National Transfer Credit System Can Increase Students Retention in Public Universities: System Thinking Leadership Perspective

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National Transfer Credit System Can Increase Students Retention in Public Universities:

System Thinking Leadership Perspective

Sevinj Iskandarova and Margaret F. Sloan

Public dissatisfaction with the transfer process (especially losing credits when transferring from one public four-year institution to another), along with financial challenges, has led policymakers to fundamentally rethink how they interact with institutions nationwide and how they create new rules and regulations, specifically among four-year institutions (Dolye, 2013; Sherman & Shea, 2020). The main focus of many states regarding the launch of state-wide initiatives, such as articulation agreements, is to facilitate transfers among two- to four-year institutions (Creech et al., 2007). Li (2010) stated that "policymakers have not adequately realized the inefficiency in four-to-four transfer," and few states explicitly include a four-year institution transfer process in their state regulations (p. 208). This lack of state-wide practices and coordination complicates the transfer process, delaying student degree completion and "increas[ing] the cost of postsecondary education for both individual students and governments" (Li, 2010, p. 208).

Currently, the efforts of policymakers and researchers focus on assisting institutions, providing clear two-to-four-year transfer path regulations (Creech et al., 2007), enhancing transfer rates (Anderson et al., 2006), facilitating the transfer process (Long, 2005), and preventing the loss of credits (Roska & Keith, 2008). However, four-to-four transfer students often still negotiate with officials at their destination institutions (Li, 2010).

The 21st-century higher education system requires strong, visionary, professional state policymakers to meet the current challenges to transfers (Perna et al., 2014). The problem is that leadership in this policy arena is not consolidated, which is required to make institutional, state,

or national policy changes. Such leadership relies on mutual trust and respect to cultivate

governors, legislators, and institutional leaders who are willing to work together and recognize

that a unified policy is in their collective best interests (Perna et al., 2014).

Implementing a well-documented, easy-to-follow articulation policy is vital because it

ensures that students will not be punished by losing credits when they transfer from one

institution to another (Roska & Keith, 2008). Correspondingly, creating transfer policies to help

students transfer from one state's four-year institution to another may not inspire students to

leave their original institutions; conversely, such policies may organize and coordinate transfers

among different states' four-year institutions, advance the effectiveness of such transfers, and

help more students obtain bachelor's degrees in a timely manner (Roska & Keith, 2008).

Addressing these knowledge gaps to contribute to the emerging literature on improving the

transferring credits system, the researchers ask: What results emerge from comparing the

quantitative data about the transfer process with outcomes from the quantitative data at the

institutional, state, and national levels (mixed-methods question)? What factors are important to

adopting a policy when providing an effective transfer credit process (quantitative question)?

What articulation agreements and guidelines currently govern transfer processes at the state

level? What do bureaucratic leaders seek to determine to provide a seamless transfer system

(qualitative question)? To answer these questions, we employed univariate and multivariate

statistical procedures to analyze the collected secondary sources of data and followed semi-

structured interviews.

Theoretical Framework

This study reflects on and embodies the concept of systems theory that searches for the

big picture by connecting dots and mapping connections. Systems theory permits us to provide

an outline that will help answer disaggregate policy questions for the entire system (as with a nationwide transfer system) or part of the system (as with institutional or state-level systems) (Sabatier, 1999).

Systems Theory, Systems Thinking – Systems Change in Policy Leadership

Systems theory is the study of natural or human-made interdisciplinary systems (Webster, 2013); *systems thinking* is a way to address issues (Kramer & de Smit, 1977). The theory follows two basic premises: 1) It recognizes the environment as composed of subsystems, and 2) It understands and tries to develop a complete system. Systems thinkers, such as Bertalanffy and Sutherland (1974), Senge (2006), Wheatley (2006), Wilber (2001), and Meadows (2009), emphasize that to facilitate change, leaders must be systems thinkers. Raising these problems encourages policymakers to evaluate their policy process and decisions (Kingdon, 1995). Drawing on this framework and understanding its implementation within the current transfer credit process, requires the decision-maker to focus on state-level and institutional-level articulation agreements that address the reason for lost credits or the decrease in transfer retention and other related policy rules and regulations.

Several scholars (Walker, 1969; Foster & Anderson, 1978; Grupp & Richards, 1975) stated that the leadership in the system should be local and that one or more states will always be the creators within a region. A leader model in system theories assumes that under two behaviors (those of a follower and leader), states will be innovators in adopting a policy, and other states will follow their lead (Walker, 1969, p. 893). Being a creator or developer results in higher prestige within any policy arena, and follower states are considered to be in the midst of a learning process (Sabatier, 2007). The characteristics of leaders and successive adoption are diffused down a hierarchy from the most developed states to the least developed states (Sabatier,

2007). The relationship between political and bureaucratic leadership is crucial to encouraging bottom-up innovation and partnership between both perspectives. Policy and bureaucracy within the educational system can sometimes motivate leaders to micromanage their responses to crises (Borins, 2002). Politicians have a sense of the importance of the duties and educational missions they face, which drives their standpoint toward the bureaucracy (Borins, 2002; Wilson, 1989). The bureaucracy, in turn, can be a professional and capable partner in future innovations. Thus, this political–bureaucratic interaction can raise performance expectations of the postsecondary higher education system and drive it toward undertaking new initiatives and providing additional resources for that vision (Borins, 2002).

Literature Review

The researchers engaged in a comprehensive and interdisciplinary literature review with particular consideration to studies from the federal reports (e.g., the U.S. Government Accountability Office, 2017; the U.S. Department of Education, National Center for Education Statistics, 2018 etc.); and the academic papers (e.g., Chen, et al., 2012; Sherman & Shea, 2020, etc.) to determine how to appropriately understand the transfer credit system and its issues.

Effective Practices

Over the past decade, states regularly modify and update their transfer information, improving the success rate of transfers to help institutions, but still concerns how to find solutions for the current issues. Intriguingly, Li and Zumeta (2015) found a strong relationship between a student's precollegiate academic aspirations (plan to transfer) and the college experience, integration, and performance experiences. Gross and Berry (2016) suggest that the ideal pathway forward is for institutions and states to clearly understand the state policy benefits and barriers to improving transfer student mobility. With explicit respect for advancing the

transfer credit process, the authors also found that mentioning certain state policy areas such as funding models, financial aid, admission policies, articulations, and transfer agreements, as well as the specific policies, are coherent and connected to support a seamless transfer process. Sherman and Shea's (2020) proposed interstate passport as the general education transfer highway model. Sherman and Shea (2020) have created a national program based on lower-division general education attainment, and this program serves as a significant articulation agreement among national institutions. The idealized final version of the model pronounces effects on students' seamless transition into upper-division schools without losing credits. Synthesizing these findings with systems theory evidence suggests that there has been enormous progress in the transfer process throughout the years. In 1985, only eight states had formal and legal agreements (Kintzer & Wattenbarger, 1985); 34 states (79%) had articulation agreements in 2000 (Ignash & Townsend, 2000). Noting the literature gap, most states performed well in transferring only students' general education coursework at an institutional level between individual students and public university administrations. States' articulation agreements fail to implement transfer rules and regulations regarding overall programs on a national level. In other words, a transfer system that supports students' retention can be practical and functional, and there can be strong state-level relationships focused on building a sustained national-level transfer system (Gross & Berry, 2016; Li & Zumeta, 2015;Sherman & Shea, 2020).

Methods: Sample and Procedures

The study received IRB approval on March 4, 2021. In this mixed-method, explanatory, sequentially designed study, the quantitative phase involved a deductive approach to answer the main research question: *What factors are important to adopting a policy when providing an effective credit transfer process?*

The *quantitative phase* utilized secondary data from the Educational Testing Service

(ETS) (2017), the policy-focused Education Commission of the States (ECS) (Wilkins, 2020),

the National Center for Education Statistics (NCES) (2018), National Association of State

Student Grant and Aid Programs (NASSGAP) (2018), and Fording's State Ideology Dataset

(FSID) (2015). Utilizing the ETS and ECS databases, the researchers collected the existing

articulation agreements for individual states, categorizing the states that have developed a

transfer policy across states, checking if there are any work-in-progress policy collaborations

within and across states, and capturing the changes and development in states' transfer policies

over the years. The NCES (Simone, 2014) and NASSGAP database provide specific relevant

financial information. Furthermore, the FSID provides state-citizen and government ideology

measures for each state.

The *qualitative phase* involved an inductive process that attempted to explore the nuances

in current articulation agreements by specific partnering institutions and programs and types of

articulations that can provide a seamless nationwide transfer system (Merriam & Tisdell, 2016).

The qualitative part of the study sought responses to the following research questions: *What*

articulation agreements and guidelines currently govern transfer processes at the state level?

What do bureaucratic leaders seek to determine to provide a seamless transfer system? In the

qualitative phase, insights, and perceptions about the phenomena central to this study were

captured in depth through phone interviews with the state's State Department of Education

officials. The qualitative phase was conducted in two waves: the first via 10-minute interviews

(open-ended questions) with as many of the 50 state-level actors as possible to gather baseline

information unavailable in the quantitative data. The second wave encompassed more in-depth

interviews with about 10 state representatives, identifying high performers (or creators) in the

transfer policy arena. A leader model in systems theory assumes two behaviors: Certain states

are inventors in adopting a policy, and other states follow these leaders (Walker, 1969, p. 893).

Being a creator or developer brings high prestige in any policy arena; the follower states,

meanwhile, are considered to be in a learning process (Sabatier, 2007).

Quantitative Analysis

Descriptive Statistics

Table 1 represents descriptive statistics, and it displays the factors that influence the 50

state leaders' decision regarding transfer credit policy to adopt or not adopt a state-wide transfer

credit policy focusing on four-year public institutions. Most (64%) states did not adopt transfer

credit-related policies. Followed by the factors that might affect the states' decision, most states

(84%) do not have any financial aid policy focusing on transfer students. More than half of the

states (31 states) were conservative states, the remaining states (13 states) were liberal, and

swing states (6 states). The swing states were North Carolina, New Mexico, Nevada,

Pennsylvania, Rhode Island, and Virginia. These states are shifting to be more liberal every year.

Slightly over half of the states designated as low motivated states to adopt new policies related to

the transfer credit. In this study, expenses of public postsecondary institutions factor mean every

state's academic student service expenses (includes academic standing, transfer agreements, &

academic success programs). The expenses factor for states regarding transfer credit ($\mu =$

$303,92) helps to realize innovations and demonstrate the states' support for a straightforward

transfer credit process within the public postsecondary institutions. Lastly, the transfer students'

per capita factor (6.38%) was added as a control variable to the factors list that might affect the

leaders' decisions.

Table 1

Descriptive Summary for the Study

Variable	Label	All States *N=50*			
		Count	%	Mean	SD
Adoption of State Legislation Agreements	- Not Adopted State Legislation Agreement	32	64%		
	-Adopted State Legislation Agreement	18	36%		
State Motivation to Advance the Legislation	- Low	26	52%		
	-High	24	48%		
State Financial Aid Policy	-Not Existing Financial Aid Policy	42	84%		
	-Existing Financial Aid Policy	8	16%		
State Political Orientation	-Conservative-oriented States	31	62%		
	-Liberal-oriented States	13	26%		
	-Swing States	6	12%		
Academic Student Service Expenses in every state	-2018 Fiscal Year			$303,92	$397,07
Transfer Students Per Capita (Control Variable)	-2018 Fiscal Year			6.38%	1.70%

Measurement Model

The unified model of state policy innovation formula (Berry & Berry, 1990) was used to frame the study hypothesis and the states' intra- and inter-transfer credit policy adoptions.

"ADOPTi, t = f (MOTIVATIONi, t, RESOURCES/OBSTACLES i, t, OTHER POLICIES i, t,

EXTERNAL i, t)"

In this study, ADOPT refers to Adoption of State Legislation Agreements = *f (*MOTIVATION

refers to State Motivation to Advance the Legislation*, RESOURCES/OBSTACLES refers to

Budget (*Expenses* of Public Postsecondary Institutions regarding Academic Student Service)*,

OTHER POLICIES refers *to* State Financial Aid Policy, EXTERNAL refers to State Political

Orientation). *t* explains a state's eligibility to adopt a policy in a particular year (in the case, of

course, when a state has not already adopted that policy). *a* is the probability that a state will

adopt the policy in year *t*, and *f* explains internal determinants (Berry & Berry, 1999).

Analysis

Both the theoretical framework and literature review require an analytic method to

describe the interactions among variables. First, conducted a multicollinearity assessment of the

data to examine the analytical model's robustness by analyzing how the independent variables

correlate. Second, event history analysis produces a binary logistic regression model that can

more easily translate into concrete and actionable recommendations for a national-level transfer

system. Initially, reviewed the data if variables present a high level of correlation (e.g., $>.8$). The

data set did not show any elevated levels of correlation. Meanwhile, a Pearson's *r* data analysis

(Table 2) revealed the strongest statistically positive correlation between State's Motivation to

Advance the Legislation (Legislative Changes) and the Adoption of State Legislation

Agreements ($r=.63$) at the $p<0.01$ level.

Table 2

Correlations Study Variables

	1	2	3	4	5	6
1. Adoption						
2. Motivation (Legislative Change)	.63**					
3. Financial Aid Policy	.29*	.35*				

4. Political Orientation	-.21	.08	-.13		
5. Budget for Expenses	-.04	.25	.17	.19	
6. Transfer Students per Capita	.10	.22	.20	-.09	.24

Notes: N= 50 states, *p <0.05 **p < 0.01

Next, a linear regression analysis was performed to assess the model's tolerance and variance

inflation factor (VIF) statistics. None of the variables appeared to signify a problem with

multicollinearity (Table 3). If the tolerance value for any variable is less than 0.10,

multicollinearity may be problematic (Eckles & Stradley, 2012).

Table 3

Tolerance and Variance Inflation Factor (VIF)

Variable Name	Tolerance	VIF
Motivation (Legislative Changes)	.82	1.22
Financial Aid Policy	.83	1.20
Political Orientation	.91	1.09
Budget for Recourses	.86	1.16
Percent of Transfer Students Per Capita	.89	1.13
Dependent Variable = Adoption		

The last analysis needed to check for multicollinearity problems was calculating the data's

condition index and the variance proportions. None of the variables have a condition index of

over 30 (a condition index over 30 may signify an issue with multicollinearity and require an

additional assessment) (Table 4); therefore, none of the variables have multicollinearity

problems. After evaluating the multicollinearity test findings, none of the study variables

displayed multicollinearity issues in any of the conducted tests. Therefore, it is concluded that no

multicollinearity concerns exist in this study.

Table 4

Condition Index and The Variance Proportions

Condition Index	Variance Proportions					
	Motivation (Legislative Changes)	Financial Aid Policy	Political Orientation	Budget for Resources	Percent of Transfer Students Per Capita	
1.00	.00	.01	.01	.02	.00
2.35	.00	.77	.02	.00	.00
2.96	.00	.03	.00	.92	.00
5.13	.03	.12	.84	.01	.05
8.20	.85	.05	.01	.00	.25
13.10	.11	.02	.12	.05	.69

Dependent Variable = Adoption

Model Assessment

The event history analysis model utilized binary logistic regression for the assessment.

Binary Logistic Regression Formula

ADOPT = exp ($_0$ + $_1$MOTIVATION + $_2$ RESOURCES/BUDGET + $_3$ IDEOLOGY + $_4$ FINANCIAL

AID POLICY + $_5$ TRANSFER STUDENTS PER CAPITA)/ 1 + exp ($_0$ + $_1$MOTIVATION + $_2$

RESOURCES/BUDGET + $_3$ POLITICAL ORIENTATION + $_4$ FINANCIAL AID POLICY + $_5$

TRANSFER STUDENTS PER CAPITA) + Error

The two predictor variables examined in this study were found to have contributed to the

Adoption of the Legislation. (State motivation (legislative change) $\beta = 4.85, p < 0.001$; State

political orientation $\beta = -1.27, p < 0.05$). A positive relationship is indicated between the state's

motivation to advance the legislation and the state acting to adopt the new transfer policy.

However, a negative relationship between a state government's political orientation and policy

adoption is indicated. As indicated by the odds ratio, for every one-unit decrease in the Political

Orientation variable (the score on a 0–100 scale of state political orientation), the state is 0.28

times less likely to adopt the new policy. In other words, for every one-unit decrease in the

Political Orientation variable, the odds of adoption decreased by 72% (1.00 – 0.28 = 0.72).

The factors of state financial aid policy ($\beta = 0.17$, $p < 0.90$) and state budget ($\beta = -0.00$, $p < 0.33$)

did not have significant associations with adoption the legislation. In addition, the percent of

transfer students' per capita factor ($\beta = -0.19$, $p < 0.54$) did not significantly influence the adoption

of the legislation when accounting for factors in the model.

Table 5

Logistic Regression Coefficients

Predictor	*B*	*SE B*	*Wald*	*O.R. [95% CIs]*	*Sig.*
State Motivation (Legislative Change)	4.85	(1.41)	11.80	127.79 [8.03, 2034.54]	.001**
State Financial Aid Policy	.17	(1.33)	.02	1.19 [.09,15.10]	.90
State Political Orientation	-1.27	(.64)	3.85	.28 [08,.10]	.05*
State Budget	-.00	(.00)	.95	.99 [.99, 1.00]	.33
Percent of Transfer Students Per Capita (Control Variable)	-.19	(.31)	.38	.82 [.45, 1.52]	.54
Constant	-4.93	(2.66)	3.42		.06

Notes: N = 50 states, *p <0.05 **p < 0.001
Dependent Variable – Adoption of Policy

In a separate analysis, a chi-square test of independence was calculated to compare the frequency of motivation to adopt/update the related transfer policy against the adoption levels of transfer policy within state legislation agreements.

$$\chi_c^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

The analysis demonstrated that once took the states' motivation (legislative changes) factor into consideration to adopt/update state articulation agreements ($\chi^2(2) = 21.27, p < .001$), the likelihood of the state's adoption of a new transfer policy rate increases as the state's motivational level changes. Intriguingly, the relationship of a state's political orientation factor (which was found to have a negative relationship with the adoption level of transfer policy) is weak, and there is insufficient evidence to claim that the model does not fit the data adequately ($\chi^2(4) = 2.73, p=0.60$).

To sum up, by answering the quantitative research question "*What factors are important to adopting a policy when providing an effective transfer credit process?*" the states' motivation factor is essential to adopting a policy when providing an effective transfer credit process. Motivated legislators play a key role in policy discussions by collaborating on various postsecondary sectors to focus on the challenges and prospects of transfer policies (National Conference of State Legislatures, 2013). The motivated states become more receptive to adopting a new policy and are eager to design and improve upon its predecessor.

Qualitative Analysis

The qualitative part of the study employed semi-structured interviews to explore the following qualitative research questions:

1. What articulation agreements and guidelines currently govern transfer processes at the state level?

2. What do bureaucratic leaders explicitly seek to determine to provide a seamless transfer system?

Driven by the study's research question, interview questions crafted to gather a baseline of information that was unavailable in the quantitative data. Data collection took place in two phases. The first phase was a series of short interviews with state-level actors from 50 states. The response rate for the short interview was 64% (32 out of 50 states responded). The state representatives' interviews (32 states) were cross-referenced with my own notes and classified specific phrases and concepts. This meant crafting a list of informal codes and keeping the study's theoretical framework and research questions in mind. The second phase had more in-depth interviews with high performers. Five states were identified and categorized for the in-depth interviews based on the quantitative analysis as well as the transfer student enrollment rate and adoption of the four categories of transfer and articulation agreements (the transferable core of lower-division courses; state-wide common-course numbering; state-wide guaranteed transfer of associate degree; and state-wide reverse transfer). These states are Arizona, Colorado, Florida, Texas, and Utah. The response rate was 40% (Colorado and Utah's representatives responded). We used analytical coding, where we created, entitled, and outlined categories, known as a "primitive outline or classification system" (Merriam, 2009, p. 181). To produce significance from the data, we compared these categories across participant interviews and grouped concepts to concentrate and refine the data (Miles et al., 2014).

Results

Findings related to the current state of articulation agreements and guidelines

The analysis revealed that current articulation agreements for transfer processes are mainly on an institutional level for most states. Some states have dual degree program

agreements among institutions (also known as 3+2 and 2+2 programs); others are followed by "promising practices" in state-wide transfer systems. Few states reported that the transfer processes are on the "neighborhood" model level. For a seamless transition to the institution and to fulfill the institutional mission on time, formal articulation agreements are necessary because staff members must evaluate each academic record for each incoming transfer student to confirm their acceptability to the institution (Tobolowsky & Cox, 2012).

The data also revealed that several states have ongoing state-wide articulation agreements related to the transfer credit process. Oklahoma state's progress was one great example: It is developing a searchable course transfer inventory (it is in the final stage) (https://showwhatyouknowok.org/) to make the search process easier for students. In addition, Oklahoma engages faculty in articulation work within Oklahoma public and private institutions through the Course Equivalency Project. Illinois states also reported successful state-wide faculty-driven transfer initiatives that ensure seamless transfer to all institutions. Like Oklahoma, Illinois state has an online platform named "MyCreditsTransfer" (http://www.mycreditstransfer.org/). MyCreditsTransfer is a state-wide student-facing tool that facilitates transfers between Illinois institutions using Transferology, a nationally available tool and platform that has been associated with the state's articulation agreements. Common course numbering systems, and state-wide articulation agreements among public institutions, help to facilitate seamless transfers among states' institutions and eliminate the guesswork (Shealy, Brawner, Mobley, & Layton, 2013).

Another positive example was in New Jersey. The state has two state-wide transfer agreements ("Lampitt Law") mandated by state law, leading to a robust and effective transfer pathway for many students in the state. Similarly, a Colorado representative claimed that the

legislature and policy development process were grounded in legislative authority. One of the

legislation items associated with the transfer credit system in Colorado is the *Prior Learning*

Assessment, which is a state-wide framework for awarding credit and assessing transfers (CLEP,

IB, AP, DLPT, DSST). (The framework is new as of 2020, and details can be found at this site:

https://cdhe.colorado.gov/get-credit-for-what-you-already-know.)

Adding to the recent advanced articulation agreements on the transfer system,

Connecticut revealed its Transfer Articulation Policy (TAP), which applies to all state public

institutions, covering roughly 26 transfer degrees. These "Transfer Tickets" provide a direct

pathway to the four-year schools in the Connecticut system and guarantee the award of 60 credits

upon school completion. All these options highlight the progress toward a seamless and robust

transfer system at a state-wide level, offering unique or creative incentives to motivate states to

pursue more state-level strategic goals around the transfer system.

Besides advancing state-wide transfer articulation agreements, few states reported having

the neighbor-to-neighbor influence model. States influence each other, but this is not equal

(Berry & Berry, 1990). For many states, observing the success of their neighbor increases their

motivation to advance state legislation. State legislators, especially motivated ones, play a crucial

role in policy discussions by collaborating on postsecondary sectors to focus on the challenges

and prospects of transfer policies (National Conference of State Legislatures, 2013). On this

follower- and leader-state concept in transfer policy, the two factors that should be considered

when identifying states as a leader are as follows:

1) neighbor-to-neighbor concept and

2) model state concept (a model state's policy and implementation form the best practices

(models) for other states; Sabatier, 1999).

According to the study interview report, we can conclude that California, Florida, Ohio, and Indiana are model states. Florida is an excellent model due to its transfer policy and best practices on transfer credit procedures. A significant number of interviewed state representatives mentioned that Florida is a leader in transfer policy. Meanwhile, the researchers spoke with the Iowa state transfer students' representative (personal communication, April 21, 2021) about state-wide transfer articulation agreements. The Iowa state representor stated the following: "I'll hasten to say that I don't think there is a state with ideal conditions. We are all learning from each other, though." The Oklahoma representative was second on this statement: "It appears that most states are in a similar position regarding course transfer. We all work hard to give students the credit that they deserve" (personal communication, April 19, 2021). The model state concept is one of many different nuances that should be considered to reach a meaningful conclusion regarding policy adoption (Berry & Berry, 1990; Hays & Glick, 1997).

As mentioned in the theoretical review, a leader model in system theories assumes two behaviors: Certain states are inventors of policy adoption, and others follow these leaders (Walker, 1969, p. 893). Several scholars agreed and stated that systems leadership is local, and one or more states are always creators within the region (Walker 1969; Grupp & Richards, 1975; Foster, 1978). Being creators or developers brings about high prestige in any policy arena, and the follower states are in a learning process (Sabatier, 2007). For example, the Iowa state representative shared that Florida is often considered a strong state for transfer policy because of the mandates in place. The representor also mentioned that some effective work has occurred in Indiana and Kansas (personal communication, April 21, 2021). Similarly, the Washington state representative stated Illinois, Indiana, Ohio, Colorado, Arizona, Florida, Hawaii, and Tennessee names as leader states [of the transfer credit system] that immediately come to mind (personal

communication, May 14, 2021). In another example, the Utah state representative highlighted that the state team members who are responsible for transfer credit policy and articulation have been looking extensively at the transfer pathways and policies designed by Pennsylvania, New York, and Washington"(personal communication, May 11, 2021).

Knowing the characteristics of these states, such as leader and follower states, allows representatives to explore more deeply the states' achievements in and implementation of transfer policy and to determine critical elements that could create a seamless transfer system. A continuous evaluation of state-level and system-level transfer policy reforms is essential. The comprehensive policy's implementation will help achieve transparent and seamless transitions (Hodara et al., 2016).

Findings from bureaucratic leaders' interviews

In response to the second qualitative research question, more in-depth interviews were conducted involving high performers. Five states were identified and categorized for in-depth interviews based on their transfer student enrollment rate and state-wide adoption of transfer and articulation agreements (How many, and how often?). The selected states were Arizona, Colorado, Florida, Texas, and Utah. Colorado and Utah's representatives agreed to respond to follow-up questions (in-depth interviews) and provide additional information.

The analysis revealed *centralized data systems,* and the incorporation of predictive analytics has a significant effect on providing a seamless transfer credit process. To centralize the data system, state institutions of higher education must agree to incorporate a state-wide articulation matrix system of common course numbering, step-by-step implementation guidance, competency testing, credit for prior learning, and consideration for participation in nonpublic institutions of higher education.

Correspondingly, bureaucratic leaders seek to evolve a business-oriented approach to higher education, explicitly implicating *strong positive collaboration among policymakers and high-level administrators*. Robust positive collaboration with legislators is vital to get political leaders' attention immediately regarding state education and students' needs within the transfer process at the state level. The Utah representative stated that the Utah commissioner and institutional presidents cultivate a strong relationship with state legislative higher education committee and the governor's office. The state representors invite institutional presidents to attend board meetings, provide updates on initiatives, and sometimes invite them to attend conferences with us to help address higher education needs in the state (personal communication, May 11, 2021).

In advancing the transfer credit system, bureaucratic leaders' deliberate, *well-defined, and continuous communication* with faculty representatives and policy department members from all institutions is one of the critical factors. Regular communication is also a source of motivation for leaders and representatives, along with their team members, their hard work in improving the transfer credit process, and the help of supportive leaders. Another essential factor is engagement with other states (often neighboring states). Both states reported that their representatives were engaging with the other state's representatives as a step towards advancing the transfer credit process. The representative from Utah highlighted that state legislative higher education committee and the governor's office will soon be discussing lower-division alignment to structure direct transfer pathways modeled on Pennsylvania, New York, and Washington (personal communication, May 11, 2021). Meanwhile Colorado representatives reported that in order to improve the seamless transfer system, Colorado state, as a state, initiate state-wide

advising mode and state-wide transfer policy with several other states (personal communication,

May 12, 2021).

Under the theme of system leadership, the data revealed several nuances as *challenges for*

the policy leaders in advancing the state transfer process. These included:

- The many details involved in improving student transfers (such as getting accurate data

  into the electronic transfer tool for students).

- The complexity of designing direct transfer pathways that will work for multiple

  institutions.

- The review of the existing budget structure for the current transfer system.

An important question was about the duration of this process. We asked, "How long do

bureaucratic leaders need to articulate new policy?" The responses we received highlighted the

complexity of creating policy and can be summarized as follows: Sometimes it happens very

quickly, sometimes it is a matter of weeks, and sometimes it is a matter of months. The Utah

representative emphasized that, according to the legislative mandate of the state, representatives

must have conversations with key stakeholders and vet policy drafts before they are finalized.

This way, they can try to address any problems before the policy is approved. The Colorado

representative emphasized that their state officials prefer to discuss critical points both before

and after articulating the policy.

Discussion

Quantitative Study Results

This sequential study obtained quantitative results to find the essential factors that

directly affect the adoption/advancement of transfer credit policies and implementation

processes. Two of the five variables that test the "adoption of transfer policy" dependent variable

are statistically significant: state motivation and policy orientation. State motivation (the legislative change variable) is positively statistically significant. For many states, observing the success of their neighboring states increases their motivation to advance their state legislation. These states become more receptive to adopting a new policy and eager to design and improve upon the predecessor's legislation. State legislators, especially motivated legislators, play a crucial role in policy discussions by collaborating on various postsecondary sectors to focus on the challenges and prospects of transfer policies (National Conference of State Legislatures, 2013). Motivated legislators are essential in passing a state-wide policy (National Conference of State Legislatures, 2013). It is not surprising that the data show that those states that did not adopt any transfer policy for students transferring from a four-year institution to another four-year institution had low motivation. Meanwhile, the states that adopted the transfer policy had high motivation.

The second "adoption of transfer policy" variable that is statistically significant is the political orientation (a negative relationship between the state government's political orientation and the adoption of the policy). While the researchers expected to find that Democratic-liberal governments were more likely to adopt a new transfer-credit-related policy, it was liberal states that supported state innovation, such as advancing higher education policies and increasing the number of higher education leaders. Generally, united governments are more welcoming of the pathway of higher education finance amendments (Lacy & Tandberg, 2014). In a separation-of-powers system, a divided government poses further challenges to the passage of legislation (Alt & Lowry, 2000). Divided governments face the most conflicts because political parties have divergent preferences that limit the ability to authorize innovative legislation (Huber et al., 2001). Consequently, the political orientation variable is statistically significant with a negative

coefficient, which means the state's adoption of transfer policy becomes less likely as political orientation changes.

Surprisingly, the state financial aid policy, state budget, and transfer students' per capita variables were not statistically significant for the adoption of transfer policy. Interestingly, these variables are often statistically significant for policy adoptions in other public policy areas. In conclusion, answering the quantitative research question reveals that understanding the state's motivation is essential to adopting a policy for providing an effective transfer credit process.

Qualitative Study Results

Qualitative data analysis aims to uncover themes, concepts, insights, and understandings (Patton, 2002). The data showed that several states had ongoing state-wide articulation agreements related to the transfer credit process. From a bureaucratic leader's perspective, predictive analytics and centralized data systems are essential to tracking student activity.

Additionally, there was a need for agreements among all state institutions of higher education to incorporate a state-wide articulation matrix system of common course numbering, step-by-step implementation guidance, competency testing, credit for prior learning, and consideration for participation of nonpublic institutions of higher education. Lastly, the fundamental mechanism of a robust transfer credit system was greater student retention and the hiring of bureaucratic leaders whose evolving viewpoints were consistent with a business-oriented higher education approach.

Integration of Quantitative and Qualitative Data

The quantitative and qualitative analysis results have showed that motivation is central to adopting new policies and implementing seamless transfer systems (de los Santos & Sutton, 2012; Ignash & Townsend, 2000). A significant consequence of developing seamless transitions

in educational sectors is developing a solid articulation agreement for a legislative mandate.

However, some states avoid this obligation entirely (Ignash & Townsend, 2000). de los Santos

and Sutton (2012) distinguished how effective articulation policies among states give them a

triple win: "a) students can validate their learning into a baccalaureate degree, b) higher

education accomplishes its mission of educating = graduating students, and c) the state reaps the

rewards of an educated workforce" (p. 971).

High motivation from state leadership also means successful steps will likely be taken

toward an improved transfer process. Indeed, it was essential to know that long-term,

periodically updated collaborations between state institutions and governments, along with

strong communication and high enrollment rates, will increase a policy leader's motivation.

Increasing the number of transfer-credit-related articulation agreements among the states

promises future successful, seamless nationwide transfer credit processes. As de los Santos and

Sutton (2012) stated, policy communication and accountability at every single level

(institutional, state, and national) are needed to apply a new policy relevant to each goal. It is

essential that each state develops robust and sophisticated analyses to target and focus their

educational sectors' strategies.

Mixed results were found regarding the association of political orientation with the

adoption of the transfer credit policy. Although the regression result displayed a state's political

orientation as a statistically significant predictor of transfer credit policy adoption and

implementation, that was not the case within this study. Surprisingly, this relationship was

negative, with a beta of -1.27, which indicates a negative relationship between a state

government's political orientation and policy adoption. As indicated by the odds ratio, for every

one-point decrease in the Political Orientation variable (the score on a 0–100 scale of state

political orientation), the state is 0.28 times less likely to adopt the new policy. In other words,

for every one-point increase in the Political Orientation variable, the odds of adoption decreased

by 72% (1.00 − 0.28 = 0.72). This result should be interpreted with caution. In some states,

political orientation plays a crucial role in higher education funding (Li & Zumeta, 2015;

McLendon et al., 2009). Thus, a Republican-controlled legislature and Republican governor may

reduce state spending on higher education while, in contrast, a Democrat-controlled state and

Democratic governor may support more funding for higher education (Li & Zumeta, 2015;

McLendon et al., 2009; Tandberg, 2009, 2010). It is also important to highlight one of the critical

points from the qualitative data analysis, which was the SHEEO's involvement in the states'

decisions. The SHEEO agency has an essential mission among the states: to provide unbiased

evaluation and counsel to governors and state legislatures despite competing political influences

from institutions, especially regarding budget and funding procedures (Wilkins, 2020). This

might be a reason for the negative association between political orientation and the adoption of

transfer policy.

   The quantitative and qualitative data analysis results provide limited support for the

budget, which is essential in transfer credit policy adoption. The likelihood of a state adopting a

transfer-related policy is not influenced by the state's budget because it is not statistically

significant ($p = 0.33$). Thus, the likelihood of a state adopting a transfer-related policy is not

affected by a decrease or increase in the state's budget. Meanwhile, through the qualitative

analysis, it is notable to see that the transfer credit process is a small portion of the American

education system and that this is one reason why receiving financial support from states toward

the transfer process tends to be both critical and cyclical for public higher education institutions

(Delaney & Doley, 2014; de los Santos & Sutton, 2012; Doley, 2013; Ignash & Townsend,

2000). In this pattern of support, all three sources (the literature, quantitative and qualitative

data) demonstrate that states are slowly increasing their budgets, specifically capital

expenditures, for the institution's category, and usually at the good budget times (Delaney &

Doley, 2014). In economic declines, the opposite is accurate, and states will cut higher education

funding in all budget categories. This type of budget cut usually takes a longer time to return to

the prior funding balance, and, indeed, this decline directly affects the state's motivation to

advance transfer-related legislation and creates little room for a long-term strategy toward

reaching the transfer credit process (Bardach, 1977; de los Santos & Sutton, 2012; Ignash &

Townsend, 2000).

Implications

The researchers now provide implications in six areas (state, system, institution, faculty,

and student leadership) and an economic benefit. We hope leaders and scholars interested in

promoting a seamless, transparent national-level credit transfer system will consider these

findings in developing and enacting their plans.

State Leadership. Connecting findings to state leadership, states may wish to follow the

"model" states versus the "neighbor-to-neighbor" states, which promote best practices. A fruitful

locus for a model state's national credit transfer policy and implementation process may be a

successful approach, mainly if a state follows the model state's policy and implementation as best

practices (Sabatier, 1999). The model state transfer system could be adopted in various settings,

including cross-national, interlocal, and interstate environments. Consistent with systems

leadership theory, the model state approach could enable states to concentrate on feedback loops

and the practice of transforming inputs into outputs. Feedback loops will determine which

policies should be corrected and which work well for national-level transition (Sharkansky,

1970). As a concrete, successful example of this model, Utah started collaborating with the direct transfer pathways modeled by Pennsylvania, New York, and Washington. The neighbor-to-neighbor model of Berry and Berry (1990) outlined the neighbor-to-neighbor approach for adopting new policy and influencing other states to adopt it creates pressure among contiguous neighbors. Accordingly, if less innovative neighbors bind a state, it will appear less innovative than a state surrounded by more innovative neighbors. Although states influence other states, one cannot assume that states influence all neighbors equally (Berry & Berry, 1990).

System Leadership. Similarly, we speculate that the same state entity function styles could more intentionally direct the states' educational priorities and use that data to lead in engaging and adopting advanced credit transfer policies. The same state entity function styles encourage political and bureaucratic leadership relationships, inspiring bottom-up innovation, and partnership between both perspectives. From the system's leadership theory perspective, governing and coordinating the state system enables decision-makers to uncover the issues rather than assume coherence. These entity types may support a solid and positive collaboration system with state legislators, which is vital to getting the attention of political leaders.

Institutional Leadership. We also encourage all state institutions of higher education to incorporate a statewide articulation matrix system of common course numbering, step-by-step implementation guidance, competency testing, credit for prior learning, and consideration for the participation of nonpublic institutions of higher education. This is not merely motivating leaders to micromanage their response to crises; concretizing the association between policy and bureaucracy within the education system can be a professional and capable partner in future innovations (Borins, 2002). The political–bureaucratic interaction can raise performance expectations of the postsecondary higher-education system and drive them toward undertaking

new initiatives and providing additional resources for that vision (Borins, 1998, 2002).

Furthermore, creating a centralized data system to track student transition may further extend our

findings that paying close attention is critical to analyzing transferring credit data, making

decisions on the current gap, and acting relatively to current transfer students' needs. Crafting all

the courses under specific programs and implementing the course numbering system is

challenging. Implementing a centralized data system may encourage policymakers to constantly

evaluate the policy process and decisions (Kingdon, 1995).

   Faculty and Student Leadership. Across all practice implications, the findings urge

faculty members and students involved in the credit transfer process to be mindful of enhancing

the system's capability. In this process, faculty members recognize each student's unique

situation and act on earlier unrealized prospects for students to address the common problems

perceived. State representatives supported this approach by encouraging the creation of

statewide, faculty-driven transfer initiatives. Legislators confirm that having faculty and student

representatives on the board helps hear everyone's voice, and this system will ensure a seamless

transfer.

   Economic Benefit. Intriguingly, regarding the conceptual implications, states' economic

benefits play a crucial role. Consequently, a robust credit transfer system means more excellent

student retention and the attraction and retention of bureaucratic leaders whose evolving

viewpoints are consistent with a business-oriented approach to higher education, specifically

among policymakers and high-level administrators. Meanwhile, a transparent and smooth credit

transfer system encourages students to continue their education, increasing the number of

educated members of the workforce. Thus, easy transfers might not always be in the interest of

certain system members; however, a business-oriented approach to the credit transfer system and financial benefits for higher education and states have the potential to attract system members.

Limitations

These findings are specific to the credit transfer process and seamless policy implementation only among four-year postsecondary institutions within the United States. One study limitation is that these findings cannot be generalized to other populations. This limitation may be quickly addressed by exploring different perspectives on the credit transfer process, such as international students' or graduate-level students' credit transfer. Furthermore, the credit transfer process and policy concept focused only on public higher education, and private higher education institutions deserve more scholarly attention.

Conclusion

In closing, we urge the continuation of conversations around creating a seamless credit transfer process and improving state leaders' motivation to advance policy. States' representatives need to build a robust positive collaboration with legislators to get the attention of political leaders regarding the four-year-to-four-year public university credit transfer process. Another significant contribution of this study understands how to draw political leaders' attention to the transfer process and transfer students' needs. When the issues and concerns related to the transfer system call attention to at the state level, these issues and concerns immediately draw attention. Explicit attention must be paid to creating and advancing an electronic transferring system using structured transfer pathways, a displayed statewide articulation matrix system of common course numbering, and a well-defined statewide framework for awarding credit and conducting transfer assessments. These results also suggest a positive and successful outlook for implementing a future, nationwide seamless transfer system.

This manuscript has not been published and is not under consideration for publication elsewhere. We have no conflicts of interest to disclose. There are not any financial or non-financial interests that are directly or indirectly related to this publication. The Institutional Review Board approved under 45 CFR 46.104 Category 2 and approval number is 21-2317 (March 4, 2021).

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