Enhancing College Students' eAccessibility in Higher Education: Transfer Students and Transfer Admissions Counselors' Perspectives

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There is a lack of research on institutional e-accessibility and transfer-credit-software adoption and how these technologies impact college students and professionals. Accordingly, this study explores how adopting technology products can improve the transfer process experience for transfer admission counselors and students. In doing so, the study draws on the connectivism theory and Karp and Fletcher's (2014) and Kezar's (2013) three-way approaches - which examine changing-in-advice, institutional, and students' willingness to use technology tools - to investigate ways to enhance the transfer process experience and help students and transfer admission counselors make the most of technology tools. This study, conducted at a public institution in the mid-east Atlantic region, utilized a convergent-parallel mixed-methods design to assess students' and professionals' perceptions of transfer credit evaluation products. Results indicate that an e-transfer system is vital to providing seamless, long-term service to students and transfer advisors. Furthermore, statewide support and a joint system are crucial to maintaining this e-transfer system and increasing information transparency for potential students. This study, conducted at a public institution in the mid-east Atlantic region, utilized a convergent-parallel mixed-methods design to assess students' and professionals' perceptions of transfer credit evaluation products. Results indicate that an e-transfer system provides seamless, long-term service to students and transfer advisors. Furthermore, statewide support and a joint system are crucial to maintaining this e-transfer system and increasing information transparency for potential students.

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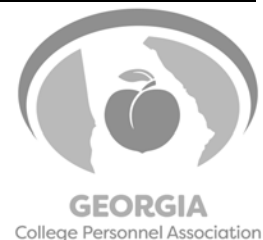
In the past decade, the higher education system has witnessed a number of issues related to student transfer activity. Delays, inefficiencies, and disorganization have resulted in a high "drop-out" rate due to unnecessarily repeated courses, delayed graduations, and higher costs for postsecondary education (Roska & Keith, 2008; Li, 2010; Jenkins & Fink, 2015; Forbes et al., 2019). According to the National Center for Education Statistics, the number of transfer students in the fall of 2011 was about 1,547,436. In contrast, in the fall of 2018, the number of transferred students decreased to 1,383,125 due to the complex transfer processes, which are included, but not limited to, transfer credit policies and a lack of programming options at 4-year institutions made with transfer students in mind (Blaylock & Bresciani, 2011; Monaghan & Attewell, 2015). The U.S. Government Accountability Office (2017) expanded the scope of this context by providing recent data analysis, which highlights that "students who transferred between public schools—the majority of transfer students—lost an estimated 37 percent of their credits" (p. 15).

Students' transition experiences and perspectives on their current and potential future colleges are crucial in making informed educational decisions and achieving degree completion (Li, 2010). When considering transferring to a new school, it is essential to understand why students choose to do so. According to a longitudinal study conducted by the National Center for Education Statistics, some reasons for transferring from one institution to another one included seeking specific programs or coursework (40%), financial concerns (8%), personal interest (11%), and the reputation of the program or school (7%) (De Brey, Snyder, Zhang, & Dillow, 2021). The relationship between the colleges a student transfers from and to also directly impacts the number of credits that will be accepted (Simone, 2014).

Losing credits and facing other relevant issues during the transfer process negatively affects the motivation of students who are planning to transfer, and student retention rates suffer when students feel like their hard work needs to be adequately recognized (Li, 2010). The U.S. Government Accountability Office (2017) explored potential issues in the transfer process, such as accessibility to transfer information, affordability, and articulation agreements. According to the study, almost half of the students who transferred from 2004–2009 received Pell Grants, and about two-thirds received Federal Direct Loans (The U.S. Government Accountability Office, 2017). It suggested that the states aim to support transfer students by providing additional financial aid to those who paid for the repeated courses or lost credits. This way, students do not pay

additional out-of-pocket costs, and the education system retains students.

Further, the study recommended that institutions and states have clear articulation agreements (The U.S. Government Accountability Office, 2017). Accessibility issues mean institutions eliminate barriers and offer students access to the correct information regarding the transfer credit process at the right time (Jr & Harrington, 2002). However, the transfer admissions counselors-to-student ratio is an astounding 1:367 across the United States, which means access is a potential issue and challenge that limits transfer admissions counselors' communication with students individually and their ability to provide them timely support for enrollment or graduation (Communication Evolved, 2017). Enabling transfer admissions counselors and students to leverage technology product features is essential for enhancing their effectiveness. Communication Evolved (2017) recommends that technology tools for transfer admissions counselors should be chosen based on students' perceptions and needs. Transfer admissions counselors can quickly pinpoint students' issues using powerful data analysis features, predictive analytics data, and early alert systems features. These technology features may enhance electronic accessibility and formulate more effective strategies to help students thrive (Kalamkarian et al., 2018).

With technological advancements, numerous products and services in the marketplace assist with student academic planning and pathway mapping (Grites et al., 2016; Straumsheim, 2015). Previous studies have shown that making a seamless product choice (e.g., one that aligns institutional, student, and state requirements and helps make the advising process productive) regarding transfer credit evaluation is often challenging (Kalamkarian et al., 2018; Grites et al., 2016; Straumsheim, 2015). The need for more information on choosing the right technology product can be overwhelming for institutions. Institutional leaders typically rely on product reviews, pricing, ease of integration, and navigation to make informed decisions. However, they need to know more about the effectiveness of these products for students and transfer admissions counselors. To alleviate these challenges and limitations, researchers suggest restructuring the advising process using technology to develop easy navigation and software tools for a more stress-free transition from one institution to another (Kalamkarian et al., 2018).

The researchers focused on how technology product adoption affects transfer students' and transfer admissions counselors' experiences and enhances the accessibility of available transfer credit requirements and process information. Successful adoption may increase the willingness of end

users to use the technology in transfer advising or vice-versa. As a result, the researchers developed a convergent parallel mixed methods study using data from midsized university transfer students and interviews with transfer admissions counselors from the same selected institution to assess potential electronic accessibility through transfer credit evaluation products. This study explored current and potential technological features that enhance and advance the institutional transfer advising process and the intersection of transfer technology from the perspectives of students and transfer admissions counselors. Addressing this crowdsourcing knowledge gap to contribute to the emerging literature on improving the transferring credits system, the researchers set out to answer the following question: Which technology product features do students find beneficial and detrimental in transferring the credit process? What are the students' initial thoughts regarding available technology product features on transfer credit evaluation? What are the students' success rates in transferring credit from one institution to another?

Theoretical Framework

The researcher's theoretical framework was based on connectivism theory and Karp and Fletcher's (2014) and Kezar's (2013) three-way approaches, which examine changes in advice, transfer admission counselors, and students' willingness to use technology tools.

According to connectivism theory, technology has transformed knowledge acquisition, making informal learning the new standard and resulting in an overwhelming amount of information that can be challenging to navigate. Finding meaning in chaos is critical for integrating data from diverse sources. In dynamic environments, adaptability and flexibility are crucial to success (Foroughi, 2015).

When considering technology integration in advising, it is essential to understand the potential benefits and challenges. Simply deploying new tools will not guarantee success. Instead, it is necessary to consider institutional and local cultures to ensure everyone is on board with the changes. Kezar's framework highlights the impact of technology adoption on both micro and macro levels, from individual engagement to institutional changes. While new college technology may improve student outcomes and change support structures, processes, and attitudes, there may also be challenges in implementation and limited success due to insufficient knowledge of technology usage. It is important for transfer admission counselors and institutions to carefully consider the potential impact and plan accordingly. Karp and Fletcher (2014) found that transfer admission counselors are willing to adopt new

technology to improve their advising process. However, a lack of support from institutions may hinder the use of technology. Incorporating advising technologies can greatly benefit students by helping them organize programs of study, generate educational plans, arrange financial aid, and address communication at risk of failure. Nevertheless, it's important to note that negative experiences can arise if students are not adequately supported or the tools are not integrated properly, which can negatively impact student outcomes (Karp & Fletcher, 2014).

Literature Review

The increasing popularity of e-transfer credit systems is a positive development that seeks to address long-standing issues and gaps in the transfer process. More than 120 consulting transfer process companies now provide various products and services, and the percentage of adopted transfer credit evaluation products has grown from 19% in 2015 to 21% in 2017 (Tyton Partner, 2017). Tyton Partners estimates that the student support market is valued at $560 million and is split into commercial spend and in-house technology (Bryant, Seaman, Java, & Chiaro, 2019). Commercial spend refers to the amount institutions spend on third-party student support technologies. In contrast, in-house technology is the estimated amount institutions spend on developing their advising

technology (Bryant, Seaman, Java, & Chiaro, 2019). This dichotomy demonstrates the importance of prioritizing these concerns, with institutions roughly spending over $338 million to adopt these third-party technology products as advisers to connect with students and enhance their practices and information (Bryant, Seaman, Java, & Chiaro, 2019; Tyton Partner, 2015). Meanwhile, experts in the education industry have suggested that institutions can enhance their advising services and improve student transition success by utilizing transfer technology tools (Gambino, 2017; Kalamkarian, 2017; Tyton Partners, 2016). It is recommended that institutions enforce technology help by mapping the transfer steps and guidelines to improve the student transfer process.

Nevertheless, many postsecondary institutions, both public and private, still need help to navigate the abundance of choices available. The lack of valid guidelines on which products or features best suit the institution's and the state's needs only adds to the confusion (Kalamkarian, 2017; Karp, 2016; Tyton Partners, 2016; Tyton Partner, 2015;). While there are limited studies regarding adopting and using technology in transfer credit evaluation and advising processes, they offer some critical perspectives on how institutions can best prepare for e-transfer adoption and incorporate such technology with other university functions and

how students might benefit from it. Before adopting any technology products, it is essential to assess how technology is used in the transfer evaluation process across the campus, discuss possible best practices with technology stakeholders, and establish strategic plans to support transfer advising units and institutional goals (Pasquini, 2013; Carlstrom, & Miller, 2013). Another set of studies suggests that redesigning the transfer advising process by including information technology with institutional research functions can help address some institutions' changing needs (Shapiro, Dundar, Huie, Wakhungu, Bhimdiwali, Nathan, & Youngsik, 2018). Several researchers (Shapiro, Dundar, Wakhungu, Yuan, & Harrel 2015) speculate that connecting with students and identifying their needs in advising through technology may provide seamless support and communication for transfer evaluation. This personal connection is important because every student has a unique background and brings expectations regarding technology to the institutions.

Researchers at Virginia Commonwealth University stated that the use of technology in transfer advising can be beneficial in tracking a more significant number of students and initiating connections between transfer students and transfer admission counselors (Straumsheim, 2015; Grites, Miller & Voler, 2016). Synthesizing these findings with theory evidence which examines changes in advice, transfer admission counselors, and students' willingness to use technology tools suggests that there has been enormous progress in the transfer process throughout the years (Karp & Fletcher, 2014; Kezar, 2013; Straumsheim, 2015; Grites, Miller & Voler, 2016). One obstacle to effective transfer advising is redesigning the advising experience by supporting the student experience and leveraging advising technologies (Kalamkarian, Boynton, & Lopez, 2018). Gathering the necessary data and sources can sometimes pose academic challenges and result in delays (Kalamkarian, Boynton, & Lopez, 2018). Therefore, implementing technology products as a third party may vary depending on the institution. To implement an e-transfer platform and make available crowdsourcing information nationwide, all institutions must involve advising, informational technology, administrators, and other relevant departments in the planning and design process (Straumsheim, 2015; Grites, Miller & Voler, 2016; Kalamkarian, 2017; Kalamkarian, Boynton, & Lopez, 2018). To ensure a more effective and sustainable impact on advising practices, institutions must carefully select the best technology products and customize the process to their specific contexts and national requirements (Kalamkarian, 2017; Kalamkarian, Boynton, & Lopez, 2018).

Methods

Sample and Procedures

This convergent parallel mixed methods study used survey and interview data from a midsized university to learn about transfer students' and counselors' perspectives to assess potential electronic accessibility through transfer credit evaluation products. The researchers used triangulation to validate and corroborate their findings by interpreting the statistical results and qualitative data. This approach provided a deeper understanding of the topic (Creswell, 2017). The selected public institution is located within the eastern mid-Atlantic area of the United States. From a student population of 20,070, about 1,000 were transfer students, and of those, 250 participated in this survey. Within the sample, 73% of the participants transferred from community colleges, while 18% and 9% transferred from public and private universities, respectively.

The quantitative phase of the study set out to answer the following questions:

1. Which technology product features do students find beneficial and detrimental in the transferring credit process?

2. What are the students' initial thoughts regarding available technology product features on transfer credit evaluation?

3. What are the students' success rates in transferring credit from one institution to another?

We thoroughly reviewed relevant literature and theory to create a survey capturing transfer students' technology experiences. This approach allowed us to develop an informative and constructive survey instrument. The survey had 15 open-ended and close-ended questions and was created in Qualtrics. We ensured the layout was easily accessible for students, following Gupta's (2011) recommendation for simplicity to alleviate survey attrition. We also avoided negatively phrased questions, as Creswell (2017) advised, to enhance the validity of answers.

The qualitative phase of the study attempted to analyze transfer counselors' perceptions regarding the transfer credit electronic platforms. The qualitative part of the study sought responses to the following research questions:

1. What are the transfer admissions counselors' innovative ways or the concerns of using the selected technology product?

2. What are the transfer admissions counselors' perceived best practices when using a selected transfer credit technology product?

The institution had a particular structure for transfer admissions, with dedicated coordinators and advisors working with

transfer students. The study focused on counselors and advisors with experience in transfer credit evaluation products. Experts with transfer tools are limited in the USA (Education National Center for Education Statistics, 2018), and this limitation was also observed in the study state. For the qualitative phase, researchers conducted individual interviews with eight respondents who were experts in transfer technology and credit systems. The interviews were conducted in person, and each participant chose a pseudonym. Researchers used an applied thematic analysis to analyze the responses to the open-ended qualitative questions (Beitin, 2012; Guest, MacQueen, & Namey, 2011).

Quantitative Analysis and Findings

The descriptive analysis conducted at the start of this study provided a rich and detailed depiction of the study participants. Table 1 provides a descriptive summary of the study.

Table 1. *Descriptive Summary of the Study College Transfer Students*

Label	Count	%
Total Number of Selected College Transfer Students from a Public University	1009	100%
Participants in the Study (College Transfer Students)	250	24.7%
Transferred from:		
Community College	182	73%
Public University	45	18%
Private University	23	9%

As per the findings presented in Table 1, 250 college transfer students took part in the study out of 1009. The results indicate that the majority of students, which is 73%, transferred credits from community colleges, making it a popular choice among them. In addition, 18% of students transferred credits from public universities, while 9% did so from private universities for specific program concentration and personal reasons.

Table 2 displays a comprehensive analysis report of the college students' transfer credit evaluation tool and product usage. It provides insights into how students use the tool and its impact on their academic success and overall satisfaction. In addition, Table 2 includes detailed data and analysis, making

it a valuable resource for educators and administrators looking to better understand transfer students' needs in an effort to improve their experience.

Table 2. *College Students' Transfer Credit Evaluation Tool and Product Usage Report*

Label	Count	%
Utilized transfer credit evaluation product for evaluating college credits before transferring		
Yes	102	41%
No	148	59%
Total	**250**	**100%**
Name of the transfer credit evaluation product used third party (vendors)		
College Source	30	29%
Ellucian	23	22%
Parchment	17	17%
Transferology	14	14%
Lumerit Education	10	10%
College Fish	8	8%
Total	**102**	**100%**
Information searched when utilizing transfer credit evaluation tool		
Number of possible transfer courses *(to import course and transfer credit possibilities)*	67	65.7%
Financial Aid *(being aware of possible financial aid opportunities)*	17	16.7%
Calculate my graduation year	10	9.8%
Possible list of universities to transfer	8	7.8%
Others	0	0%
Total	**102**	**100%**

Based on the participants' responses (Table 2), the majority of the respondents (41%) have utilized a transfer credit evaluation product for evaluating college credits before transferring, while the majority (59%) have not. Interestingly, among those who have employed such products, the majority have used third-party vendors such as College Source (29%), Elucian (22%), and Parchment (17%). Other respondents used Transferology (14%), Lumerit Education (10%), and College Fish (8%). The students

who did not use any evaluation product for evaluating college credits before transferring have referred to the university website information or followed the information received in one-to-one college advisor meetings.

The researchers were also interested in which features the students found helpful while utilizing the transfer credit evaluation tool. According to the analysis report, the students found certain features valuable; specifically, respondents were searching for information regarding the number of possible transfer courses (65.7%), financial aid (16.7%), calculating their graduation year (9.8%), and a potential list of universities to transfer (7.8%). Besides the provided list of tools, there was an "Others" option.

Interestingly, no other information was mentioned as helpful to those utilizing the tool. These findings could be a guide to improve the transfer credit evaluation process and provide better services to students. By understanding what students seek when utilizing transfer credit evaluation products, colleges and universities can better meet their needs and help facilitate a seamless transfer process.

According to Table 3, the students expressed their initial thoughts on the available technology product features related to transfer credit evaluation tools and reports. The table displays the beneficial and detrimental aspects of these tools in the credit transfer process.

Table 3. *College Students Report: Features of Transfer Evaluation Tools*

Label	Count	%
Technology software made the students' credit transfer experience…		
Much easier than expected	73	71.57%
Somewhat easier than expected	26	25.49%
About what expected	3	2.94%
Difficult than expected	0	0 %
Much difficult than expected	0	0 %
Total	**102**	**100%**

Practical features looked for….

Student Portfolio (to maintain academic history prior transferring the credits)	31	30.39%
Institutional data system (to import course and transfer credit possibilities and financial aid information)	29	28.43%
Course equivalency and transfer information	40	39.22%
Virtual Transfer Advisor	2	1.96%
Total	**102**	**100%**

Unpractical features looked for…

Providing additional information upon request feature	45	44.12%
Providing ease connection between student and university transfer counselors feature	39	38.24%
Matching the courses feature (between private and public institution)	18	17.65%
Total	**102**	**100%**

As shown in Table 3, of the practical features students look for in the transfer electronic tool, course equivalency and transfer information are the most important, followed by a student portfolio to maintain academic history before transferring credits and an institutional data system for importing course and transfer credit possibilities and financial aid information. As for impractical features, students could not get additional information upon request or could not connect with university transfer counselors virtually, which delayed the ease of connection between the student and the counselor. Matching courses between private and public institutions is also an unpractical tool for students, as more information is still not publicly accessible between private and public institutions. In summary, by answering the quantitative research questions, despite these drawbacks, the technology software made students' credit transfer experience much more accessible than expected.

Qualitative Analysis

The qualitative research focused on gaining insights into how transfer counselors perceive the transfer credit electronic platforms.

A summary of the eight participants, including their roles and experience with transfer tools, is shown in Table 4.

Table 4. *Participant Characteristics (N=8)*

Participant	Role	Experience
Participant 1	Transfer Admission Counselor	B.A.; 10 years as transfer admission consultant; 6 years experience with transfer tools
Participant 2	Transfer Student Advisor	M.A.; 15 years as transfer student advisor; 8 years experience with transfer tools
Participant 3	Transfer Admission Counselor	M.A.; 12 years as transfer admission consultant; 5 years experience with transfer tools
Participant 4	Transfer Admission Counselor	B.A.; 7 years as transfer admission consultant; 4 years experience with transfer tools
Participant 5	Transfer Student Advisor	M.A.; 14 years as transfer student advisor; 4 years experience with transfer tools
Participant 6	Transfer Admission Counselor	M.A.; 12 years as transfer admission consultant; 6 years experience with transfer tools
Participant 7	Transfer Admission Counselor	M.A.; 8 years as transfer admission consultant; 3 years experience with transfer tools
Participant 8	Transfer Student Advisor	B.A.; 16 years as transfer student advisor; 7 years experience with transfer tools

* These qualitative data were obtained from a single institution.

After conducting the interviews, the researchers coded the data independently using existing theory and research, as outlined in Foroughi (2015), Karp & Fletcher (2014), and Kezar (2013). The researchers then grouped the codes into themes that accurately reflected the perspectives of college transfer admission counselors, considering the complex issues, practices, and emotions that emerged during the interviews. Ultimately, the data were interpreted using two overarching dimensions - advantages and disadvantages of using the selected electronic technology product(s) and centralized systems.

Advantages of Technology Product(s).

All study participants spoke about the advantages of implementing a statewide centralized transfer software system for public four- and two-year institutions, and private institutions would greatly benefit potential transfer students and their counselors. The current transfer credit system is decentralized and misguided. Providing access to centralized guidelines and individual institutions' course contents would make the transfer process more manageable for students, and transfer admission counselors could offer more accurate guidance. The comments made by Participant 1, who is a transfer admission counselor, were echoed by Participant 5 and Participant 6. They all agreed that this electronic transfer system could save advisors time and help organize all the applications. Having all the necessary information in one place allows the transfer admission counselor to quickly evaluate each student's application and determine their transfer eligibility more efficiently. Overall, the software system has the potential to be a game-changer for both students and transfer admission counselors. As Participant 1 stated, "It takes time to understand the system; however, once the advisor understands the system's features, it saves the counselors' time by providing the aggregated information and applications" (personal communication, September 12, 2019).

Reflecting on the interviewee responses, Participant 2 noted the benefit of using online platforms as utilizing transfer software for marketing purposes to promoting the institutions. Participant 2 stated:

> Our institution is utilizing the e-transfer software system for marketing purposes to attract potential students from North Carolina State to our university. This software company actively promotes its product and collaborators on almost every possible online page. We believe this is a great opportunity to connect with potential students. (personal communication, September 13, 2019)

Disadvantages of Technology Product(s).

Participant 3, Participant 4, and Participant 8 also reported that it is crucial to acknowledge that despite the numerous advantages offered by the centralized system of e-transfer technology, there are also potential hazards that must be considered, primarily when students use third-party resources. Third-party vendors have only access to the transfer information of institutions that signed agreements with them. The course evaluation platforms provide shared information, and the course context is comprehensive, unsourced data about all the institutions. If the institutions do not have an agreement with vendors, they do not share information with

them. By providing resources or course information for software developers, institutions can be confident about the accuracy of the data used by these systems. This process can lead to ineffective communication between institutions and students, as students may receive incorrect or inappropriate information. The risk of receiving incorrect information raises concerns when students use transfer credit evaluation software. Likewise, the system can be impractical for counselors relying on accurate data from trusted sources. Ultimately, it is essential to carefully evaluate the potential risks and benefits of using transfer credit evaluation software before adopting it.

Referring back to the literature and theoretical review, several scholars reported that when transferring credits, miscommunication between students and transfer advisors is one of the crucial challenges (Bryant et al., 2019; Shapiro et al., 2018; Kalamkarian, 2017; Karp, 2016; Tyton Partners, 2016). This miscommunication causes significant delays in their graduation timeline, and some may even need to retake classes, which can result in additional tuition fees. As we delve into connectivism theory, we learn that finding meaning amidst chaos is essential to connect the dots and integrate information from various sources (Foroughi, 2015). Moreover, it is crucial to have an adaptable and flexible approach to keep up with the dynamic transfer advising process environment and the ever-changing landscape (Foroughi, 2015). By embracing these principles, institutions can stay ahead of the curve and achieve their goals more quickly and efficiently.

Another disadvantage that Participant 7 and Participant 8 expressed was deep concern regarding the software's possible financial issues and devaluing professionals in student conduct's time and effort. It is vital for institutions to invest in software that is budget-friendly and aligns with their future goals. In addition, Participant 3 and Participant 4 expressed concern over the potential financial issues that may arise from adopting new software. Admission counselors invest significant time and effort into learning and understanding the adopted system, so it can be frustrating when an institution decides to switch to new technology or discontinue the current one. Therefore, it is crucial for institutions to carefully evaluate the impact on staff and investment before making any decisions. Participant 4 stated: "We had a contract with one of the technology product vendors; however, it was so pricey that our institution decided not to renew the contract" (personal communication, September 13, 2019).

The current literature on this topic likewise echoed that customizing technology for effective advising is crucial. Institutions

should consider their unique needs and national requirements to provide exceptional service and create a positive student experience (Kalamkarian, 2017; Kalamkarian, Boynton, & Lopez, 2018).

Centralized System

Regarding ease of use, transfer admission counselors have identified some best practices for e-transfer software based on their experiences. One of the key factors is having straightforward navigation and context, which is especially important for students and advisors. Additionally, counselors recommended having separate access points for both groups (students and advisors/counselors) to simplify the process. Finally, advisors suggest that having a standard course numbering system across community colleges and public/private universities can help make the transfer process smoother, whether a common transfer or an e-transfer. Participant 8 stated:

> A course numbering system is a much-needed procedure for the success of e-transfer. As transfer advisor(s), we often wish all state institutions had the same course numbers, which is helpful to share correct information and provide transparent service. (personal communication, September 17, 2019)

The challenges and importance of crafting all courses under specific programs and implementing a statewide course numbering system have also been emphasized in the current literature on this topic (Iskandarova & Sloan, 2023; Sherman & Shea, 2020). According to the literature, a positive and successful outlook for implementing a seamless transfer system can be achieved by 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 (Iskandarova & Sloan, 2023; Sherman & Shea, 2020).

Discussion

This convergent parallel mixed methods study used survey and interview data from a midsized university to learn about transfer students' and counselors' perspectives to assess potential electronic accessibility through transfer credit evaluation products. The researchers set out to answer the following question: Which technology product features do students find beneficial and detrimental in transferring the credit process? What are the students' initial thoughts regarding available technology product features on transfer credit evaluation? What are the students' success rates in transferring

credit from one institution to another? Results from the survey indicated that students who utilized e-transfer software had a positive experience with the technology product and its various features. According to both quantitative and qualitative analyses, it has been found that the software is a highly constructive tool in making transfers between institutions easier. Students have reported that the software is highly effective and makes the process more accessible. Also, students have praised the comprehensive credit calculation feature, which helps determine the number of credits that can be easily transferred, course equivalence, maintaining academic history, and financial aid, all of which are vital tools. Notably, transfer admission counselors' interviews echoed the quantitative findings and emphasized that the software is highly effective in facilitating transfers.

Transferring credits is challenging due to miscommunication and difficulties, leading to extra fees and repeated courses. Iskandarova and Sloan (2023) stated that centralizing the data system is crucial in reducing miscommunication in the credit transfer process. Additionally, their research highlighted the significance of implementing a statewide articulation matrix system for higher education institutions. Following this study's quantitative analysis findings, students have reported that detrimental features

can be considered not receiving additional information upon request or needing help to connect with university transfer counselors virtually. This delay in connecting with the counselor can hinder the ease of communication between the student and the counselor. Matching courses between private and public institutions is also an unpractical tool for students, as more information is still not publicly accessible between private and public institutions.

According to the study results, a considerable portion of the respondents (41%) have utilized a transfer credit evaluation product for evaluating college credits positively. Investing in technology is seen as a promising way to improve the transferring process and support students facing challenges, according to the results of a study survey. Most students (87%) agreed that technology can make transferring easier, with many stating that they would be more willing to use transfer credit evaluation tools if they were provided with more information about best-matched universities, credit matching, anticipated graduation, and financial aid options.

The researchers' interviews investigated what transfer admissions counselors perceived as best practices and concerns when using a selected transfer credit technology product. The qualitative findings summarized that the transfer credit evaluation

system has potential benefits for both students and transfer admission counselors from several perspectives, such as providing a road map for students and advisors during the transferring process, offering prearranged and organized application folders for the advisors, and students which direct to contented application submission and evaluation process. The transfer admission counselors in this study also suggested establishing a common course numbering system across different educational institutions (statewide and nationwide), which could improve the transfer process, whether it's a standard transfer or an e-transfer. Meanwhile, besides all these positive nuances, transfer student counselors underline the risks of the transfer credit evaluation software. Consequently, the third-party (vendors) credit evaluation platforms share unknown sourced information/data not confirmed by the institution(s) or the state. This undetermined database decreases long-term trust in the software(s). It distributes unreliable transfer track options for the users, a problem exacerbated by the absence of a statewide standard course numbering system.

Integration of Quantitative and Qualitative Data

The mixed-method question was analyzed to find how students and transfer admissions counselors perceive and utilize transfer technologies. The study's findings unequivocally support the notion that successful technology adoption necessitates more than just implementation. It requires seamless integration into everyday practice (Karp & Fletcher, 2014). Based on the study interviews and survey responses, creating a conducive environment for students and transfer admission counselors is imperative to adoption, in line with the four-level perspectives within the study theoretical framework (institutional experience, procedural training, ongoing support, and incentives). It is incumbent upon institutions to prioritize gathering feedback from students to identify tools that will streamline the adoption process and make it more user-friendly. Furthermore, providing practical tips and inspiration to the institutions at a crowdsourcing level through real-world case studies of successful technology integration could prove beneficial.

Implications

Findings reveal several vital considerations for institutions that want to adopt technological features that enhance and advance the e-accessibility of the institutional transfer advising process and student affairs' unique needs and national requirements to provide exceptional service and create a positive student experience.

Institutional Level

This study leads the researchers to recommend that institutional leaders adopt a proactive approach by collaborating with transfer admission and advisor professionals and their students to promote effective decision-making. By doing so, leaders can establish informed and streamlined policies that are easy to implement and benefit the institution. Moreover, institutional leaders should prioritize contributing statewide crowdsourcing information, which can lead to a more informed and engaged community.

In addition, the study's findings echoed admission counselors' concern that admission counselors invest significant time in learning the current system, so it's frustrating when institutions switch technology. The findings suggest that institutional leaders assess the impact of new technology, especially on transfer admission counselors. Investing in adequate staff training and support can be a valuable strategy to ensure a smooth transition and minimize potential frustration for all parties involved. By prioritizing contributions to the statewide crowdsourcing information, institutions can avoid unnecessary disruptions and ensure that the admission process runs efficiently and effectively. Therefore, it is advisable for institutions to carefully consider the potential impact of any new technology and take steps

to support their staff during the transition process.

Furthermore, this study's findings propose that institutional leaders can make a significant difference by embracing a crowdsourcing platform that facilitates sharing technology application experiences. By sharing the pros and cons of different third-party technologies, institutions can make informed decisions about which technologies to adopt and switch to better alternatives. This crowdsourcing platform can lead to a more efficient and effective use of technology, ultimately benefiting the institution and its stakeholders.

State Level

In addition to institutional leaders, state leaders have a crucial role in ensuring a smooth and accessible transfer credit process. Creating sustainable policies and systems that align with the education system's objectives is essential. This support may include providing clear guidelines, transparent and friendly budgets, state and nationwide course numbering systems, and supporting professionals who implement these policies in their home institutions. These measures enable institutions to offer outstanding services to their students and provide a positive experience for everyone involved in the transferring process. By working together, institutions and state leaders can ensure that transfer

students have access to quality education and that their credits are easily transferrable.

From a research standpoint, the study has limitations as it solely focuses on one state and one public institution. Moreover, the interview part of the research only involved the transfer admission counselor and a few transfer advisors. To enhance the study's comprehensiveness, researching a broader number of public and private institutions nationwide would be beneficial. Inviting transfer admission counselors, advisors, and faculty members who advise transfer students would also be advantageous.

Conclusion

This research explored current and potential technological features that enhance and advance the institutional transfer advising process and the intersection of transfer technology from the perspectives of students and transfer admissions counselors. Based on convergent parallel mixed methods study findings, leaders need to do more than simply implement technology to successfully adopt a transfer product. The study highlights that creating a supportive environment for students and transfer admission counselors is critical to adoption. Moreover, the findings indicated that institutions should prioritize collecting crowdsourced real-state case studies of successful technology integration, which should be shared at a crowdsourcing level to provide practical tips and inspiration to institutions.

In conclusion, implementing an efficient system can be a game-changer for students and student affairs professionals. Providing an effortless road map, prearranged and organized application folders and a contented application submission and evaluation process can make the transferring process smoother, more accessible, and more successful experience for all involved. Explicit attention must be paid to miscommunication to avoid misunderstandings leading to dissatisfaction at every level. It's clear that technology has a vital role in the future of education, and this study reinforces that fact even further.

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