2	5.95	1.37	6.29	1.23	6.48	1.06	6.57	0.87	2.89	1, 1423	n.s.
3	5.60	1.58	6.29	1.16	6.12	1.37	6.42	1.22	5.49	1, 1423	*
4	6.63	0.81	6.81	0.75	6.88	0.48	6.84	0.73	6.38	1, 1423	*
5	6.53	0.89	6.77	0.81	6.76	0.81	6.89	0.54	1.18	1, 1423	n.s.
6	6.16	1.31	6.65	0.79	6.58	1.13	6.83	0.66	3.85	1, 1423	*
7	6.27	1.19	6.45	1.20	6.65	0.95	6.59	1.27	2.92	1, 1423	n.s.
8	6.33	1.13	6.76	0.74	6.67	0.81	6.74	0.77	10.62	1, 1423	***
9	6.40	1.09	6.73	0.89	6.82	0.57	6.90	0.59	4.98	1, 1423	*
10	6.51	0.94	6.77	0.74	6.84	0.50	6.80	0.71	9.88	1, 1423	**
11	5.25	1.85	5.87	1.73	5.59	1.88	6.01	1.77	0.88	1, 1423	n.s.
12	5.20	1.76	5.56	1.68	4.96	1.89	5.62	1.62	2.17	1, 1423	n.s.
13	5.99	1.40	6.61	0.94	6.46	1.15	6.69	1.09	7.79	1, 1423	**
14	5.78	1.52	6.15	1.49	6.42	1.22	6.54	1.30	2.08	1, 1423	n.s.
15	5.30	1.74	6.30	1.21	5.40	1.82	6.33	1.33	0.13	1, 1423	n.s.
16	6.27	1.23	6.73	0.85	6.61	1.00	6.75	0.96	6.75	1, 1423	**
17	6.29	1.24	6.79	0.75	6.16	1.85	6.38	1.64	3.59	1, 1423	n.s.
18	6.25	1.17	6.69	0.79	6.63	0.99	6.78	0.88	5.80	1, 1423	*
19	6.12	1.19	6.56	0.90	6.22	1.36	6.57	0.98	0.47	1, 1423	n.s.
20	6.03	1.40	6.61	0.92	5.87	2.05	6.15	1.87	2.99	1, 1423	n.s.
21	6.09	1.35	6.60	0.87	6.33	1.34	6.50	1.05	6.23	1, 1423	*
Overall	6.04	0.87	6.48	0.52	6.33	0.56	6.53	0.47	9.31	1, 1423	**

* $p < .05$, ** $p < .01$, *** $p < .001$

Given the significant interaction between gender and culture on 11 items and the overall WAMS scale, a series of simple main effects analyses were conducted to further explore these relationships (see Table 6). These analyses revealed statistically significant differences in mean scores between U.S. male and U.S. female workers on all 11 items and the overall WAMS scale, with females consistently showing more favorable attitudes toward women in managerial roles than males. Differences were also found between U.S. male and Brazilian male workers on 10 of the 11 items and the overall scale, with Brazilian males showing more favorable attitudes than U.S. males. Similarly, Brazilian females demonstrated more favorable attitudes toward women in managerial roles than U.S. males on 10 of the 11 items and the overall scale. However, between U.S. female and Brazilian male workers, a significant difference emerged on only 1 of the 11 items, with U.S. females showing more favorable attitudes, while no differences were observed on the overall scale.

No significant differences were found between U.S. female and Brazilian female workers on any individual items or the overall scale. Lastly, Brazilian females showed more favorable attitudes toward women in managerial roles compared to Brazilian males, but only on the overall WAMS scale, with no significant differences on individual items.

Table 6. Main Effect Analyses for Gender X Culture

	Gender X Culture						
	Survey Item	US Males vs. US Females	US Males vs. Brazilian Males	US Males vs. Brazilian Females	US Females vs. Brazilian Males	US Females vs. Brazilian Females	Brazilian Males vs. Brazilian Females
1	It is less desirable for women than men to have a job that requires responsibility. (R)	**	***	n.s.	n.s.	n.s.	n.s.
3	Challenging work is more important to men than it is to women. (R)	***	***	***	n.s.	n.s.	n.s.
4	Men and women should be given equal opportunity for participating in management training programs.	***	***	**	n.s.	n.s.	n.s.
6	On the average, women managers are less capable of contributing to an organization's overall goals than are men. (R)	***	***	***	n.s.	n.s.	n.s.
8	The business community should someday accept women in key managerial positions.	***	***	***	n.s.	n.s.	n.s.
9	Society should regard work by female managers as valuable as work by male managers.	***	***	***	n.s.	n.s.	n.s.
10	It is acceptable for women to compete with men for top executive positions.	***	***	***	n.s.	n.s.	n.s.
13	Problems associated with menstruation should not make women less desirable than men as employees.	***	***	***	n.s.	n.s.	n.s.
16	Women are less capable of learning mathematical and mechanical skills than are men. (R)	***	***	***	n.s.	n.s.	n.s.
18	Women cannot be assertive in business situations that demand it. (R)	***	***	***	n.s.	n.s.	n.s.
21	Women cannot be aggressive in business situations that demand it. (R)	***	n.s.	***	*	n.s.	n.s.
-	*Overall WAMS Scale (all 21 items combined)*	***	***	***	n.s.	n.s.	*

* p < .05, ** p < .01, *** p < .001

Partial eta squared was used to assess the magnitude of effects for the gender, culture, and gender by culture (i.e., interaction) variables. Partial eta squared is a measure of effect size that reflects the proportion of total variance in a dependent variable explained by the variation in an independent variable. According to Cohen (1988), an eta squared value of > .14 indicates a large effect, between .06 and .13 indicates a medium effect, and between .01 and .05 indicates a small effect. The partial eta squared for gender (.116) was slightly higher than for culture (.109), and nearly four times larger than for the gender by culture interaction (.028). Similarly, the partial eta squared for gender on the overall WAMS scale was greater than that for culture, while the effect of culture was greater than the gender by culture interaction. These results suggest that gender exerts a stronger influence on attitudes toward women as managers than cultural differences between the U.S. and Brazil. However, cultural differences between the U.S. and Brazil still have a greater influence than the combined effect of gender and culture taken together (e.g., comparing U.S. male workers to Brazilian male workers).

Discussion & Conclusion

In this study, we examined the influence of gender and cultural context on perceptions of women in leadership roles, focusing on participants from Brazil and the United States. The results indicate that gender significantly shapes attitudes toward female leaders: across both countries, women consistently expressed more favorable views of women in managerial positions than men. Cultural context also played a notable role, with Brazilian participants reporting more positive attitudes toward women in leadership compared to their U.S. counterparts. Further analysis of the interaction between gender and nationality revealed that U.S. females and Brazilian participants of both genders held more favorable perceptions of women leaders than U.S. males, while few significant differences were observed between U.S. females and Brazilian respondents, regardless of gender. Overall, gender emerged as a slightly stronger predictor of attitudes than culture, although both factors exhibited medium effect sizes. The interaction between gender and culture, while present, demonstrated a comparatively smaller effect.

Our findings underscore the influence of both gender and cultural context on attitudes toward women in leadership roles. Consistently less favorable perceptions among U.S. male participants, compared to females in both countries and Brazilian males, suggest a persistent gender-based bias in leadership evaluations within the U.S. sample, in line with role congruity theory (Eagly & Karau, 2002). In contrast, the more favorable evaluations provided by Brazilian males complicate expectations derived from broader cultural indicators, such as Brazil's higher power distance and lower gender egalitarianism scores reported in the Hofstede and GLOBE frameworks. These findings suggest that the manifestation of gender bias in leadership perceptions is not uniform across cultural settings and that cultural factors may moderate the expression of gender stereotypes in context-specific ways.

Additionally, the gender gap in leadership attitudes was more pronounced in the United States than in Brazil, where male and female evaluations were more similar. This pattern indicates that gender-based stereotypes about leadership may be less differentiated in the Brazilian context, challenging universalist applications of social role theory (Eagly, 1987) and social identity theory (Tajfel & Turner, 1979). While demographic similarity (e.g., shared gender) may influence attitudes, the findings suggest that broader cultural norms – such as collectivism and preferences for relationship-oriented leadership – may mitigate these effects. Such patterns point to the importance of considering national culture when assessing psychological mechanisms that drive leadership evaluations, particularly those related to gender.

For multinational corporations operating in both the U.S. and Brazil, these findings underscore the importance of culturally tailored approaches to leadership development and diversity initiatives. The more favorable attitudes of Brazilian employees toward women in managerial roles – despite cultural indicators indicating otherwise – suggest that U.S.-designed diversity programs may require adaptation for effective implementation in Brazil. Additionally, the pronounced gap between U.S. male and female attitudes points to a need for targeted interventions, particularly among U.S. male employees, who expressed the least favorable views of women leaders. Rather than adopting uniform, global strategies, organizations should consider developing gender- and culture-specific training programs that address the distinct biases observed across demographic groups.

These findings carry important implications for cross-border talent management and expatriate preparation. U.S. female executives relocating to Brazil may encounter more supportive attitudes than cultural stereotypes would predict, potentially enhancing their leadership effectiveness. In contrast, Brazilian women in leadership roles may face greater resistance in U.S. settings, particularly from male colleagues. Human resource professionals should integrate these gender–culture dynamics into expatriate training and succession planning. Given the stronger effect of gender relative to culture, efforts to mitigate gender-based bias should be prioritized, while also accounting for how such biases manifest differently across national contexts.

Nevertheless, some methodological limitations should be considered when interpreting these findings. First, although the student sample included many employed participants with work experience, it may not fully reflect the broader workforce in either country, particularly at senior leadership levels, where gender biases may differ. Second, the use of self-reported attitudes introduces the possibility of social desirability bias, especially in cultural contexts with strong normative commitments to gender equality. The study design also limits the ability to draw causal conclusions about the development of attitudes over time or in response to shifting social norms. Additionally, the smaller Brazilian sample relative to the U.S. sample may have reduced statistical power to detect subtle interaction effects.

Future research could build on these findings in several important directions. First, longitudinal studies examining how attitudes toward women in leadership evolve within different cultural contexts would provide insight into the temporal dynamics of gender bias. Second, investigating intersectional identities—such as race, age, and socioeconomic status—would offer a more nuanced understanding of how multiple social categories jointly influence leadership evaluations. Third, experimental designs that manipulate leadership behaviors could assess whether identical actions are perceived differently depending on the leader's gender and cultural background. Finally, examining the moderating role of organizational culture in shaping or mitigating national-level biases would clarify how companies can more effectively promote gender equity in leadership across diverse cultural environments. Such research would advance theoretical frameworks and provide actionable insights for multinational organizations seeking to foster inclusive leadership globally.

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Higher Education Leadership: The Faculty Response to Artificial Intelligence Usage by Students

Max Marc, Black Hills State University, max.marc@bhsu.edu

ABSTRACT

The availability of Artificial Intelligence (AI) has caused apprehension among higher education faculty concerning its use by students for academic assignments. This apprehension is centered on academic integrity, the cultivation of critical thinking, and wider ethical considerations; with many educators indicating they feel ill-equipped to manage this technological shift. In addressing this, institutions have predominantly concentrated on AI ethics education. There is, however, a scarcity of robust empirical evidence to suggest that AI ethics education effectively dissuades students from using AI for academic expediency; particularly when confronted with significant incentives such as efficiency and improvement of grades.

This paper posits the necessity for a pragmatic shift in perspective, arguing that AI represents an evolving educational landscape that requires adaptation rather than prohibition. An 'AI-First' approach is advocated, where it is assumed that students will partner with AI to learn, and to do their assignments and exams. This necessitates a fundamental redesign of curricula and assessment methodologies to presume and strategically integrate student collaboration with AI. Such an approach seeks to cultivate future-ready competencies and prepare students for a professional environment where AI proficiency is increasingly crucial.

Historical precedents of technological disruptions in education, such as the introduction of laptops in the classroom and online learning, reveal a pattern of initial "tech panic" succeeded by eventual adaptation and integration. The current concerns surrounding AI will follow a similar trajectory. By reframing AI as an empowering instrument for democratizing skills and augmenting human capabilities, higher education can progress beyond reactive measures. This paper contends that endeavors to police student AI-use represent an untenable long-term strategy. Instead, the focus ought to be on fostering an educational ecosystem wherein AI is leveraged constructively, enabling universities to adjust, adapt, and sustain their core mission of preparing students for a complex, AI-suffused future.

Introduction

In October 2024, the faculty union of the California State University system, one of the largest university systems in the U.S., released a document containing the following statement (California Faculty Association, 2024):

> "… the California Faculty Association will fight to protect
> academic labor from the incursion of AI…"

The adoption of generative Artificial Intelligence (AI) tools by students marks a watershed moment for higher education, requiring a critical reassessment of established pedagogical strategies and methods of assessment. This transformative development has engendered significant apprehension among faculty members. Principal concerns revolve around the potential erosion of academic integrity as students utilize AI for assignments, the conceivable detrimental impacts on the development of essential student learning processes and critical thinking faculties, and the broader ethical questions that student AI usage introduces. Moreover, many educators articulate a sense of unpreparedness, citing a deficiency in comprehensive institutional guidance and the requisite technical skills to adapt effectively. These anxieties are of such a magnitude that they prompt questions regarding the future viability of the traditional university model itself.

This paper, however, proposes a pragmatic and optimistic reframing of the discourse pertaining to student AI use, contending that an emphasis on restriction and prohibition will be ineffective and may obscure the potential advantages of these technologies. Through an examination of historical precedents of technological disruption within education, an analysis of stakeholder incentives using a game-theoretic framework, and by drawing parallels with the integration of AI in professional contexts, this article puts forth that an 'AI-First' approach is not only more practical but ultimately more beneficial. Such a paradigm shift entails a fundamental redesign of curricula and assessment methodologies to assume and strategically incorporate student collaboration with AI, thereby fostering vital future-ready competencies and equipping students for a workforce where AI proficiency, and collaboration with AI, will be required.

Ultimately, this paper aims to shift the conversation from one centered on threat mitigation to one focused on maximizing opportunities. It explores AI not merely as a challenge to academic norms, but as a potentially empowering agent capable of democratizing access to skill development and augmenting overall human capabilities. The imperative for higher education institutions, therefore, is to move beyond what can be characterized as an unwinnable game of policing student AI use. Instead, the emphasis should be on cultivating an educational ecosystem where a primary assumption is that, like it or not, students will use AI to learn, and to do their assignments and exams. Changes to curricula and teaching methods must be made such that through their inevitable use of AI, students develop the agency, critical engagement skills, and self-discipline necessary to leverage AI constructively. This perspective champions the thoughtful and strategic integration of AI to enhance, rather than diminish, the core mission of higher education: preparing students for a complex future wherein collaboration with intelligent technologies will be an integral aspect of professional and intellectual life.

Faculty Concerns about AI Usage by Students

Students use AI in various ways to help them achieve an improved course grade. This has ignited a spectrum of pedagogical and ethical questions within higher education, with faculty members expressing distinct concerns regarding student utilization of these potent new tools (Bond et al., 2024; Wang et al., 2024). These apprehensions are widely held; for instance, 95% of institutional leaders foresee increased issues surrounding academic integrity due to generative AI (Elon University & AAC&U, 2024).

A primary and immediate concern for faculty centers on academic integrity, particularly the employment of generative AI tools by students for the completion of assignments (Bond et al., 2024). This concern is highlighted by findings that 24% of students already use AI to generate first drafts of their work (Digital Education Council, 2024), and 59% of university leaders report an observable rise in cheating since AI tools became broadly accessible (Elon University & AAC&U, 2024). Consequently, half of all faculty members believe that it is necessary to redesign current assignments to be more "AI resistant" (Digital Education Council, 2025). This unease is also mirrored among students, with 35% of Harvard undergraduates expressing worry that their peers will use AI to secure an unfair academic advantage (Hirabayashi et al., 2024).

Beyond academic dishonesty, faculty are apprehensive about the potential adverse impacts of AI on student learning processes and outcomes. A significant 82% of faculty are concerned about students becoming over-reliant on AI tools (Digital Education Council, 2025). This concern is shared by students; 52% of students themselves concede that over-reliance on AI tools could negatively affect their academic performance (Digital Education Council, 2024). This over-reliance may manifest in behaviors such as diminished engagement with course material; for example, approximately a quarter of Harvard undergraduates using AI report being less inclined to complete required readings, opting instead for AI-generated summaries (Hirabayashi et al., 2024). Such trends fuel faculty fears that students may not cultivate deep analytical capabilities or internalize fundamental concepts. Furthermore, with 83% of faculty concerned about students' ability to critically assess AI outputs (Digital Education Council, 2025) and 90% of institutional leaders viewing diminished student learning outcomes as a significant challenge in AI adoption (Elon University & AAC&U, 2024), the imperative for educators to guide students in responsibly using and critically evaluating AI-generated information becomes paramount (Wang et al., 2024).

The ethical challenges posed by student AI use extend further, encompassing broader issues of data privacy, algorithmic bias, and student autonomy, all of which intersect with faculty responsibilities (Wang et al., 2024; Bond et al., 2024). Compounding these concerns is the matter of faculty preparedness and often inadequate institutional frameworks. Many educators report a deficiency in technical skills and uncertainty regarding pedagogical strategies for effectively integrating AI in response to student use (Wang et al., 2024; Bond et al., 2024). This difficulty is amplified by the fact that 80% of faculty do not find their institution's AI guidelines for teaching comprehensive enough, and a similar proportion feel their institution has not clearly communicated how AI can or cannot be used (Digital Education Council, 2025). This prevailing lack of clarity and preparedness can intensify faculty anxieties regarding the management of student AI usage. It underscores the urgent necessity for significant efforts in curriculum redesign and robust professional development to equip faculty to navigate this evolving and complex educational landscape (Bond et al., 2024; Crompton & Burke, 2023).
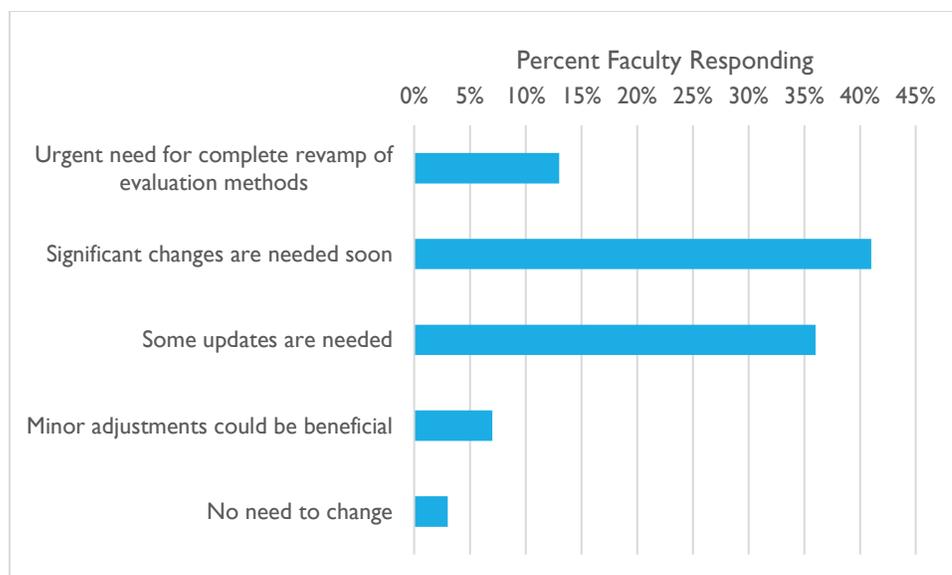

Faculty view on the need to update student evaluation methods due to AI (Digital Education Council, 2025)

Violation of the social contract

Use of AI by students to do their assignments and exams poses a considerable challenge to the implicit social contract established between educational institutions, students, and future employers. When students employ AI to complete assignments, particularly without genuine engagement with the material, they risk circumventing the learning process itself (Vieriu & Petrea, 2025). This practice, identified as a form of

academic dishonesty, can result in a deficit in acquired knowledge and, crucially, underdeveloped critical thinking and problem-solving skills (Vieriu & Petrea, 2025). Employers operate on the presumption that graduates possess a certain level of competence and knowledge commensurate with their qualifications. If students graduate lacking these foundational abilities due to an over-reliance on AI for coursework (Vieriu & Petrea, 2025), this undermines the value of their credentials and breaches the trust inherent in the social contract, potentially contributing to a skills gap in the workforce (Kenan Institute of Private Enterprise, 2025).

This scenario simultaneously creates an ethical dilemma concerning the fair assessment and reward of student effort and knowledge. If AI tools can be leveraged to inflate grades or complete assignments with minimal student input, traditional metrics of academic achievement, such as Grade Point Averages (GPAs), become unreliable indicators of a student's actual learning or capabilities (Sallam, 2023). This devalues the diligent work of students who engage authentically with their studies and endeavor to develop their understanding without undue reliance on AI. The study by Vieriu and Petrea (2025) found that a notable percentage of students acknowledge the potential for AI to "encourage cheating, as it makes tasks too easy" (p. 9). This situation calls into question the integrity of assessment processes and the equitable recognition of genuine academic merit (Bearman et al., 2024). Addressing how to ethically reward student effort in an environment where AI can obscure authentic learning represents a critical challenge for educational institutions aiming to uphold academic integrity and the meaningfulness of academic qualifications.
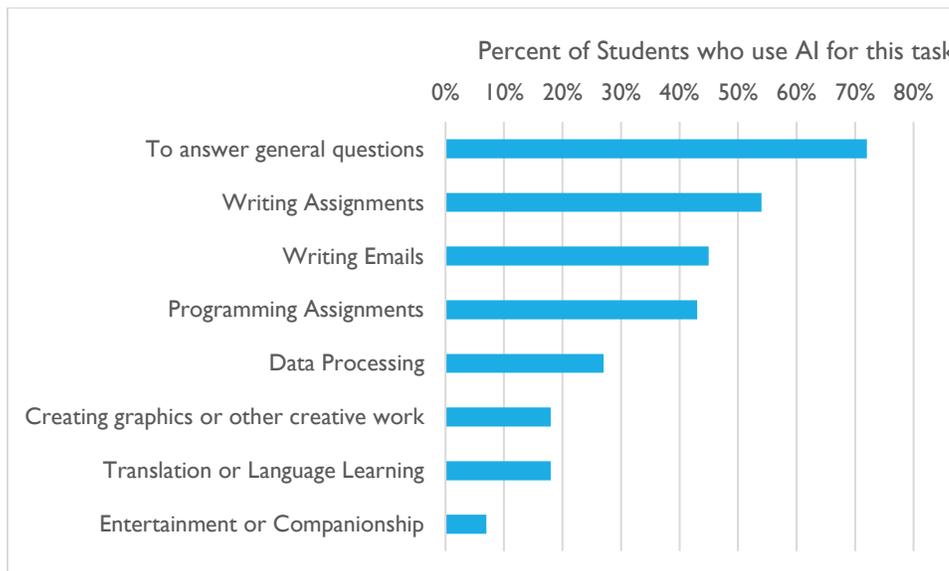
Primary Purposes of Generative AI use by Students (Hirabayashi et al., 2024)
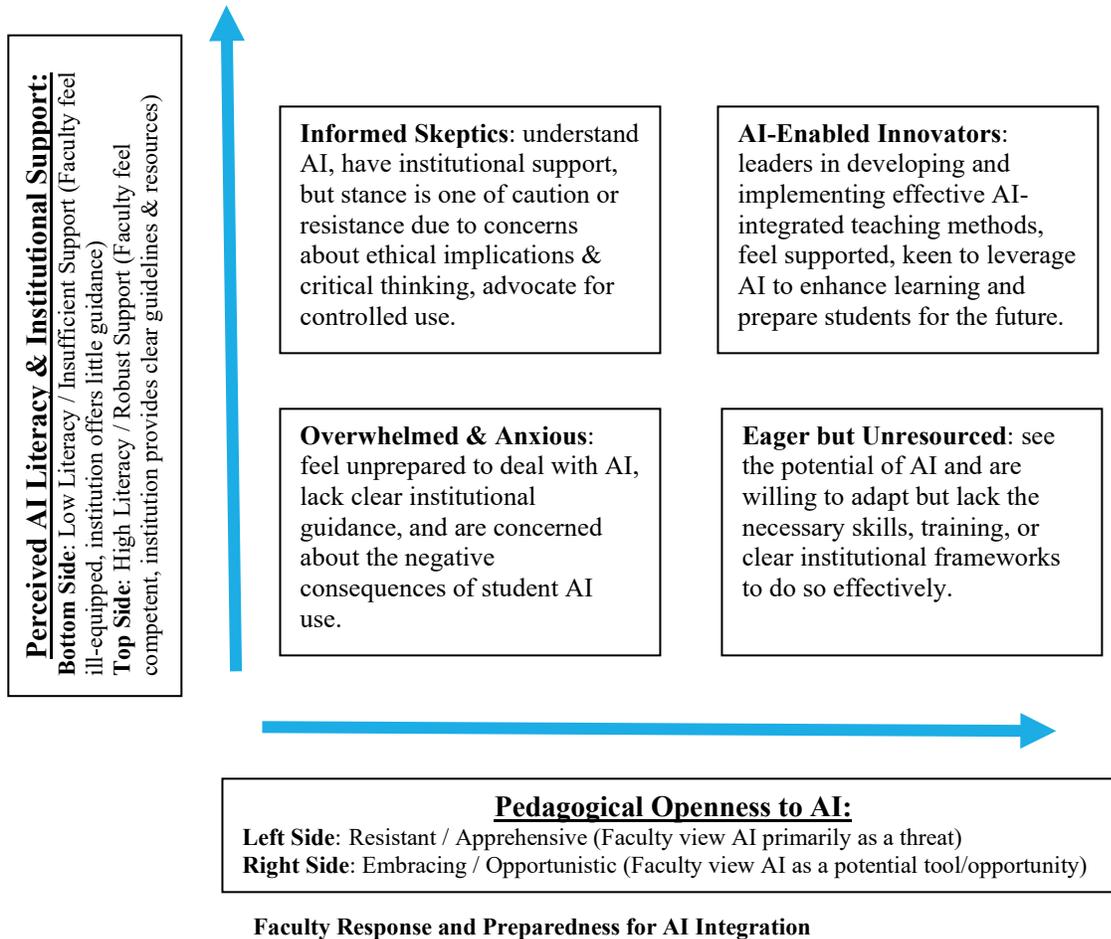
Students' need for mental effort in learning

Students' use of AI to help with their deliverables, while offering efficiency, may inadvertently diminish the mental effort crucial for deep learning. Psychological theories underscore that certain cognitive struggles are instrumental for understanding and skill acquisition. Cognitive Load Theory, for instance, suggests that learning is optimized when tasks appropriately challenge working memory; should AI excessively simplify tasks, it may fail to stimulate the mental work necessary for schema development (Sweller, 1988; Sweller, van Merriënboer, & Paas, 1998). Similarly, Vygotsky's concept of scaffolding involves temporary support that is progressively withdrawn as learners internalize knowledge (Vygotsky, 1978). If AI consistently furnishes answers, students may forgo the opportunity to build independent problem-solving skills. Vieriu and Petrea's (2025) study indicates students themselves identify challenges such as "over-reliance on AI, diminished critical thinking skills", with 16.5% worried about AI's negative impact on critical thinking and another 16.5% concerned about becoming overly dependent on technology.

Furthermore, Embodied Cognition theory posits that cognitive processes are linked to physical interactions with the world, rendering sensory experiences integral to learning (Wilson, 2002; Shapiro, 2019). Consider the abacus; its physical manipulation is believed to aid users in conceptualizing numbers and operations, even to the extent of forming a mental abacus (Stigler, 1984; Hatano, Miyake, & Binks, 1977). This contrasts with calculators, which, if utilized without comprehension, can function as a "black box," providing answers without revealing the underlying processes (Brown, 2000). If AI tools excessively automate research, writing, or problem-solving, they might eliminate the effortful cognitive engagement necessary for genuine knowledge retention.

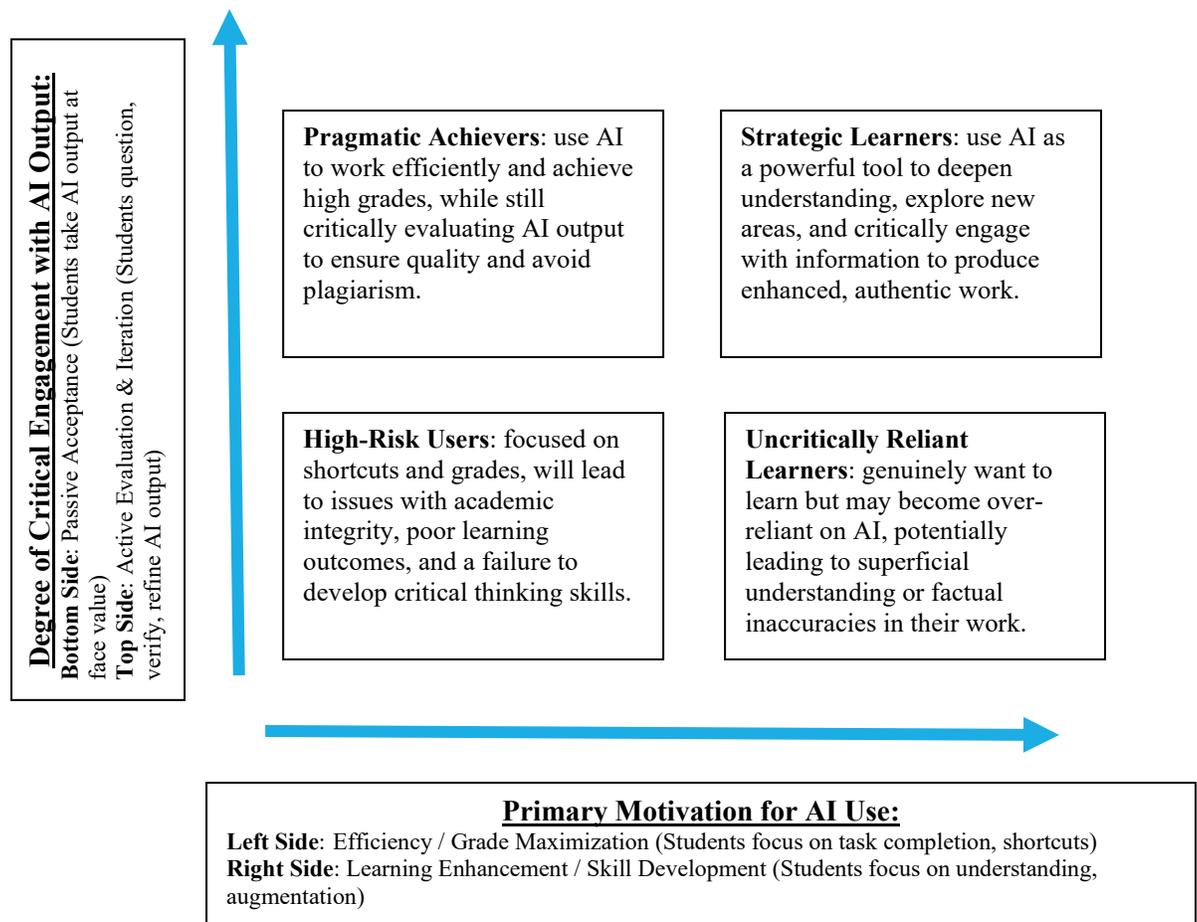### Fear of the end of the university system

The swift development and growing sophistication of AI have stirred profound anxieties among various stakeholders concerning the future viability of the university system in its traditional form. A considerable segment of the academic community perceives AI not merely as an instrument for pedagogical enhancement or research acceleration, but as a disruptive force possessing the potential to fundamentally dismantle established educational structures and practices (Selwyn, 2019). This apprehension is particularly acute among faculty, who harbor legitimate concerns regarding the devaluation of their expertise, the automation of core academic tasks such as lecturing and assessment, and, consequently, the specter of widespread job displacement. Such fears resonate with historical precedents wherein technological innovation has precipitated significant labor market disruptions. For instance, the invention and dissemination of the printing press in the 15th century, while revolutionizing access to information and fostering intellectual ferment, simultaneously rendered the centuries-old profession of the scribe largely obsolete, compelling a painful societal and economic adjustment for those whose livelihoods were contingent on manual transcription (Eisenstein, 1980).

The prospect of a radically altered or diminished university system extends beyond the immediate concerns of academic staff, prompting broader societal unease about the potential erosion of an institution that has historically served as a cornerstone of intellectual development, critical inquiry, and socio-economic advancement (Altbach et al., 2009). Universities have long been entrusted with cultivating informed citizens, generating foundational knowledge, and credentialing professionals across myriad fields. Should this system undergo a precipitous decline due to AI-driven transformations, a significant vacuum may emerge, with considerable uncertainty surrounding the nature and efficacy of whatever alternatives might arise to fulfill these crucial societal functions. This contemporary trepidation mirrors the anxieties of earlier eras of technological upheaval, such as those expressed by the Luddites in early 19th-century England. These skilled textile artisans, confronted with the proliferation of automated looms and weaving machinery, engaged in organized resistance, not merely out of an irrational fear of technology, but from a profound concern for their livelihoods, the integrity of their craft, and the social fabric of their communities, which they perceived as existentially threatened by industrial mechanization (Jones, 2006). The Luddites' actions underscore the deep-seated human response to technological changes that threaten established socio-economic orders and the sense of insecurity they furnish.

The diagram shows a 2x2 matrix framework.

Perceived AI Literacy & Institutional Support:
Bottom Side: Low Literacy / Insufficient Support (Faculty feel ill-equipped, institution offers little guidance)
Top Side: High Literacy / Robust Support (Faculty feel competent, institution provides clear guidelines & resources)

Informed Skeptics: understand AI, have institutional support, but stance is one of caution or resistance due to concerns about ethical implications & critical thinking, advocate for controlled use.

AI-Enabled Innovators: leaders in developing and implementing effective AI-integrated teaching methods, feel supported, keen to leverage AI to enhance learning and prepare students for the future.

Overwhelmed & Anxious: feel unprepared to deal with AI, lack clear institutional guidance, and are concerned about the negative consequences of student AI use.

Eager but Unresourced: see the potential of AI and are willing to adapt but lack the necessary skills, training, or clear institutional frameworks to do so effectively.

Pedagogical Openness to AI:
Left Side: Resistant / Apprehensive (Faculty view AI primarily as a threat)
Right Side: Embracing / Opportunistic (Faculty view AI as a potential tool/opportunity)

Faculty Response and Preparedness for AI Integration

Beyond Good Intentions: The Ineffectiveness of AI Ethics Education in Deterring Students' use of AI to do Assignments

In response to pervasive use of AI by students within academic settings, higher education institutions have championed AI ethics education as a primary strategy to address concerns surrounding academic integrity and responsible student usage (Chan & Tsi, 2023; Lo, 2024). These initiatives are tasked with the burden of discouraging students from circumventing learning objectives by leveraging AI to complete assignments and examinations. However, the reliance on ethics education as a principal deterrent mechanism warrants closer scrutiny, particularly when confronted with the tangible benefits offered to students by AI for completing academic tasks.

Degree of Critical Engagement with AI Output:
Bottom Side: Passive Acceptance (Students take AI output at face value)
Top Side: Active Evaluation & Iteration (Students question, verify, refine AI output)

Pragmatic Achievers: use AI to work efficiently and achieve high grades, while still critically evaluating AI output to ensure quality and avoid plagiarism.

Strategic Learners: use AI as a powerful tool to deepen understanding, explore new areas, and critically engage with information to produce enhanced, authentic work.

High-Risk Users: focused on shortcuts and grades, will lead to issues with academic integrity, poor learning outcomes, and a failure to develop critical thinking skills.

Uncritically Reliant Learners: genuinely want to learn but may become over-reliant on AI, potentially leading to superficial understanding or factual inaccuracies in their work.

Primary Motivation for AI Use:
Left Side: Efficiency / Grade Maximization (Students focus on task completion, shortcuts)
Right Side: Learning Enhancement / Skill Development (Students focus on understanding, augmentation)

Students, AI Use, and Academic Goals

A significant challenge to the presumed efficacy of AI ethics education as a deterrent is the conspicuous absence of robust empirical evidence directly linking such instruction to a measurable decrease in students' academically expedient use of AI. Whereas developing ethical digital citizenship awareness is an undeniably valuable educational outcome (Facer & Selwyn, 2021), translating this awareness into behavioral modification, especially when pitted against strong countervailing incentives, is a complex endeavor. The literature on ethics education in various fields, including business, has long highlighted the gap between ethical knowledge and ethical action, particularly when individuals face pressures or perceive significant personal advantages from ethically ambiguous choices (McCabe, Treviño, & Butterfield, 2001). There is currently little to suggest that AI ethics education, in its nascent stages of widespread implementation, will uniquely overcome this fundamental challenge given the underlying advantages of AI (mis)use.

From a pragmatic standpoint, student incentives to utilize AI for academic tasks are compelling and deeply rooted in the structural realities of higher education. Students, often operating as rational actors in a high-stakes environment, are driven by the pursuit of favorable grades, the efficient management of demanding workloads, and the pressures of time constraints (Cotton, Cotton, & Shipway, 2024). Generative AI tools offer unprecedented academic convenience, providing immediate assistance with information synthesis, content generation, and complex problem-solving, thereby presenting a highly attractive value proposition (Baidoo-Anu & Ansah, 2023). This inherent utility and efficiency suggests that for many students, the perceived benefits of using AI to complete assignments are likely to outweigh abstract ethical injunctions, particularly if the risk of detection is perceived as low or the ethical guidelines appear disconnected from the immediate pressures of academic performance. Consequently, a pragmatic approach must acknowledge that convenience and perceived academic advantage are powerful motivators, unlikely to be neutralized by ethics education.

Higher Education has had Technological Disruptions before: AI simply is another one

The current discourse on AI in higher education, particularly concerning its use by students for assignments, mirrors historical patterns of pedagogical apprehension that often accompany significant technological advancements. Such periods of heightened concern, sometimes termed "moral panics" in broader sociological contexts (Cohen, 2011), and more specifically "tech panics" in the realm of technology, are not unprecedented in academia and tend to resolve through processes of adaptation, policy development, and pedagogical innovation. Historically, new technologies that challenged existing educational norms have frequently elicited skepticism and resistance before eventually becoming integrated, and in many cases indispensable, tools (Cuban, 1986). The current debate surrounding AI, therefore, can be contextualized as another iteration in this recurrent cycle of disruption and eventual assimilation within the higher education landscape.
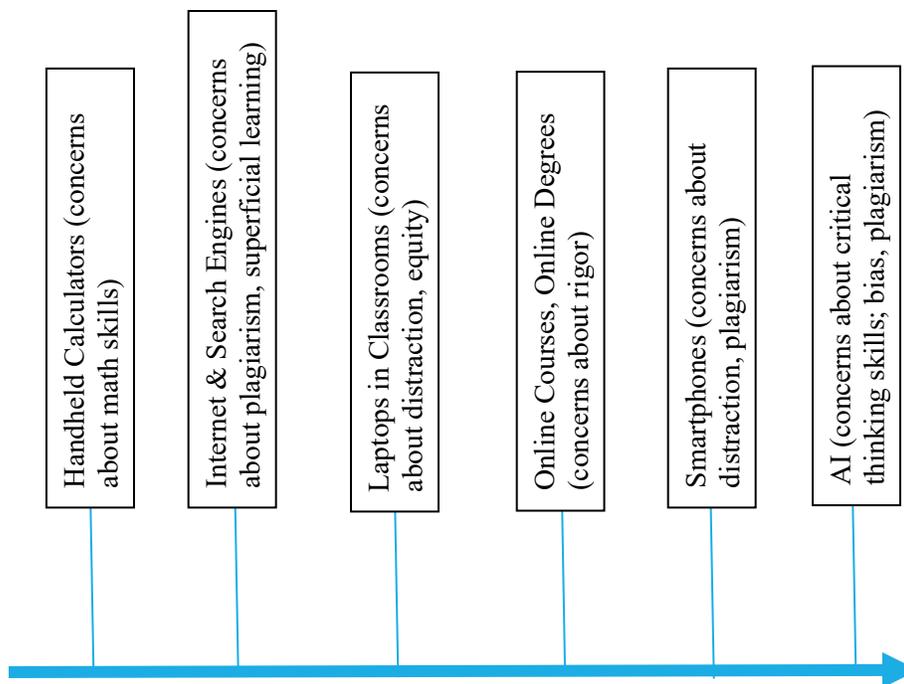
Recent Controversial Technological Adaptations in Higher Education

For instance, the introduction of laptops into classrooms was initially met with considerable debate, with concerns focused on potential distractions from learning, the facilitation of disengagement, and equitable access (Fried, 2008; Hembrooke & Gay, 2003). Many institutions and faculty members grappled with policies regarding laptop use, with some initially banning them from lecture halls. Over time, however, strategies for integrating laptops as learning tools emerged, and their presence in classrooms is now largely normalized, often supported by institutional infrastructure and pedagogical approaches that leverage their capabilities (Kay & Lauricella, 2011). Similarly, the concept of online courses and online degree programs sparked vigorous opposition from some faculty, unions, and established institutions, questioning their pedagogical rigor, the potential erosion of traditional academic values, and the quality of student learning experiences compared to face-to-face instruction (Allen & Seaman, 2017; Hawkins & Rudy, 2008). Despite these initial reservations, online education has become a mainstream component of higher education offerings globally, driven by student demand, technological maturation, and evolving institutional strategies (Dhawan, 2020).

Further parallels can be drawn from the introduction of handheld calculators, which ignited debates about the potential decline in fundamental mathematical skills and concerns over their use in examinations (Ellington, 2003). Although anxieties were pronounced, calculators eventually became accepted as tools that could, when used appropriately, support more complex problem-solving by reducing cognitive burden. Likewise, the widespread availability of internet access and powerful search engines in the late 1990s and early 2000s generated significant anxiety regarding plagiarism and the potential for students to engage in superficial learning, merely retrieving information rather than critically engaging with it (Rowlands et al., 2008). While these challenges persist and require ongoing attention, the internet has undeniably become an essential resource for academic research and learning, with institutions developing policies and instructional methods that promote information literacy in internet usage (Head & Eisenberg, 2009). The historical trajectory of these technologies suggests that initial anxieties surrounding AI are likely to be addressed through similar processes of critical evaluation, policy adaptation, and the development of new pedagogical frameworks, rather than outright rejection.

Beyond Adaptation: Adopting an 'AI-First' Approach to Foster Learning in the Age of Student-AI Collaboration

The integration of AI into higher education necessitates a paradigm shift in pedagogical approaches, moving beyond mere reactive adaptation to a proactive, 'AI-First' stance. The reality is that students already, and will increasingly, leverage AI tools for their academic tasks, a trend substantiated by numerous observations of current student practices (Ng & Chu, 2024; Rudolph et al., 2023). Resisting or attempting to prohibit student engagement with AI is not only a Sisyphean endeavor but also a missed opportunity to cultivate essential future-ready competencies (Bearman & Ajjawi, 2023). Pragmatism dictates that faculty acknowledge this ingrained presence of AI and fundamentally redesign curricula and assessment methodologies to assume, and even strategically incorporate, student collaboration with AI. This proactive stance involves critically examining how learning objectives can be achieved not despite, but *through* student use of AI, thereby fostering an environment where students are encouraged to use these tools effectively to deepen understanding and enhance critical skills, rather than to circumvent learning processes (Kasneci et al, 2023).

It is impossible to police student use of AI

The widespread availability and increasing sophistication of AI tools presents a formidable challenge to traditional methods of ensuring academic integrity in higher education. Nevertheless, attempts by faculty to police student usage of AI are, realistically, exercises in futility. AI is not a scarce or prohibitively expensive resource; rather, it is inexpensive, plentiful, and offers undeniable convenience for students navigating heavy academic workloads (Tlili et al., 2023). Consequently, a significant proportion of students will inevitably leverage these tools, regardless of institutional policies or extensive instruction on the ethics of their use for academic assignments.

The re-emergence of invigilated "blue book" examinations, while understandable as a reactionary measure, represents a regression that is largely unsustainable in terms of logistical resources and scalability across diverse higher education contexts (Henry, 2025). Such methods fail to address the core issue: students have access to powerful AI outside the examination hall, and the pedagogical focus must shift from prevention to integration. Furthermore, technological interventions designed to create controlled assessment environments, such as "lockdown browsers", offer a superficial sense of security that is easily circumvented. While a primary device may be "locked down", the ubiquity of personal secondary devices, such as smartphones or additional laptops, provides ready avenues for students to access AI assistance undetected (Morehouse, 2024). Moreover, attempts to escalate control by banning such devices, as seen in some K-12 settings (Closson, 2025), are impractical and unlikely to succeed. Students are routinely permitted laptops for in-class activities, and the functionality of a banned smartphone can be replicated on these permitted devices. Moreover, the miniaturization of technology means that smartwatches and other less conspicuous devices will increasingly possess the capabilities of banned smartphones, leading to an unwinnable "arms race" with students. Such bans also risk fostering a culture of defiance, where circumventing restrictions becomes a challenge rather
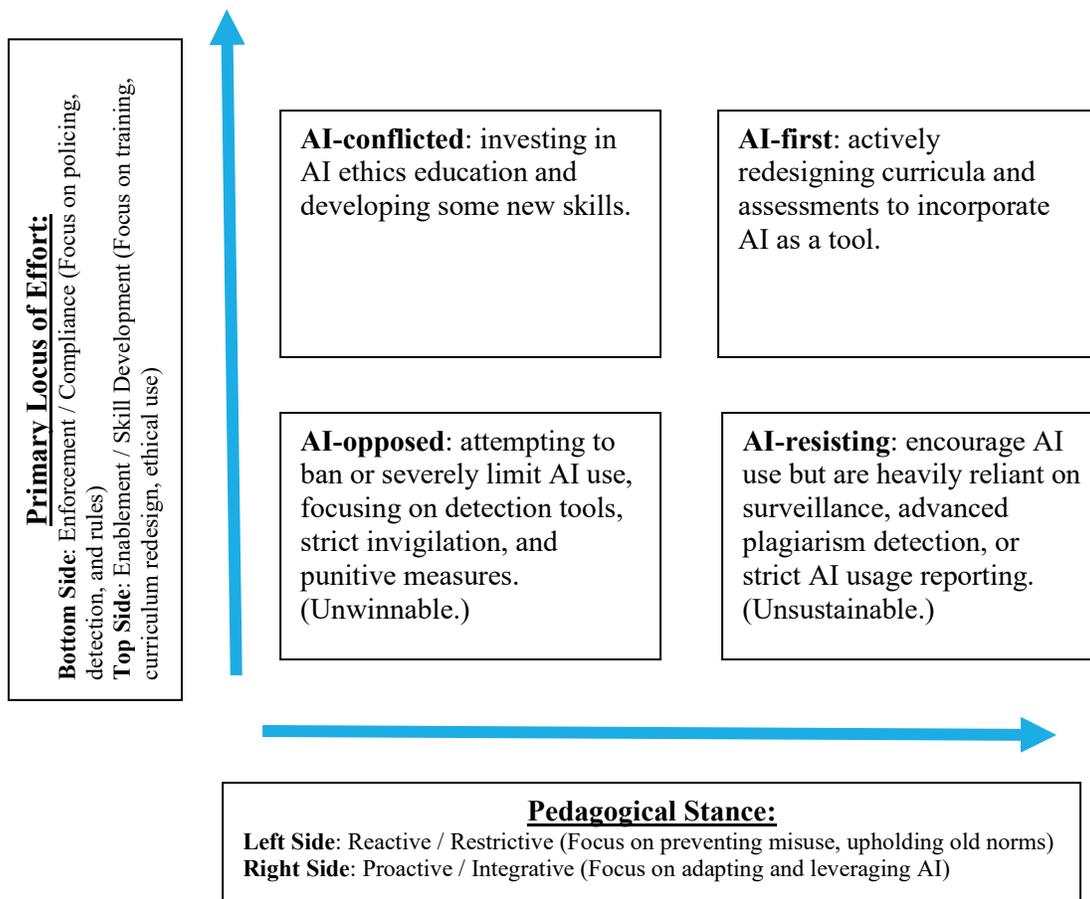
than a deterrent, ultimately undermining the educational environment. The pragmatic reality is that policing AI use is an untenable long-term strategy, necessitating a fundamental shift towards pedagogical approaches that embrace AI as a collaborative tool.

Embracing a Pragmatic and Informed AI Optimism

A pragmatic reevaluation of the pessimism surrounding student AI adoption in higher education can be initiated by considering workplace expectations and analogous technological histories. In professional settings, an employee who markedly improves a core competency -- for instance, mastering persuasive communication with assistance from AI -- would typically be encouraged, even mandated, to leverage such tools for sustained high performance (Luo et al., 2025; McKinsey, 2023). This outcome-oriented, capability-enhancing workplace paradigm contrasts sharply with the prevailing hesitancy often observed in higher education regarding students' use of AI to ameliorate skill gaps.

Further challenging a pessimistic outlook, historical parallels, such as the introduction of word processing software, invite a more optimistic interpretation of technological impact. While a conventional narrative might focus on the displacement of stenographers by technologies such as Microsoft Word (Autor, 2015), an alternative and more empowering perspective suggests that these tools did not merely make stenographers redundant but rather democratized the crucial skill of document creation, effectively equipping a broader populace with capabilities previously confined to specialists (Gobble, 2018). This reframing from job displacement to skill democratization provides a crucial lens through which to view the impending AI-driven transformations.

It is undeniable that artificial intelligence will catalyze substantial shifts within the labor market and reshape numerous industries, leading to the evolution and, in some cases, obsolescence of existing job roles (Acemoglu & Restrepo, 2019). However, a purely pessimistic focus on these displacements overlooks the significant potential for AI to augment overall human capabilities and productivity. The historical arc of technological innovation suggests that while some tasks are automated, new tasks are invariably created, and human labor is often complemented rather than purely substituted, leading to higher levels of economic output and new avenues for human endeavor (Autor, 2015; Acemoglu & Restrepo, 2019). Consequently, the integration of AI, much like previous general-purpose technologies, promises not just disruption but a considerable expansion of collective human potential and societal advancement, a prospect that higher education should proactively embrace in its pedagogical models.

Primary Locus of Effort:
Bottom Side: Enforcement / Compliance (Focus on policing, detection, and rules)
Top Side: Enablement / Skill Development (Focus on training, curriculum redesign, ethical use)

AI-conflicted: investing in AI ethics education and developing some new skills.

AI-first: actively redesigning curricula and assessments to incorporate AI as a tool.

AI-opposed: attempting to ban or severely limit AI use, focusing on detection tools, strict invigilation, and punitive measures. (Unwinnable.)

AI-resisting: encourage AI use but are heavily reliant on surveillance, advanced plagiarism detection, or strict AI usage reporting. (Unsustainable.)

Pedagogical Stance:
Left Side: Reactive / Restrictive (Focus on preventing misuse, upholding old norms)
Right Side: Proactive / Integrative (Focus on adapting and leveraging AI)

Institutional Strategies for Addressing Student AI Use

The Unwinnable Game: Examining the Futility of Restricting Student AI Use Through a Game Theoretic Framework

A pragmatic examination of AI integration in higher education, framed through a simple game-theoretic lens, reveals the inherent difficulties in significantly restricting student AI use. This model considers four primary stakeholders: technology companies, students, sponsors (including parents, future employers, and governmental bodies), and providers (universities and their faculty/staff). Each operates with distinct, sometimes conflicting, yet ultimately converging incentives.

Technology companies, as innovation engines, relentlessly develop and disseminate more sophisticated AI tools, inherently driving their adoption (Cuban, 2001). Students, motivated by efficiency and academic performance, are increasingly likely to leverage AI, particularly when they perceive it as beneficial and can do so without penalty. This aligns with findings by Ma et al. (2024), who note students' desire to improve their educational experience through effective technology incorporation and found that perceived usefulness (PU) and perceived ease of use (PEOU) significantly influence students' attitudes and behavioral intentions toward AI. Sponsors also exert considerable pressure; for instance, employers increasingly expect graduates to possess AI literacy and practical skills, viewing AI proficiency as a key competency for the future workforce (World Economic Forum, 2023). Furthermore, nations like China are actively promoting AI integration in education as a strategic imperative (Yuan, 2024), creating a competitive global landscape where restricting AI access in other regions could disadvantage students.

The providers of higher education -- universities and faculty -- face a complex dilemma. While faculty rightly prioritize academic integrity and the development of foundational skills, institutional history suggests that resistance to disruptive technologies is often short-lived when faced with overwhelming external pressures and student demand. The initial skepticism surrounding online courses and even the integration of laptops in

classrooms eventually gave way to widespread adoption, driven by the need to remain competitive and meet student expectations (Garrison & Vaughan, 2008). A similar trajectory can be anticipated for student AI use. Universities that attempt to impose severe restrictions risk not only appearing anachronistic, but also potentially disadvantaging their students, who will compete with peers from institutions -- and indeed, nations -- that have embraced AI. Notably, international students often exhibit higher AI adoption rates, potentially driven by a need to stay competitive in a global job market (Ma et al., 2024). Moreover, in contexts where educational resources may be perceived as limited, such as in some developing countries facing challenges with textbook quality or consistent instructional support (Fagbola, 2020), AI tools can be viewed by parents and students as vital for supplementing learning and bridging educational gaps. Therefore, the interplay of these stakeholder incentives suggests that efforts to broadly prohibit AI use by students constitute an unwinnable game, potentially exacerbating global educational inequities rather than fostering genuine learning or integrity.
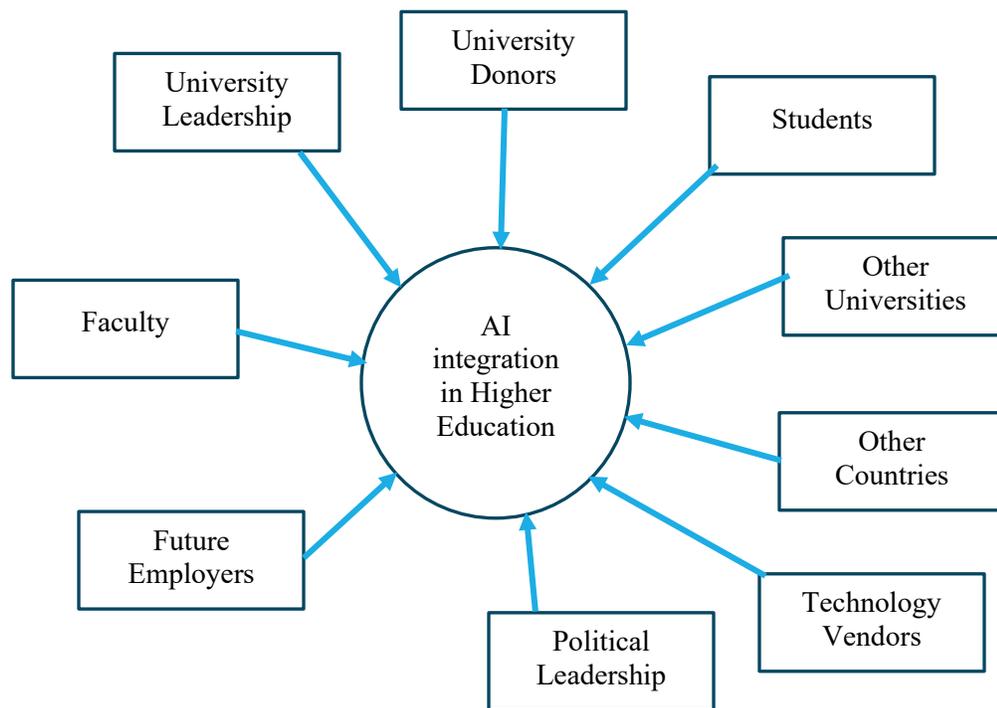
Ecosystem of Influences on AI Integration in Higher Education

The confluence of these stakeholder dynamics -- students seeking efficiency, tech companies driving innovation, sponsors demanding relevant outcomes and skills, and educational institutions navigating competitive pressures -- indicates that the pervasive integration of AI tools by students is not a matter of 'if' but 'when' and 'how.' A restrictive stance by universities may prove futile and counterproductive, whereas an 'AI-First' approach, where student use of AI to help with homework is assumed, becomes a more pragmatic and ultimately beneficial strategy. This approach acknowledges the inevitability of AI use (by students) and seeks to prepare students for an AI-suffused future, rather than attempting to preserve an educational paradigm that is rapidly being reshaped by technological advancement.

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│  Acknowledge AI Ubiquity & Student Use.   │
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│  Re-evaluate Learning Objectives for an   │
│  AI-suffused World.                        │
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│  Develop Faculty AI Literacy &            │
│  Pedagogical Training.                     │
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│  Redesign Curriculum & Assessments (to    │
│  assume and strategically incorporate AI  │
│  collaboration).                           │
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│  Foster Student AI Literacy & Critical    │
│  Engagement Skills.                        │
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│  Establish Dynamic Ethical Guidelines &   │
│  Responsible Use Policies.                 │
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│  Iterate and Adapt based on Outcomes &    │
│  Technological Evolution.                  │
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Proposed 'AI-First' Institutional Response Framework

Conclusion

The integration of artificial intelligence into higher education undeniably presents a complex array of challenges, prompting significant concerns among faculty regarding academic integrity, the depth of student learning, and the very structure of the traditional university system. These anxieties, arising from issues such as potential over-reliance on AI, the circumvention of genuine engagement with course material, and difficulties in assessing authentic student effort, are valid and echo the apprehension that often accompanies transformative technological shifts.

However, as this paper has argued, viewing the current landscape through the lens of historical technological disruptions -- from the printing press to the internet -- suggests that a trajectory of adaptation and integration, rather than outright resistance or attempts at prohibition, offers a more pragmatic and ultimately more fruitful path forward. The contemporary "tech panic" surrounding AI, while understandable, is likely to evolve, much like previous anxieties, towards assimilation and pedagogical innovation. A pragmatic and optimistic perspective emphasizes AI's potential as an empowering tool, capable of democratizing skills and enhancing human capabilities, rather than merely displacing them.

Faculty and institutional leaders are increasingly recognizing that policing student AI use is largely a Sisyphean endeavor, given the pervasive availability and utility of these tools. Success in this evolving landscape will hinge on fostering an environment where students cultivate self-discipline, agency, and their own cognitive capacities while strategically leveraging AI for enhancement. A crucial challenge for the educational establishment will be to encourage students to develop "neurons in their own brains," fostering critical thinking and deep understanding, even as they use AI ("neurons outside their own brains, in an artificial neural network"). While some students may misuse these tools, the predominant response should be a proactive redesign of curricula and assessment to assume and strategically incorporate student collaboration with AI.

The game has indeed changed; the imperative now is to learn the new rules and empower individuals to enhance themselves within this new paradigm. While some educators may fear this path leads to their own obsolescence, the opposite is more likely. As AI automates certain functions, it will inevitably increase the value of human mentorship, guidance, and critical inquiry, creating new opportunities for educators to engage with more students than ever before. Ultimately, students' use of AI is not an existential threat, but a catalyst. It challenges higher education to address long-standing issues of cost and access, and to evolve into a more resilient, equitable, and effective version of itself, truly prepared for a complex, AI-suffused future.

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True Leadership: Bringing Health Maximization into the Medical Intervention System

Roger Jahnke, Fielding Graduate University
CJ Rhoads, Kutztown University, rhoads@kutztown.edu

ABSTRACT

This paper provides a wide-ranging investigation into the aspects of the medical intervention system by providing a way to implement true leadership by bringing health maximization practices into the system. After providing a brief history of terminology and practices, the authors delve into what it takes to implement the vision of true leadership on the four different aspects of patient well-being: physical function, neurological function, metabolic function, and psychological/social function. A variety of research is shared that sets the background for the use of integrative healthcare practices which maximize health as essential to the vision of true leadership in our health systems. Additionally, the bio-physical mechanisms of mind body practices utilized in integrative healthcare practices is introduced. Finally, and most importantly, action steps that can be taken by those wishing to demonstrate true leadership in maximizing health are outlined.

KEYWORDS

Leadership, healthcare management, integrative healthcare, mind body practices, wellness, health promotion, disease prevention, behavioral health, self-care, economics of integrative healthcare.

Introduction

True leadership in management of people's health is quite confounding due to an array of complex issues. Leadership and Management themselves are difficult to define and are often confused because they are both open to ambiguity and individual interpretation (Mintzberg, 2004; C. Rhoads, 2014; Zaleznik, 2004). Similarly, the terms Healthcare and Health Care are also difficult to define, often confused, and open to ambiguity and individual interpretation (Mohammad Mosadeghrad, 2013; C. Rhoads, Jahnke, Baumgarden, & Porzsolt, 2023). This paper hopes to decrease the confusion and outline methods for the true leader to implement a vision utilizing health maximization practices (Health Care) when managing the medical intervention system (Healthcare).

Definitions Used In This Paper

Allow us to accept for the purposes of this paper that by *leadership* we mean the vision to see beyond traditional boundaries and processes to enhance and improve patient care and outcomes, and the ability to communicate that vision to others which compels them to follow it. In addition, allow us to accept for the purposes of this paper that by *management* we mean the skill and opportunity necessary to implement processes and procedures to enhance and improve wellbeing, patient care and the outcomes of medical intervention. By *healthcare* we mean the current medical intervention system (sometimes referred to as the medical industrial complex by advocates of a more holistic view of health interventions)(Magee, 2019). The

phrase *health care* includes **any** process or procedure to improve patient outcomes (and by patient we mean every person, and by outcomes we mean health and wellbeing improvement) whether it is considered part of the current medical intervention system or not. The difficulty is that using these terms in this way might be confusing - especially considering that grammatically, healthcare is an adjective and health care is a compound noun. To confuse things further, in Britain they utilize the phrase health care more often and in the USA they utilize the term healthcare more often. So for purposes of this paper, we will utilize the phrases medical intervention systems and health maximization.

In medical intervention systems, leadership is often defined as organizations with the most money spent, the fewest number of mistakes, the highest numbers of procedures, or the most advanced new drugs and surgical devices available. Medical intervention systems are often limited to medical procedures involving drugs or surgery, and/or what might be covered by either private or public insurance. Health maximization includes components of the broader care of health, which include many activities that are outside of the medical intervention system.

Health maximization encompasses several additional components, the most central and important being **patient wellbeing** which includes health self-reliance. Inputs into patient wellbeing include *physical function* (including pain management, balance and proprioception [ability to avoid injury from falls]), *neurological function* (including cognitive and neurological challenges such as Parkinson's, Cerebral Palsy, etc.), *metabolic function* (including a balanced and functioning metabolic system, immune system, cardiovascular system, hormonal system, nervous system, and digestive system), and *psychological/social* (mental state and quality of life measurements [ability to avoid depression and anxiety] as well as the basic needs of life including Maslow's hierarchy of needs) (Jahnke, Larkey, Rogers, Etnier, & Lin, 2010; Maslow, 1954). Each of those functions and/or environments also have inputs which we will discuss.

Figure 1. Components of Healthcare (patient wellbeing).

This article will start with a brief evolution of the medical intervention system and then move on to each of these four components of health maximization. Within each component we will explore leadership in that area. Some of these components are not included in the medical intervention system, and this trend will be investigated. Newer (and older) paradigms that view health maximization in a more holistic integrated way will also be investigated.

Evolution of The Medical Intervention System

The medical intervention system has undergone drastic transitions over the past century. The word "health" itself is rooted in the Old English word "whole". The World Health Organization defines health as *"a condition of complete corporal, cerebral and communal wellness and not merely the absence of disease or infirmity."* The medical intervention system however, does not always include this definition of health, which is closer to health maximization. Before the 1800s, medical intervention was not yet systematized. Medical

intervention was performed by anyone who was able and willing to help others, for a fee paid by the patient out of pocket, for whatever help that person could offer. Health maximization by definition was self-reliant. During the 1800s the medical intervention became more systematized and consistent. Those who practiced medicine were expected to be educated in medical schools. The American Medical Association started in the mid 1800s and has been growing since then. (Sharma, Singh Aujla, & Bajaj, 2023)

Only in a very few countries is health maximization still managed individually by each person, paying out of pocket, to whomever is willing or able to help. Currently most countries either have some kind of government medical intervention system, or a system of private insurance companies who manage the medical intervention system (Gorsky & Sirrs, 2018). People still do pay out of pocket to anyone willing and able to help, but most governments disallow people who are considered alternative or complementary clinicians to call themselves physicians or medical practitioners. Those credentials are rigorously controlled, provided only to those who can certify that they have the proper education and training. (Schimpff, 2012)

Economics of the Medical Intervention System

Normal economics principles do not apply to the medical intervention system for a number of reasons. Many people believe everyone should have access medical intervention regardless of ability to pay. In many countries hospitals are not allowed to turn away emergency patients just because they cannot pay for treatment (Baumgarten, 2012).

Furthermore, in medical intervention economics the medical provider is often more knowledgeable about the needs of the patient than the patient him or her self. Physicians are trusted to do what is necessary and right, and are not supposed to consider the amount of money they make when diagnosing and treating illnesses.

Most importantly, medical providers in the current medical intervention system are only oriented to medical solutions which diagnose syndromes and disease categories. They are not trained in health maximization methods. Even worse, they are sometimes legislated to NOT deliver such insight or guidance on health enhancing bodies of information, methods or strategies due to the fact that "standard care" does not include health maximization methods. The medical intervention system does not advocate for health, and does not focus on disease prevention strategies. The focus of medical intervention systems is more likely to be to wait until the disease can be diagnosed and then provide a solution, often in the form of drugs or surgery.

Additionally, the relationship between supply and demand in the medical intervention system does not follow the normal rules of economics. There is a unique relationship between the consumer (patient), the payer (the insurance company or the government), the employer (who, at times, provides the conduit to the insurance and may pay part or all of the costs), and the providers (doctors, nurses, hospitals, medical equipment, pharmacies, etc.) This means that the payer is not the recipient of the service (Lichtenwald, 2019).

Sometimes who we think of as the payer is not actually the payer. When an employer pays the cost of health insurance, the recipient of the service, the patient, is not even indirectly involved in the payment and the payer of the service (the insurance company) is paid by someone other than the recipient. Even in the case of public healthcare insurance such as Medicare and Medicaid, the recipient is still not the payer, the taxpayer is the payer who pays the payer, the government. Only individual self-paid health insurance has a more direct connection between the payer and the service.

The only group of people who pay directly for the medical intervention services are the uninsured. While some uninsured patients pay out of their own pocket, many are unable to pay the high prices of care, especially emergency care. Those people often suffer and/or die.

Overtreatment and underservice is often the result of a multilayer payment system such as this. Since there is no direct link between the amount that employers or governments pay for insurance, and the cost that is borne by the patient, there is no accountability to the person to whom the services are directed (Forgione, Vermeer, Surysekar, Wrieden, & Plante, 2005; Larg & Moss, 2011).

Furthermore, there is significant evidence that prevention costs less than treatment (Cohen, Neumann, & Weinstein, 2008; Levi, Segal, & Juliano, 2008). However, it is often difficult to get insurance companies to pay for health promotion, wellness, self-care, or behavioral prevention for customers. This is because the

financial benefits of prevention occur "downstream", most likely when some other payor would be responsible for them. Childhood vaccines, for example, often don't prevent a disease for a decade or two - by which time the insurance company covering the cost of vaccines is no longer responsible for healthcare costs of the patient. Healthy lifestyle expenses such as gym membership, nutrition counseling, classes, coaching and support groups all impact costs of chronic illnesses in a major way; but often not until the person is in their sixties. In the United States, by the time chronic illnesses begin it is often Medicare, and not the insurance company, which pays the costs. Of course, it would be of great benefit to governments, then, to legislate insurance companies to pay for prevention and lifestyle expenses because it will save the government money down the road (part of the long-term thinking that initiated Obamacare). Paying for healthy lifestyle support may also benefit employers because they benefit from healthy productive employees (Baicker, Cutler, & Zirui, 2010; Berry & Mirabito, 2011; DeVries Iii, 2010).

Even so, however, it is often difficult to convince businesses of the benefits. Osilla, et al, investigated worksite wellness. They reviewed 33 studies, and concluded that despite the mostly positive outcomes, the body of evidence did not support such widespread adoption of wellness programs – not because they did not work (they did) but *because the employee, and not necessarily the company, benefitted* (Chan Osilla et al., 2012).
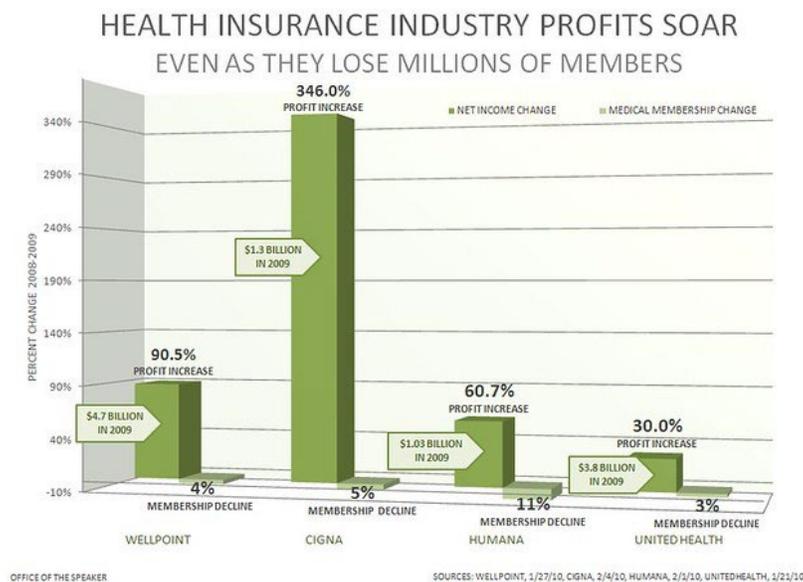
Figure 2. Insurance Profits Increase as Insurance Coverage Declines

As a result, there is little encouragement in the medical intervention system for the client/customer to avoid or prevent disease. Furthermore, malpractice influences overtreatment by setting defensive standard of care that requires a great deal of unnecessary testing (Bovbjerg & Bartow, 2003; Hermer & Brody, 2010). Notice that this overtreatment often damages the wellbeing of the patient rather than enhancing it (Gupta, Gupta, & Koul, 2020; Henry, 2025; Kühn, Lindert, & Choi, 2022; Sonmez et al., 2020; Sukmanee et al., 2022).

Paradigms of Health Maximization

Different cultures have different paradigms of health maximization. Conventional modern western medicine has long operated under a reductionist model. This model of medicine focuses on diseases and their symptoms. Diagnosis and treatment is done in isolated silos of specialties. While this method may allow individual physicians to devote more time and study to a limited number of diseases and treatments, the fundamental understanding of the whole person is missing.

Other paradigms, often borrowing from ancient cultures, are mostly holistic in nature. For example, traditional Chinese medicine, Ayurvedic medicine, naturopathic medicine and even the emerging western

medical field of functional medicine are holistic. In the Qigong paradigm, in Asian Medicine generally, the primary ideal is that there is only one disease – depreciated function. This is better known in China as deranged Qi, or disharmonious Qi. In India it is disturbed Prana – disrupted vitality. (Associations, 2020) In conventional medicine, the closest thing to this type of metabolic dysfunction is considered inflammation and oxidative stress. An alternative description is dysregulated autonomic nervous system function (Nayok, Sreeraj, Shivakumar, & Venkatasubramanian, 2023; Porges, 2025; Seicol, Bejarano, Behnke, & Guo, 2019).

Integrative Medicine attempts to combine the conventional medicine disease paradigm of the European derived societies with other more holistic paradigms (such as Qigong and Tai Chi and Yoga and other mind-body healthcare practices). However, the reductionistic western model is inefficient in this context and does not always consider the physical, psychological/social, metabolic, and neurologic aspects of wellbeing simultaneously. It is difficult, therefore, to combine the two – to actually integrate them. Chinese medicine, Ayurvedic medicine, Naturopathic medicine and the many versions of Shamanic medicine are inherently integrative as they both advocate for self-care and include therapeutic strategies when necessary.

The medical intervention system works with the reductionist medical paradigm while health maximization include mind-body practices such as qigong, tai chi, yoga, Pilates, etc.

Relationship of Paradigms to Health Maximization

Health maximization and its holistic paradigm would recognize a short list of *pseudo diseases* that do not conform to the conventional idea of a disease. For example:

- Disempowerment
- Lack of information
- Misinformation
- Materialistic imbalance
- Lack of personal esteem
- Anxiety & Depression
- Insomnia
- Processed and Non-nutritious food
- Environmental toxins
- Petroleum derived fertilizer

These pseudo diseases would lead to:
- metabolic disease
- oxidative stress
- inflammatory process

The metabolic response to the pseudo diseases then lead to:
- Diabetes
- Heart disease
- Cancer
- Immune deficiency
- Neurodegenerative disorders
- Autoimmune disease
- Psycho-neurological disease

The top ten causes of death globally in 2021 as determined by the World Health Organization are (Organization, 2021):

1. Ischemic heart disease
2. Stroke
3. Chronic obstructive pulmonary disease
4. Lower respiratory infections
5. Lung cancer
6. Alzheimer's disease and other dementias
7. Diabetes mellitus

8. HIV/AIDS
9. Diarrhea
10. Kidney disease

It's important to note that the top ten diseases may vary slightly depending on the region and population studied. For example, in the United States, the top ten leading causes of death in 2021 were:

1. Heart disease
2. Cancer
3. COVID-19
4. Accidents (unintentional injuries)
5. Stroke
6. Chronic lower respiratory diseases
7. Alzheimer's disease
8. Diabetes
9. Chronic liver disease and cirrhosis
10. Nephritis, nephrotic syndrome, and nephrosis

The reason the paradigm is so important is because a health maximization would look beyond the short-term, "we've-always-done-it-this-way" medical practices originally designed to deal with acute health challenges like broken bones, battle injuries, appendicitis, etc. Compartmentalization and reductionism works in these short-term situations, but not in chronic disease situations.

Health maximization would look at the patient holistically, as part of a social environment, with a specific genetic structure, which causes a specific metabolism, which leads to a specific physical function or dysfunction. Health maximization would recognize that it is pointless to look at just one without considering all the other components. Maximizing the outcome of just one component may well impact negatively the outcome of another component and even depreciate or simply neglect the actual cause of the health challenge.

This is a common occurrence with certain drugs and surgeries. Side effects of some drugs are worse than the symptoms of the original disease. Surgeries may help in the short term, only to impact long term capabilities down the road. Unless the paradigm widens to include integrative healthcare practices and behavioral modification which focus on long-term viability and quality of life, the goal of maximizing patient well-being and outcomes is impossible to achieve.

Research shows evidence that healing is maximized through cultivation of internal balance, stress reduction, improved circulation, enhanced flexibility, and the natural mechanisms of healing that are inherent within our bodies, minds and spirits. Mindful movements, energy cultivation, and breath awareness, according to modern research findings, are much more impactful in the long term for many of these health challenges than the conventionally advocated drugs or surgeries.

It is important to recognize many different healing traditions and philosophical approaches to wellness so that they can be utilized toward the goal of patient wellness – or better stated –wellbeing.

Evidence for Mind-Body Practices

Leaders embracing health maximization brought into the medical intervention system would look to the solid scientific evidence. Leaders would also look to promising research still in early phases for practices with low cost, minimal side-effects, and high potential for long-term patient outcomes.

While it is beyond the scope of this paper to delve into the deep historical context and theoretical foundations of these practices or conduct a complete systematic review, it would behoove us to at least explore the mechanisms, from both a western and eastern framework, to assess the need for leaders to understand and communicate the vision of expanding the medical intervention system by including health maximization principles.

Research into the benefits of mind-body practices has been mounting for decades, and many of the integrative medicine practices have reached the point of high quality preponderance of evidence (Baumgarden, Rhoads, Fiddes, Siddons, & Garretson, 2023; Casuso-Holgado, Heredia-Rizo, Gonzalez-Garcia, Muñoz-Fernández, &

Martinez-Calderon, 2022; G.-Y. Yang et al., 2022) We will organize our exploration into this research using the four categories introduced in an earlier section: Physical, Metabolic, Psychological/Social, and Neurological.

Research on Physical Benefits

The physical body generally suffers from either injury or infirmity due to age which causes physical pain. One of the most promising applications of mind-body practices, such as qigong, tai chi, yoga and physical therapy oriented self-care is as a non-pharmacological approach to pain relief (Hall, Maher, Lam, Ferreira, & Latimer, 2011; C. Rhoads, 2018; C. J. Rhoads, 2013). Because the movements are gentle and meditative, but at the same time improve flexibility and strength, the mechanisms of pain relief appear to work on several different levels simultaneously, with improved outcomes and fewer side effects than other methods. Research has demonstrated effectiveness in many different causes of pain, including fibromyalgia, arthritis, lower back pain, and pain from surgical procedures (Lauche, Cramer, Dobos, Langhorst, & Schmidt, 2013; C. Wang et al., 2014; C. Wang et al., 2010; Wang, Liu, Chen, & Yu, 2013).

Another of the applications of tai chi and qigong with a preponderance of evidence is the prevention of falls. Again, because these practices work on multiple levels the outcomes are much improved over balance training or physical therapy alone. (Bridenbaugh & Kressig, 2011; Gillespie et al., 2012; Fuzhong Li et al., 2019). For older adults, a fall can drastically impact their quality of life. Recovery from physical injuries after the fact is difficult and time-consuming. Many older adults never recover and live with a lower quality of life for their remaining time, often shortening their life significantly. Prevention is cost-effective and economically superior to waiting until a fall happens and then trying to mitigate the effects.

Research on Metabolic Benefits

Many of the top causes of death are due to metabolic deficiencies. Reduced blood pressure, increased circulation, and improved heart rate variability are all documented impacts of regular tai chi and qigong practice with a preponderance of evidence (Taylor-Piliae, 2003; Yeh et al., 2011; Zhang, Zhang, & Lu, 2023). The gentle low-impact nature makes them very accessible while providing health benefits (Wayne & Fuerst, 2013).

Metabolic benefits include the reduction of diabetes symptoms and auto-immune disfunction (Chen, Ueng, Lee, Sun, & Lee, 2010; Liu, Miller, Burton, Chang, & Brown, 2013; Z. Yang et al., 2023). Cortisol levels, inflammation markers, and immune function are all improved (Irwin & Olmstead, 2012; Morgan, Irwin, Chung, & Wang, 2014).

Research on Neurological Benefits

There is a great deal of evidence that the mindful movements of tai chi and qigong promote neuroplasticity. New neural connections in the brain can overcome many neurological issues such stroke or Parkinson's disease (Laskosky et al., 2023; F. Li et al., 2014; Taylor-Piliae & Haskell, 2007). The improvement in strength and proprioception impact not only the neurological side of these conditions, but the impact on balance and incidence of falls as noted earlier.

Research on Psychological/Social Benefits

Mental health may be one of the most impacted aspects of well-being for mind-body practices for which there is a preponderance of evidence. This is especially relevant for patients who are often encountering stress and anxiety as a result of other health challenges. There is high quality research support that emotional regulation and stress management skills are greatly enhanced by these holistic practices. Depression can be mitigated either in conjunction with, or without the use of anti-depressant drugs. (Burschka, Keune, Oy, Oschmann, & Kuhn, 2014; Campo et al., 2014; Lavretsky et al., 2011; Sharma et al., 2023; C. W. Wang et al., 2014).

Bio-physical mechanisms of Mind Body Practices

While much of the research clearly demonstrates the benefits of mind body practices such as tai chi and qigong for health maximization, the specific mechanism of tai chi and qigong is less clear. Several pathways have been proposed, and almost all of them involve the parasympathetic nervous system (C. J. Rhoads, 2012; W. Wang et al., 2010).

One way to describe the process is that mind-body practices utilize an oxygen and nutrition delivery method which excite the mitochondrial energetics. Mitochondrial energetics is an essential component of the cells that use oxygen to break down carbohydrates and fat to release energy in the most efficient form for the use of powering cell function. This leads to accelerated lymph propulsion, which leads to a neuro-transmitter shift. This neuro-transmitter shift leads to enhanced immune function and telomere nourishment, which influences good health and longevity.

The central aspect of this process is breathing. Voluntary, slow deep breathing – as in qigong, tai chi, pranayama, etc. – regulates sympathetic function through tissue stretch and inter-thoracic pressure induced sympathetic inhibitory signals (pulmonary stretch receptors and arterial baroreceptors) by synchronizing activities of the heart, lungs, limbic system and cortex to increase vagal/parasympathetic capacity or tone.

Modified breathing patterns could be what leads to the neuro-transmitter shift. Another way to say this is that the existence of certain types of brainwaves has a domino effect on the body. When the brain exhibits alpha and gamma waves, neuro-transmitters such as dopamine, serotonin, nor adrenaline, acetylcholine, GABA, and endorphins are released into the bloodstream. These are often called the "feel good" or "rest and restore" hormones because they cause a feeling of contentment and well-being. They do more than make people feel good, however. The increased neurotransmitters prompts the vagus nerve to activate, which lowers the heart rate and blood pressure. (The vagus nerve is one of the largest, and wanders around the body from the brain stem to the colon). When the heart rate and blood pressure are lowered, that prompts the lungs to expand more fully and breathe more deeply, which activates the digestive system. A smooth-working digestive system, when combined with nutrient-rich unprocessed food, improves nutritional absorption which fuels optimal function of cells and organ systems. It may be that this mechanism provides the health maximization capabilities of many mind-body practices that are part of integrative medicine.

Long Term Impact

These combinations of bodily changes enhances internal energy for work and play. This process indirectly supports the reduction of inflammatory processes and the neutralization of oxidative stress allowing for the body to improve function and reduce stress. Over time purposefully rehabilitating internal inner function reestablishes capacity. Reduced inflammation and oxidation, increased parasympathetic/vagal activity, and accelerated discharge of metabolic byproducts - they all converge to activate what has been called "The Medicine Within". This improves the entire body in the long term. All diseases and infirmities are impacted by these bodily changes, and enhance the body's ability to heal itself.

The mind also has a long term impact. Over time people will find that they don't get angered as easily. They remain calm in the face of adversity and have the ability to think things through in a composed manner. Depression and anxiety abate. These are all outcomes for which there is evidence in the research previously discussed.

Short Term Impact

While these changes are healthy for the body in the long term, they also have an impact in the short term; an impact that can modify short-term issues like pain sensations. The same modified breathing patterns and subsequent flow of "feel good" neurotransmitters directly impact higher neurological centers which directly impact the dorsal horn - which becomes less sensitive to perceived threat triggers - and the pain-feedback-loop dishabituates. The pain can dissipate within a very short time frame. Future pain sensitivity will decrease so that it will take more and more pain to actuate the pain-feedback-loop.

Furthermore, psychological benefits impact short term as well. Rather than responding in an enraged manner, using breathing exercises can tranquilize and calm immediately. People are able to control their emotions instead of having their emotions control them. Again, these are outcomes for which there is evidence in the research previously discussed.

True Leadership in Health Maximization

True leadership in health maximization requires a vision that is beyond the current conventional view, and an understanding of the evolution, economics, paradigms, research, long-term and short term impacts of bringing health maximization into the medical intervention system.

True leadership identifies how the evolution of the medical intervention system has strayed away from the health maximization methods of patience self-reliance in the past. True leadership is recognizing economic irrationalities and working toward a system that mitigates their influence on the patient. There is an emerging population of people who are insured who pay for health maximizing strategies even if their insurance does not reimburse for such services. This activity is essentially bringing health maximization strategies into the medical intervention system by those who are self-reliant and fueling changes into the system. It would be a sign of leadership to encourage these changes and work to suppress the external economic pressures of the medical industrial complex and the pharmaceutical industrial complex. More people would benefit if we didn't have to rely only on self-reliant patients to work toward disease prevention and instead brought those health maximization strategies into the current medical intervention system.

In the end, a leader would recognize that health maximization would be economically prudent. Even if corporations don't directly save money when they encourage health maximization, true leadership would recognize that having the employee benefit indirectly also benefits the company instead of narrowly limiting the economic benefit to the short-term windows of direct cost savings.

True leaders understand the different paradigms and recognize the validity of the paradigms of different cultures, many of which are more holistic in origin than the medical intervention system.

True leaders have read the research providing the evidence-based support for expanding the conventional practices under their control, and understand the mechanisms of mind body practices. Once this is known, it only makes sense for them to share the vision that includes these practices with those who work for and with them. They recognize both the long term and the short term benefits of health maximization.

Overcoming Obstacles to Health Maximization

That is not always easy as there are obstacles in the way; institutional resistance, existing policies and procedures, inadequate credentialling of practitioners, inadequate insurance coverage, lack of planning, lack of infrastructure, misinformation, and poor training methods. Rather than surrender to the prevalent practical obstruction of these obstacles, true leaders will strive to overcome them. This section will provide insight and guidance for doing just that.

Overcoming institutional and social resistance is probably the hardest obstacle to overcome. The best way to overcome this obstacle is through education and demonstration. True leaders determined to bring health maximization into the medical intervention system organize educational seminars for staff, invite respected integrative medicine practitioners to speak, and implement programs that demonstrate the impact on patients' well-being. Popular and successful innovative programs often attract supporters who spread the word. And, of course, true leaders actually model wellbeing maximizing qualities – calm, energized, focused, compassionate, empowering, collaborative - that are gained through exercise, sleep, nutrition and mind-body practice. True leaders are ambassadors.

True leaders do what is necessary to navigate through the complex legal landscape for employing health maximizing methodologies for employees and the public, developing policies and mitigating risk. Though credentialing of teachers/instructors -- practice leaders, facilitators, coaches - is not nationally consistent or clearly legislated, there are numerous credentialling bodies that have sophisticated curricula and carefully monitor the trainees who are expected to learn the practical physiological benefits, the accessible movements and foundations of the practices, plus also the necessary knowledgebase for the health and safety of the patient/student/client.

After identifying and recruiting qualified instructors, true leaders ensure that they can work effectively within the existing healthcare environment and within the structure of an interdisciplinary team. Leaders may choose to have some members of their own team undergo training so that they don't have to rely upon outside expertise. Implementing credible training from established training and research entities is very important.

Furthermore, leaders don't ignore economics. The incentives in the medical intervention-based financing system, unfortunately, can compromise true leadership. Most economic studies show a clear return on investment through improved patient outcomes and reduced future healthcare utilization costs (C. Rhoads,

2015; C. Rhoads, Jahnke, Baumgarden, & Porzsolt, 2019). Perversely, healthy patients are the bane of the medical-financing system because health patients often don't need drugs or surgeries.

One of the primary disempowering incentives of the medical intervention system is the fact that the sicker the person is, the more revenue (i.e. people-generated income) flows to the providers and the insurance companies. More money for providers and insurance companies means lobbying funds for them, which then flows to the members of the legislature of the government. That lobbying also results in more taxes being collected for Medicaid and Medicare, which then allows even more revenue to flow to the providers, who then pay the insurance companies as people are encouraged to get sicker and sicker.

Until the medical-financing system changes, "medically necessary" insurance coverage will remain typically limited, inconsistent, and rarely available for health maximization. Therefore, at this time, true leaders will need to focus on creative funding strategies, necessarily orienting to include sources such as donations, fee-for-service, grants or partnerships.

One of the most important next steps for leaders trying to bring health maximization into the medical intervention system is to establish **measurements of success** such as population-based health metrics, improved patient outcomes, enhanced patient satisfaction, and reduced future medical intervention utilization. Currently, hospitals are often measured by how many procedures they performed, what new drugs they are making available, how few mistakes they made. The long-term health of the patients are not measured, or considered, as part of their success key metrics. And it should be.

Technological advances, especially with rigorous AI data analytic capabilities, should lead to a better system that includes the human system's naturally occurring, self-regulatory capacity. This, then, should lead to massive economic savings leveraged by simply preventing chronic diseases that are widely known to be preventable through inexpensive lifestyle choices. But only if true leaders are establishing and looking at those measures as part of bringing health maximization into the medical intervention system.

True leaders may need to build the infrastructure for health maximization. Often the infrastructure for expanding outside of conventional medical paradigm is completely missing. There are currently very few billing codes for the integrative medical treatments and health maximizing programs in the electronic health record system. Even the most innovative new hospital complexes were not designed and built with exercise, mindbody practice, and life coaching in mind. Practitioners focus solely on drug and surgical interventions instead of insisting on a wide variety of possible support programs. There may not be open meeting room where group classes can be held, for example. There may not be kitchens where patients can learn to make wholesome nutritious food that maximizes their own health and prevents chronic health challenges.

Currently, policies and procedures may not include defined referral processes or documentation that advocate or even prescribe health enhancement programming. True leadership is needed to foster health communities, therefore. True leaders will seek out and establish codes for treatment and activity codes that can be entered into the electronic health records, rearrange physical spaces to include appropriate options for group movement, nutrition, holistic life planning and meditation classes. True leaders will establish referral processes and procedures for integrative medicine practice options for patients. These options might include all environments; at school or at work as well as at faith based institutions, social serve agencies, first responders, members of the military and veterans, etc.

Maintaining high quality in the development and delivery of innovative programs and building in continuous institutional process improvement is always foundational for any leader in any business sector. For the fruition of the vision and potential of optimum holistic health sustainability for patients, such innovation and continuous quality improvement is crucial. Clear and transparent metrics will necessarily be built into the evaluation procedures for all integrative health programs including patient satisfaction, attendance rates, and competency of instructors as well as magnitude of costs, disease burden and even health acceleration. Focus groups can be very helpful, as are detailed feedback surveys. Both can provide the kind of improvements that will enable integrative health programs focused on wellbeing to flourish.

It is essential that Leaders bringing health maximization into the medical intervention system be encouraged and educated to understand the historical, educational, economic, social context of a wellbeing advocacy system including the theoretical foundations and the practical applications. Mind-Body practices like tai chi and qigong and yoga, plus all the other functional enhancement systems tap a deep well of foundational knowledge, much of it overlapping, that should be understood so that the mechanisms of these practices make sense. And – most importantly, so that the socio-economic advantages can be elicited.

In Summary

The real power of true leadership in health requires a vision that synergistically combines the medical intervention service delivery with health maximization strategies such as integrative healthcare practices including mind body methods and quality-of-life behavioral programs. Taking steps to communicate the vision, and leveraging the vision toward actual implementation that is navigating the practical social, institutional and even political necessities is the true mark of a leader.

Making this vision a reality suggests close collaboration between providers, practitioners, and physicians along with scholars, researchers, legislators, community leaders and citizen groups. Working together as work groups and teams with respect for each area of expertise is essential. Working together requires regular communication, coordination of care plans and programs, and shared decision-making. Working together will enable all stakeholders to make the most progress toward their shared goals to manage medical intervention in health challenges. Working together will enhance the quotient of well-being and resiliency in the broader community.

There are many such visionary true leaders in the medical intervention system already bringing in health maximization strategies, but unfortunately not nearly enough to make the health, social and economic benefits more than token programming and lip service. More research needs to be done not only on the variety of benefits for a larger variety of integrative practices, but also of the economics of those practices and the enhancement of outcomes for patients before it will be the **standard** rather than the rare exemption.

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Pennsylvania Treasury Strategic Plan Initiatives 2025-2029

Thomas O. Armstrong, Pennsylvania Treasury Bureau of Policy, tarmstrong@patreasury.gov
David Dwight Buell, Pennsylvania Treasury Bureau of Policy
Vidhya J. Hartung, Pennsylvania Treasury Bureau of Policy
Josephine L. Hudak, Pennsylvania Treasury Bureau of Policy
Craig T. Magovern, Pennsylvania Treasury Bureau of Policy

ABSTRACT

The Pennsylvania Treasury has a fiduciary responsibility to manage the Commonwealth's public funds with prudent care and accountability. Under Treasurer Stacy Garrity's leadership, the Treasury is enhancing its organizational competencies to address the evolving financial landscape of both the public and private sectors. The Strategic Plan 2025-2029 outlines eight key goals focused on improving both logistical and financial operations, along with proposed initiatives for each goal over the next four years. In doing so, the Treasury not only fulfills its duty as a responsible steward of state funds but also strengthens its ability to better serve the citizens of Pennsylvania.

KEYWORDS
Pennsylvania treasury, strategic plan goals and initiatives, leadership, fiscal responsibility, transparency

Introduction

The Pennsylvania Treasury's Strategic Plan 2025-2029 (March 2025) underscores the integral connection between leadership and management in driving the organization's success (Vandersmissen et al., 2024; Wongsin et al., 2025). Effective leadership sets the vision and strategic direction, while robust management ensures the execution of initiatives and the achievement of goals. The Plan highlights the importance of aligning leadership and management practices with Treasury's mission to enhance fiscal responsibility, transparency, and modernized financial management. By fostering a culture of accountability and continuous improvement, Treasury ensures that its leaders and managers work cohesively to navigate the evolving financial landscape and deliver exceptional service to the citizens of Pennsylvania.

The release of the Strategic Plan in March 2025 marks a significant institutional milestone, representing the first formal articulation of Treasury's long-term strategy for managing the Commonwealth of Pennsylvania's public finances (Pennsylvania Treasury Department, March 2025). As noted in the Governor's Executive Budget (February 6, 2024), Treasury is entrusted with the safe, efficient, and effective stewardship of the state's financial assets. In support of this mandate, the agency aspires to assume a leadership role in public financial reporting, institutional transparency, and operational integrity—principles that reflect broader public sector governance standards and academic frameworks for effective financial administration.

The Pennsylvania Fiscal Code (Act of April 9, 1929, P.L. 343, No. 176, Cl. 72) outlines the authority and responsibilities of Treasury, the Board of Finance and Revenue within Treasury, and various other state agencies. This includes the collection of taxes and funds owed to the Commonwealth, the management and allocation of funds and securities held by the state, and the resolution of claims against the Commonwealth.

Treasury's purpose involves the responsible management of public funds across Pennsylvania, monitoring financial securities, collecting dividends and interest, executing securities trades, handling trade settlements, and managing public investments. Its operations extend to managing essential consumer programs, as outlined in the Pennsylvania Treasury Strategic Plan 2025-2029 (March 2025). Armstrong and Magovern (2024) identify six key objectives as fiduciary custodians of the Commonwealth's financial assets, which include safety, efficiency, effectiveness, transparency, prudence, and shareholder management:

1. Safety: Ensuring robust security and protection of entrusted assets through comprehensive internal controls, rigorous risk management, and effective security protocols to prevent theft, fraud, and mismanagement (Brucker et al., March 2012).

2. Efficiency: Enhancing productivity in financial management processes, optimizing resource use, making evidence-based decisions, simplifying administrative tasks, and employing technology to increase efficiency and lower costs (Organization for Economic Co-operation and Development, September 28, 2010). The anticipated outcome is increased resource availability for efficient activities (Armstrong, 2023).Effectiveness: Aligning investment strategies with Pennsylvania's financial goals, aiming for maximum returns on investments, mitigating risks, and enhancing long-term asset value (Mckinney, 2015; Varea & Arosteguiberry, January 19, 2016).

3. Transparency: Committing to full accountability through accurate, current records; timely, comprehensive financial reporting; and strict adherence to legal and regulatory standards (Mckinney, 2015; Seiferling & Shamsuddin, 2015).

4. Prudence: Exercising informed and careful decision-making that fosters investor confidence in the Commonwealth's debt. This involves conducting diligent reviews of investments, diversifying portfolios to balance risk, and adhering to established investment policies and guidelines. Maintaining fiscal discipline can bolster investor confidence, thereby mitigating the risk of sudden fiscal crises (Musgrave & Musgrave, 1989). Stiglitz (2000) suggests that clear fiscal policies and long-term planning frameworks can reduce financial instability and enhance investor trust. Emerson et al. (September 2005) discuss fiscal prudence from a trustee's perspective (Longstreth, 1986).

5. Shareholder Management: Offering strategic oversight for publicly held assets, particularly stocks and equities managed within the Commonwealth's investment funds (Pennsylvania Treasury Department, March 2025). The Treasurer balances financial returns with responsible corporate governance, using voting rights to promote policies that support long-term value creation, transparency, and accountability in companies in which Pennsylvania holds equity. This stewardship not only supports the state's portfolio performance but also bolsters Pennsylvania's broader economic stability and growth.

   Verbeke and Tung (March 2012) propose that competitive advantage relies on an organization's capacity for management-driven, transformational adaptation over time. Shareholder management aligns with a fiduciary role, while stakeholder management has been proposed as a broader alternative, potentially extending beyond the traditional fiduciary duty of prudent care.

Through its commitment to safety, efficiency, effectiveness, transparency, prudence, and shareholder management, Treasury upholds its fiduciary duty, fostering responsible public finance management that contributes to Pennsylvania's economic well-being and prosperity.

Pennsylvania Treasury Goals

The Pennsylvania Office of the State Treasurer is one of three independent state offices that is not under the jurisdiction of the Governor. The other two independent state offices are the Attorney General and Auditor General. Pennsylvania Treasury serves as the custodian of more than $170 billion in Commonwealth funds as of December 31, 2024, and is responsible for the receipt and deposit of state monies, investment management and oversight of all withdrawals and deposits from state agencies.

Treasurer Stacy Garrity officially assumed office on January 19, 2021. From the outset of her tenure, she identified eight key goals aimed at improving the efficiency and effectiveness of Treasury (Pennsylvania

Treasury Department, March 2025). These goals are outlined in the following discussion, each accompanied by specific initiatives designed to be attainable. By setting expectations, Treasurer Garrity ensures that progress toward these goals can be tracked over time.

➢ **Goal 1: Fiscal Watchdog**

Upholding the prudent person standard to ensure Treasury is a responsible steward of Commonwealth funds, acting as a fiduciary to safeguard principal, meet liquidity needs, and achieve a positive return on funds.

➢ **Goal 2: Openness and Clarity**

Providing easily accessible information to maintain public trust in the management of taxpayer funds and resources, while ensuring transparency in Treasury's decisions and services for the citizens of Pennsylvania.

➢ **Goal 3: Rural Outreach**

Expanding outreach efforts with a particular focus on increasing access for rural communities to ensure Treasury's programs benefits are available throughout the Commonwealth. Pennsylvania Treasury uses the definition of rural provided by the Center for Rural Pennsylvania (2024). A county, school district, or municipality is rural when the number of people per square mile within the county, school district, or municipality is fewer than 291 people. A municipality can also be considered rural when the municipality is in a rural county and has fewer than 2,500 residents. There are 48 rural Pennsylvania counties out of 67 counties; 238 of the state's 500 public school districts are rural; and 1,649 municipalities out of 2,560 are rural.

➢ **Goal 4: Waste and Fee Reduction**

Reducing waste and costs through technological advancements, while striving to eliminate as much physical and logistical waste as possible within Treasury. Armstrong (2023) and Chesaru and Matei (2015) discuss modernization and cutting waste and fees.

➢ **Goal 5: Unclaimed Property**

Streamlining the process for returning unclaimed property to rightful owners while actively working to return as much as possible to the citizens of the Commonwealth and promoting the simplicity of the process.

➢ **Goal 6: Affordable Savings**

Enhancing the accessibility and usability of state-offered savings plans while advancing new affordable savings and retirement options, ensuring all Commonwealth citizens have the opportunity to achieve financial stability.

➢ **Goal 7: Leadership Development**

Investing in employee growth by fostering essential skills, implementing forward-looking processes, and developing professional leaders to support the future of the Commonwealth.

➢ **Goal 8: Modernization**

Modernizing and simplifying processes to create a more efficient and cost-effective experience for both customers and administrators, while ensuring Treasury's operations align with the evolving digital landscape. Armstrong (2023) and Chesaru and Matei (2015) discuss modernization and cutting waste and fees.

The process of identifying the initiatives under the eight Treasury goals is straightforward. The information came from public sources such as Treasury's press releases, internal documents, and bureau survey submissions as discussed in the next section. From 2025 to 2029, there are 75 identified initiatives while understanding additional initiatives may be proposed that have not been identified yet. Afterwards, greater details are provided for some of the Treasury initiatives. Finally, a conclusion is provided.

Collection of Initiatives for the Strategic Plan

Initiatives included in the Strategic Plan were gathered through two primary sources: the Treasury Major Project Tracker and the Strategic Plan Bureau Survey, which was distributed twice.

The Treasury Major Project Tracker is an internal quarterly report that requires bureaus to document all ongoing projects and recently completed projects from the previous quarter. The Strategic Plan initiatives were sourced from the Treasury Major Project Tracker for the third (Q3) and fourth (Q4) quarters of 2023. Bureaus reported key project details, including project names, brief descriptions, priority levels, percentage of completion, expected completion dates, project leads, and any other involved bureaus. Projects that were still in development or had distant expected completion dates were considered for inclusion as initiatives in the Strategic Plan.

The Strategic Plan Bureau Survey was specifically designed to capture initiatives that were in their early stages, had yet to make progress, or had long-term completion timelines. This Survey was distributed in two rounds, coinciding with the quarterly dissemination of the Major Project Tracker in May (Q2) and August (Q3) of 2024. The Survey was structured similarly to the Major Project Tracker, allowing bureaus to easily transfer relevant projects that met the Survey's criteria for an initiative.

Bureaus submitting information through the Survey were required to provide a comprehensive project description, key performance measures and milestones, expected completion dates, and internal project leads. This additional level of detail enabled Treasury to assess long-term initiatives and incorporate more granular project data into the Strategic Plan. Notably, many of the initiatives identified through the Survey aligned with those documented in the Major Project Tracker.

By sourcing initiatives from both the Treasury Major Project Tracker and the Strategic Plan Bureau Survey, Treasury was able to ensure a comprehensive representation of ongoing or future initiatives.

Treasury Initiatives: 2025-2029

The list of Treasury initiatives within the eight goals provides granular information beginning with the year 2025 to 2029. Each goal, with a partial listing of the initiatives, is listed in table format under each respective heading and its corresponding description.

Table 1. Goal One – Fiscal Watchdog

Table 1 outlines the initiatives supporting Goal One: Fiscal Watchdog. Treasury's primary fiduciary responsibility is to safeguard principal, maintain liquidity, and generate positive returns on funds. As a fiduciary, Treasury must manage financial resources with the highest standard of care, ensuring all actions serve the best interests of Pennsylvania taxpayers.

To protect the principal, Treasury implements strong strategies and controls to preserve the original invested or entrusted funds. Maintaining the "prudent person" standard remains essential to its fiscal watchdog role. Treasury also strengthens its oversight by advancing policies such as the resolution requiring the Federal Housing Finance Agency to rescind changes to Fannie Mae and Freddie Mac's pricing framework, which impacts homebuyers in Pennsylvania. Additionally, active participation in Boards and Commissions helps Treasury fulfill its fiduciary obligations.

Beyond safeguarding principal, Treasury ensures liquidity by balancing liquid assets and investments, guaranteeing sufficient funds to meet short-term obligations. This careful management supports operational stability while allowing strategic investments for higher returns.

Positive risk returns are essential as Treasury achieves the initiatives. Treasury optimizes investments through market expertise, risk management, and financial analysis to foster long-term growth. Ongoing initiatives like Act 44, Act 132, and Act 53 help Treasury assess and refine its investment strategies. Enhancing the INVEST program and leveraging the expertise of the Treasury's newly acquired asset manager further supports growth by increasing participation and assets.

By effectively balancing these responsibilities—protecting principal, ensuring liquidity, and maximizing returns—Treasury strengthens the Commonwealth's financial health and long-term stability (Pennsylvania Treasury Department, March 2025).

Table 1. Goal 1 – Fiscal Watchdog

Initiatives
Continue Treasury's fiduciary prudent person standard. - Treasury is directed to exercise with care, skill, prudence and diligence that a "prudent person" would act in like circumstances. The objective is to (1) safeguard the principal of the public funds; (2) the secondary objective is to meet the liquidity needs of the public funds; and (3) the third objective is to achieve a risk return on the funds.
Implement the resolution mandating the Federal Housing Finance Agency (FHFA) to rescind changes to Fannie Mae's and Freddie Mac's single-family pricing framework for home purchases, rate-term refinance and cash-out refinance loans that affect homebuyers in this Commonwealth. - By enforcing this updated pricing framework, the Treasury guarantees that the compliance process is followed correctly, ensuring that constituents receive the appropriate financial terms for their home purchases and refinances.
Enhance the INVEST program. - The INVEST program is a family of highly rated investment pools designed specifically for local government and nonprofit organizations. Enhancements can be made to the range and incentives of the investments to increase positive returns for investors.
Continue Act 44 (Protecting Pennsylvania's Investments Act), Act 132 (Russia and Belarus Divestiture Act), and Act 53 (Act requires the State Treasurer to submit an Annual Investment Report) Annual Reports. - These reports provide oversight and accountability regarding the management of Pennsylvania's investments, including divestitures from Russian and Belarusian interests and annual investment performance updates.
Grow INVEST program participation and assets through the newly appointed INVEST manager. - The newly appointed INVEST manager will leverage their expertise and leadership to enhance the program's performance, attract more investors, and optimize returns.
Continue Treasury's robust involvement in Boards and Commissions. - By chairing the Board of Finance of Revenue and serving on 14 other boards, the Treasurer helps to provide oversight, strategic direction, and accountability across various financial matters in Pennsylvania.

Table 2. Goal 2 – Openness and Clarity

Table 2 describes initiatives supporting Goal Two: Openness and Clarity. Treasury is committed to transparency by providing clear, accessible, and timely information about its decisions, services, and financial activities. This ensures that Pennsylvania citizens understand how public funds are managed, what financial strategies are implemented, and the outcomes of these decisions.

By prioritizing openness, Treasury fosters public trust through truthful and straightforward communication. Regular reports and accessible platforms enable citizens to engage with the state's financial governance, reinforcing accountability and ethical stewardship. On-going initiatives such as Unclaimed Property audits and INVEST reports further enhance transparency, ensuring that Treasury's operations remain open to public scrutiny.

Providing detailed information about Treasury's services empowers residents to make informed financial decisions. Enhancements like a PA 529 "Contact Page," public-facing PA 529 and PA ABLE dashboards, and updates to the Transparency (OpenBookPA) Dashboard improve accessibility and usability of financial resources.

Ultimately, Treasury's commitment to openness and clarity strengthens public trust, enhances accountability, and ensures it serves the best interests of Pennsylvania's citizens.

Table 2. Goal 2 – Openness and Clarity

Initiatives
Continue Unclaimed Property audits.   -   The audits ensure that unclaimed property is properly identified, safeguarded, and returned to its rightful owners, while also enhancing the state's ability to recover and manage these assets for the benefit of Pennsylvania's residents. Regular audits help maintain compliance, prevent fraud, and maximize the state's ability to protect and return unclaimed property.
Create public facing PA 529 and PA ABLE dashboards.   -   These dashboards would enhance transparency, empower stakeholders with easy access to key financial data, and promote informed decision-making for educational savings and disability-related financial planning.
Continue to update the Transparency dashboard.   -   Updates will ensure the ongoing availability of accurate, up-to-date financial information, foster public trust, and support informed decision-making by residents and policymakers.
Continue to improve Unclaimed Property Notification Procedures for Claimants.   -   This process will improve the quality of the Unclaimed Property notification procedure so that claimants can utilize an improved information pipeline.
Review and update Automated Email/Communications.   -   Ensures that messages remain clear, relevant, and aligned with current goals, improving engagement and user experience, and supporting methods for constituents to receive information.

Table 3. Goal 3 – Rural Outreach

Table 3 focuses on the Goal of Rural Outreach, highlighting Treasury's commitment to ensuring that all areas of the Commonwealth, including rural communities, benefit from its programs. By expanding its outreach efforts, Treasury seeks to close the gap between urban and rural regions, promoting equitable access to financial resources, support, and information. Initiatives within Rural Outreach aim to raise awareness among rural residents about available benefits such as financial assistance and investment opportunities. Ultimately, increased rural outreach fosters financial inclusion, strengthens the state's overall economic health, and reinforces the social fabric by making rural communities feel recognized and supported.

Treasury is committed to reducing barriers of entry and expanding the reach of available services such as Agriculture-Linked (Agri-Link), PA 529 Savings, PA Achieving a Better Life Experience (ABLE) programs, and unclaimed property returns. Many of the rural counties found in Pennsylvania are often underserved, resulting in less education about the services that are offered by the state and are not recognized as being able to prosper from specific programs. By reducing these barriers and expanding eligibility, Treasury can increase access to life building and lifesaving financial programs across the Commonwealth, even to the most rural counties.

Table 3. Goal 3 – Rural Outreach

Initiatives
Reduce barriers of entry for available Treasury consumer financial programs. - Reducing the barriers of entry will help increase access for underserved populations, particularly in rural counties, ensuring broader participation and equitable financial opportunities across the state.
Expand the Agriculture-Linked (Agri-Link) Program. - The Agri-Link Program is a low-interest loan program designed to help agricultural operations in Pennsylvania which are implementing best management practices. Treasury wants to expand this to include other facets of the agriculture industry.
Leverage Consumer Programs' regional outreach staff to better expand Treasury's geographical influence. - The Outreach Team brings Treasury resources to all counties across the Commonwealth by directly engaging local communities, building trust, and ensuring more targeted, effective outreach to all populations statewide.
Enhance the reach of returning unclaimed property to the Commonwealth counties and municipalities as well as other rural entities. - Expanding the reach is essential for maximizing the impact of Treasury's efforts, ensuring that even the most underserved areas receive their rightful assets and benefit from the financial resources available.
Expand outreach through Legislative offices. - Informing the Legislative offices of our elected officials about unclaimed property and other Treasury programs is crucial for raising awareness and sharing information with constituents throughout the state.

Table 4. Goal 4 – Waste and Fee Reduction

Table 4 records the fourth Goal of Waste and Fee Reduction initiatives. Treasury maintains its goal of eliminating as much physical and logistical waste as it can through technological improvements and application of lean processes. By leveraging advanced technologies, Treasury aims to streamline its operations, reduce resource consumption, and enhance overall productivity.

A key component of this goal is risk management, which allows Treasury to safeguard assets and operations. Deploying Enterprise Risk Management identifies, assesses, and prepares for potential damage that may interfere with Treasury's operations and/or lead to losses.

The Lean concept of process improvement and waste reduction is seen in Treasury's initiatives to restructure the INVEST program process to enhance participant experience and improve internal workflow. A lean study was instrumental in the decision to retire obsolete machinery, reduce risk, and eliminate costly annual maintenance.

Another aspect of this initiative is the digitization of processes that were traditionally paper based. By implementing electronic document management systems, Treasury can significantly reduce the use of paper, ink, and physical storage space. This not only cuts down on material waste but also speeds up document retrieval and processing times, improving efficiency and reducing the risk of errors.

In addition to digitization, Treasury is adopting automation technologies to handle routine and repetitive tasks, such as updating automated email and communications between Treasury and third-party vendors. Automation can help minimize the need for manual intervention, thereby reducing the potential for human error and freeing up staff to focus on more strategic and value-added activities. This can lead to a more efficient use of personnel and resources.

By continuously seeking and implementing technological improvements, Treasury not only eliminates physical and logistical waste, but also positions itself as a forward-thinking and responsible entity. This commitment to efficiency helps conserve resources, reduce operational costs, and set a positive example for other organizations and the public.

Table 4. Goal 4 – Waste and Fee Reduction

Initiatives
Monitor the Money Network Service Level performance through the Bureau of Unemployment Compensation Disbursements (BUCD). -   The Money Network Service Level is a reporting system for pre-paid cards used by BUCD. Through Treasury, BUCD monitors this system for any fraud that may happen with their services.
Deploy Enterprise Risk Management (ERM) identifies, assesses, and prepares for potential damages that may interfere with the Treasury's operations and objectives and/or lead to losses to financial, cybersecurity, operational, and fraud malpractices risks. -   ERM is essential to the operational and fiscal health of Treasury across all sectors and services that the Department offers.
Continue to update the Green Book. -   The Green Book is an institutional knowledge system that documents the five elements of internal control and documents risk assessments for the Treasury bureaus that have a material impact on the annual Generally Accepted Accounting Principles (GAAP) Audit, reducing the amount of backend work that needs to occur during audits.
Lean initiative to restructure the INVEST PA Program process which will enhance participant experience and improve internal workflow. -   Lean initiatives are internal process improvements within Treasury and have been introduced into the INVEST PA Program to ensure long-term engagement and more efficient operations within Treasury.
Lean study to retire obsolete 3-up check cutting machine which will reduce risk and eliminate costly annual maintenance. -   Treasury plans to replace the outdated check-cutting machine, which is inefficient in design and energy use, to reduce material waste and electricity consumption.
Implement address update and suppression services for Treasury mailings to minimize returned mail and wasted postage. -   Treasury is continually updating addresses and reducing the number of mailings that go to constituents who otherwise are not interested, reducing the amount of paper waste and energy for returns.
Continually review parameters to automatically approve more payments. -   The more automatic payments that are processed, either through process improvements or parameter extensions, the less waste is created through arduous, manual processes.
Update Unclaimed Property's website to block problem bank routing numbers for Automated Clearing House (ACH) payments. -   These updates would reduce waste and fees through ACH payments that would get stopped at certain banks who have not introduced the proper updates, allowing more ACH payments from other banks to flow through at a greater capacity.

Table 5. Goal 5 – Unclaimed Property

Table 5 lists initiatives under the Goal of Unclaimed Property. Treasury is set on returning as much unclaimed property to citizens of the Commonwealth as possible, while also improving and promoting the simplicity of the process with emphasis on maintaining and improving turnaround times. Unclaimed property can include a wide range of assets such as forgotten bank accounts, uncashed checks, insurance policy proceeds, utility deposits, and more, which often go unclaimed due to changes in address, lost records, or other reasons. Treasury has expedited the return of military medals and other claims made by active-duty service members and veterans.

To maximize the return of unclaimed property, Treasury employs various proactive measures. These include regularly updating and maintaining a comprehensive database of unclaimed assets, which is accessible to the public. By making this information readily available online, citizens can easily search for and identify any property that rightfully belongs to them.

In addition to maintaining an accessible database, Treasury undertakes outreach to raise awareness about unclaimed property. By actively informing the public, Treasury ensures that more people are aware of the potential assets they might have forgotten about.

Simplifying the process of claiming unclaimed property is another key aspect of Treasury's efforts. This involves streamlining the claim submission process by providing clear instructions and user-friendly online forms. Money Match is a recently introduced initiative which makes it even easier for rightful owners to claim property by eliminating paperwork and online filing steps.

Treasury's commitment to returning unclaimed property and simplifying the process reflects its broader mission of serving the public interest and promoting financial well-being. By diligently working to reunite citizens with their lost assets, Treasury not only provides a valuable service but also strengthens the trust and confidence of the community in its public institutions.

Table 5. Goal 5 – Unclaimed Property

Initiatives
Continue Vault Auctions.   - Vault auctions sell off unclaimed property that has not been claimed after a certain period, generating revenue for the state.
Pursue Reciprocal Payments in Unclaimed Property.   - The reciprocal payment system allows unclaimed property in other states to be reported in Pennsylvania for citizens who do not live in those other states, therefore garnering more unclaimed property pay outs to Pennsylvanians and ensure that rightful owners are reunited with their property, regardless of jurisdiction.
Expedite Military Medal returns, and other claims made by Active-Duty Service Members and Veterans.   - By creating expeditious processes for Active-Duty Service members and Veterans, unclaimed military medals and other property held in the Treasury vault can be quickly returned to those who served their country.
The new PA Money Match initiative helps return unclaimed property to individuals by automatically matching their information with the state's records, making the process easier and faster.   - This proactive approach ensures that more people can reclaim their forgotten funds without having to search through a large database.
Continue to utilize the outreach team to expand awareness for Unclaimed Property end users.   - One out of ten Pennsylvanians has unclaimed property. Expanding awareness will ensure more individuals are informed about how to reclaim their assets and reducing the number of unclaimed funds left unprocessed.

Table 6. Goal 6 – Affordable Savings

Table 6 has the Goal of Affordable Savings. Treasury is committed to increasing the viability, useability, and ease of access to current state offered savings plans as well as advancing new affordable savings and retirement plans so that all Commonwealth citizens can obtain financial stability.

To enhance the viability of existing savings plans, Treasury continuously evaluates and updates these programs to ensure they meet the evolving needs of citizens. This involves reviewing investment options, fee structures, and administrative processes to optimize performance and value for participants. Treasury will continue to utilize PA 529 Morningstar Ratings and Annual Reports. By maintaining a diverse range of investment choices and competitive fee schedules, Treasury ensures that these plans remain attractive and beneficial to a broad spectrum of users.

Usability is another critical focus. Treasury emphasizes the development of intuitive, user-friendly interfaces for accessing and managing savings accounts. This includes creating clear, straightforward online platforms and mobile applications such as the mobile app for the PA 529 Guaranteed Savings Plan that allow users to easily enroll, track their investments, and adjust as needed.

Ultimately, Treasury's commitment to improving and expanding savings and retirement plans is rooted in the goal of ensuring financial stability for all citizens. By providing accessible, user-friendly, and viable options,

Treasury enables individuals to build a secure financial future, contributing to the overall economic resilience and prosperity of the Commonwealth.

Table 6. Goal 6 – Affordable Savings

Initiatives
Continue PA 529 Morningstar Ratings and Annual Reports.   - The Reports provide Treasury with an overview of the PA 529 investments' performance and offer insights into the investment's standing, based on one of the most reputable rating systems in the country.
Expand awareness of savings programs for apprenticeships and trades.   - Savings programs exist for those who are looking to continue their education at the higher level such as college or university, but there is an urgent need to expand awareness of savers who are considering their education in the trades.
Develop mobile app for the PA 529 Guaranteed Savings Plan.   - By creating a mobile app, the app provides a mobile one-stop-shop option for Pennsylvanians to review the status of their PA 529 Guaranteed Savings Plan.
Review PA 529 Guaranteed Savings Plan Structure.   - Continuous reviewing the PA 529 Guaranteed Savings Plan structure is essential to ensure its continued viability and effectiveness in meeting the evolving needs of families saving for higher education.

Table 7. Goal 7 – Leadership Development

Table 7 has Leadership Development as the seventh Goal. Treasury aims to develop skills and processes for future leaders of the Commonwealth and to increase opportunities for its entire workforce.

Maintaining skills involves continuous professional development for existing leaders within Treasury. This includes offering training programs, workshops, and seminars that keep leaders up to date with the latest trends, technologies, and best practices in financial management, public administration, and leadership. Treasury also encourages participation in national conferences and online discussion groups to exchange best practices amongst similar groups. By investing in ongoing education, Treasury ensures that its leaders remain competent, innovative, and capable of making informed decisions that benefit the Commonwealth.

Creating new skills and processes is equally crucial for preparing the next generation of leaders. This involves identifying and nurturing talent through structured career development programs such as the Leadership Development Program and mentorship opportunities. These initiatives are designed to equip emerging leaders with the knowledge, skills, and experience needed to assume higher responsibilities and drive the organization forward.

Furthermore, Treasury is committed to implementing robust talent management and succession planning strategies. This involves identifying key roles within the organization, assessing the skills and potential of current employees, and creating development plans to prepare them for future leadership positions. By systematically planning for leadership transitions, Treasury ensures continuity and stability in its operations.

In summary, Treasury's goal of maintaining and creating skills and processes for professional leaders is centered on building a strong, capable, and forward-thinking leadership team. Through continuous development, innovation, and strategic partnerships, Treasury equips its leaders to effectively serve Treasury, addressing present needs while preparing for future challenges and opportunities.

Table 7. Goal 7 – Leadership Development

Initiatives
Continue to build Retention/Succession planning.   - As the workforce grows older, Treasury is creating a retention and succession plan to make sure that institutional knowledge is not lost as new employees emerge.
Uphold the Leadership Development Program.   - The Leadership Development Program aims to enhance leadership skills and prepare employees for leadership roles within Treasury.
Offer mentor programs to new management employees by pairing with existing long-time managers.   - The mentorship program pairs new management employees with experienced long-time managers to provide guidance and transfer institutional knowledge, similar to the Leadership Development Program.
Create and expand the Internship Program for students from Penn State Dickinson Law.   - By expanding the Treasury Internship program, Treasury is able to foster professional development and career opportunities for law students and expand its future talent pool.
Maintain robust internal communication processes to share global updates of Bureaus' successes, new hire/retirement staffing updates, and network opportunities among all Treasury staff.   - Robust internal communication processes ensure transparency, foster a sense of community, and align Treasury staff with the organization's successes, staffing changes, and networking opportunities for future growth.
Participate in national conferences and online group discussions to exchange best practices amongst similar programs.   - Participating allows Treasury personnel to exchange best practices, stay informed on industry trends, and enhance the effectiveness of their programs through collaboration with peers.

Table 8. Goal 8 – Modernization

Lastly, Table 8 lists the initiatives within the eighth Goal of Modernization. In keeping with the contemporary technological environment, Treasury has maintained its mission to modernize and simplify its processes to fit within the current digitized sphere.

Modernization involves adopting the latest technological advancements to overhaul outdated systems and practices. This includes migrating from paper-based processes to electronic systems, implementing robust financial management software, and leveraging data analytics to inform decision-making. By utilizing cutting-edge technology, Treasury can automate routine tasks, reduce processing times, and minimize the risk of errors, thereby increasing operational efficiency and accuracy.

Simplification is another key aspect of this mission. Treasury is focused on making its processes as user-friendly and straightforward as possible. This involves redesigning workflows to eliminate unnecessary steps, consolidating multiple forms and procedures into single, cohesive processes, and ensuring that digital interfaces are intuitive and easy to navigate. Simplified processes not only save time and reduce frustration for users but also lower administrative burdens for the department, allowing staff to focus on more strategic activities.

To fit within the current digitized sphere, Treasury is also investing in cybersecurity measures to protect sensitive information and ensure the integrity of its systems. This includes implementing advanced encryption techniques, conducting regular security audits, and training employees in the best practices for data protection. By prioritizing cybersecurity, Treasury safeguards public trust and ensures that its digital operations remain secure and resilient.

Moreover, Treasury is committed to enhancing accessibility through digital channels. This involves providing online portals and mobile applications that enable citizens to easily access services, such as checking the status of their accounts, from anywhere at any time.

Another important aspect of modernization is the integration of machine learning technologies. For instance, Treasury implemented a chatbot to answer common queries concerning programs and services, thereby improving customer service and reducing wait times.

Finally, Treasury is fostering a culture of continuous improvement and innovation. This involves encouraging employees to embrace new technologies, experiment with innovative solutions, and share ideas for enhancing efficiency and effectiveness. By cultivating a forward-thinking mindset, Treasury ensures that it remains adaptable and responsive to the evolving technological landscape.

By modernizing and simplifying its processes to fit within the current digitized sphere, Treasury enhances its operational efficiency and service delivery. This commitment to digital transformation ultimately benefits the citizens of the Commonwealth, providing them with more efficient, secure, and accessible financial services.

Table 8. Goal 8 – Modernization

Initiatives
Expand Automated Clearing House (ACH) Payments to Schools and PA 529 Account Owners.   - By switching to the online ACH payment method, program users can quickly deposit and access their funds faster than with a manual process.
Update existing and create new Treasury's video library content for all Consumer Programs.   - This will enhance accessibility, provide clear educational resources, and ensure that current and potential stakeholders are well-informed about PA Treasury's offerings.
Implement vendor ACH payments.   - Similar to expanding ACH to schools and PA 529 owners, this expansion would make the vendor payment process more efficient by going through the automatic process rather than a manual process.
Enhance Keystone Scholars system efficiencies.   - Enhancing the Keystone Scholars system efficiencies by updating key systems reduces staff workload, streamline operations, and improve overall program effectiveness.
Streamline and automate data reporting and analysis for Savings Programs.   - Streamlining and automating data reporting and analysis reduces resource expenditure, enhances efficiency, and allows Treasury to better serve administration of the Savings Programs and constituents.
Implement the PeopleSoft State Workers' Insurance Fund (SWIF) integration.   - Integrating the PeopleSoft SWIF will increase data acquisitions and transfer to reports for greater efficiency in reporting.
Continue the Mandiant penetration testing for cybersecurity threats.   - Mandiant penetration testing ensures that Treasury cybersecurity provisions are up to date and can better withstand any current cybersecurity threats.
Continue the AccessIT National Institute of Standards and Technology Cybersecurity Framework Assessment to assess cybersecurity risks.   - Similar to the Mandiant penetration testing, the AccessIT assessment makes sure that all of Treasury's cybersecurity infrastructure can better withstand contemporary cybersecurity threats.
Implement a text-based communication system to enhance marketing and communication efforts to program patrons.   - Implementing a text-based communication system expands marketing and communication efforts by providing an additional, direct avenue for constituents to engage with and learn about Treasury programs.

Conclusion

State treasuries are responsible for disbursing legal payments, managing cash reserves, and investing taxpayer funds with prudence. By embracing modernization to reduce costs, enhancing spending transparency, expediting the return of unclaimed property, promoting affordable savings options, advancing employee skill development, expanding outreach across Pennsylvania, and safeguarding taxpayer resources, Treasury remains committed to improving its performance and delivering exceptional service to its stakeholders. All 75 identified initiatives under the eight goals are actively tracked by Treasury leadership for management to implement.

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