Defining and Institutionalizing Proactive Advising: Insights from a National Survey

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Calls to adopt proactive advising as a student success strategy are common, but evidence on what this entails is scarce. We present results from a national survey on the conceptualization and institutionalization of proactive advising at four-year U.S. colleges and universities. Examining differing views among advisors and administrators, we identify advising practices, implementation strategies, and technologies deemed absent but necessary to institutionalize proactive advising. Through multilevel modeling, we estimate that absent-but-needed implementation strategies have the greatest effect on respondent impression of institutionalization, and that the effects of absent-but-needed technologies depend on respondent role. Summarizing findings from regression and content analyses, we propose a comprehensive definition of proactive advising and recommend successful institutionalization through coordinated rather than decentralized efforts.

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Proactive advising plays a critical role in enhancing college student success, improving outcomes such as persistence and on-time completion through intentional advisor-advisee relationships (Institute for Education Sciences, 2021; Van Jura & Prieto, 2021). Unfortunately, empirical research on its conceptualization and institutionalization in U.S. higher education remains limited, with most analyses coming from industry reports that primarily offer descriptive or anecdotal recommendations (American Association of State Colleges and Universities, 2021; Tyton Partners & BayView Analytics, 2021, 2022; University Innovation Alliance, 2021). Proposed definitions have varied considerably over time (Varney, 2013), creating disconnects that make it difficult for institutions to implement proactive advising and for advisors to meet NACADA's core competency expectation of understanding advising approaches and strategies (NACADA, 2017).

These challenges mirror a broader gap in student success research, that of implementation methods (Kinzie & Kuh, 2017). To address these gaps, we led a cluster of advising administrators in reflecting on our institutions' processes of proactive advising adoption, with funding from the American Association of Public and Land-Grant Universities' Powered by Publics (APLU PxP) initiative (APLU, n.d.). Examining existing support structures and processes, we identified missing components for full implementation (Brabender, 2017; Chamberlain & Burnside, 2021) and grappled with the possibly divergent views of student success between administrators and advisors (Taylor, 2022). We then surveyed advisors and advising administrators at U.S. four-year institutions (i.e., the types of institutions within the APLU PxP initiative) to ascertain perceptions and states of institutionalization of proactive advising.

Research Questions

Using a mix of descriptive and inferential statistics, multilevel linear regression, and thematic content analyses, we asked:

RQ1: How do academic advisors and administrators define proactive advising and its attributes?
RQ2: What institutionalization approaches are perceived as absent but needed?
RQ3: What factors influence perceptions of proactive advising institutionalization, and do these depend on respondent role (i.e., advisors—focused primarily on direct advising vs. administrators—focused on advising leadership)?
RQ4: What do respondents identify as the strengths and weaknesses of their institution's current approach to proactive advising?

Literature Review

Academic advising is critical to student success, transcending mere course registration and degree requirement guidance (AASCU, 2021). Effective advising encompasses learning outcomes, pedagogies, role definitions, and relational

rapport (Mu & Fosnacht, 2019; NACADA, 2023; National Survey of Student Engagement, 2020).

Proactive and Other Approaches to Academic Advising

Originating in the 1970s as *intrusive* counseling, *proactive* advising emphasizes early, deliberate interventions by advisors (Cannon, 2013; Earl, 1988; Glennen, 1976; Varney, 2007, 2013). Proactive advising differs from *developmental* advising (Crookston, 1994; O'Banion, 1994), which focuses on decision-making through backwards design, starting with vocational goals and moving towards major choice, course choice, and scheduling, while emphasizing problem-solving and evaluation skills. *Appreciative* advising, another advising approach, emphasizes building rapport and valuing students' strengths to design academic and professional goals and strategies for goal attainment (Bloom et al., 2008). C*oaching-based* advising involves guiding students to evaluate their experiences, identifying effective personal strategies, and exploring options for goal attainment (McClellan & Moser, 2011). Centering advising conversations around the logic or coherence of the broad curriculum with which students are engaging is the goal of *Learning-centered* advising (Lowenstein, 2005; Rust, 2011). These different approaches to advising do share commonalities, such as ongoing communication and discussion of plans and resources to achieve long-term goals.

Proactive advisors initiate contact and intentional involvement in their students' affairs (Earl, 1988; Glennen, 1976; Van Jura & Prieto, 2021; Varney, 2013), often reaching out to students identified by faculty-submitted early alerts, progress reports (Kraft-Terry & Kau, 2019; Miller & Murray, 2005; Upcraft & Kramer, 1995), or technology-enabled predictive alerts (Kalamkarian et al., 2017; Valentine & Price, 2023). As part of a holistic case management strategy (Klein, 2012), proactive advising commonly features mandatory, early, and frequent appointments with students (Kirk-Kuwaye & Nishida, 2001; Vander Schee, 2007), offering referrals to other student supports, such as tutoring and peer mentoring. The outreach associated with proactive advising includes ongoing, multi-modal communication (Bettinger & Baker, 2014). These practices increase students' academic self-efficacy (Kitchen et al., 2021), engagement with advising (Schwebel et al., 2012), grade point averages (Earl, 1986; Fowler & Boylan, 2010; Molina & Abelman, 2000; Robbins et al., 2009), persistence (Bahr, 2008; Bettinger & Baker, 2014; Fowler & Boylan, 2010; Molina & Abelman, 2000; Valentine & Price, 2023), and timely graduation (Scrivener et al., 2015).

Models and Structures of Academic Advising

Advising models are typically classified by the locus of organizational control (e.g., centralized or decentralized), by the actors delivering academic advising (e.g., professional/primary-role advisors or faculty advisors), and by the forms of accountability for advising outcomes (AASCU, 2021; Habley, 1997; Habley & Morales, 1998; UIA, 2021; Young-Jones et al., 2013). Centralized advising consolidates advising into one unit, whereas decentralized advising spreads responsibilities across academic schools or departments, enhancing discipline-specific connections but at the expense of coordination (King, 2008). Professional advisors (i.e., primary-role advisors) focus on comprehensive student support, while faculty advisors offer discipline-specific advice alongside their main teaching and research roles (Self, 2008). Jones et al. (2021) noted, however, that these models "vary by campus and can often be legacy approaches that no longer serve the needs of the students" (p. 67). Habley's (1997) survey found that public institutions trended toward models with special focus advising (e.g., first-year students) and increased reliance on professional advisors, while most private institutions used department faculty as advisors.

Regarding perceived success of various models, studies suggest decentralized and faculty advising models correlate negatively with advising effectiveness (Habley & Morales, 1998). Institutions with integrated supports and clear responsibilities exhibit better student retention and degree completion (Tyton Partners & Babson Survey Research Group, 2019). Decentralized models can hinder consistent proactive advising implementation (Miller & Weiss, 2022; Taylor, 2022; Waddington, 2019). Finally, smaller advising caseloads are commonly associated with more proactive advising approaches, while larger caseloads are seen as barriers (Miller & Weiss, 2022; Scrivener & Au, 2007; Scrivener et al., 2015; Tyton Partners & Bay View Analytics 2022).

Conceptual Framework

Proactive advising is increasingly recognized for enhancing student retention and graduation

rates (AASCU, 2021; Burns, 2021, 2022; Brabender, 2017; Tyton Partners & Bay View Analytics, 2022). Indeed, the Department of Education's What Works Clearinghouse empaneled a group of experts to critically review the evidence supporting the effectiveness of advising, which resulted in a recommendation that institutions of higher education adopt,

> an advising model that focuses on the development of sustained, personalized relationships with individual students throughout their college careers. Providing *sustained, strategic, intrusive, personalized, and proactive* (SSIPP) advising supports that address academic and nonacademic barriers to college achievement could possibly lead to improvements in students' sense of belonging, academic achievement, college progression, and degree completion. (Institute of Education Sciences, 2021, p. 24, emphasis in original)

In fact, the rising emphasis on proactive advising has spurred consulting firms and technology vendors to promote their solutions (EAB, 2019; McFarlane, 2018; Tyton Partners & Bay View Analytics, 2021), aligning with the literature's focus on data-driven insights (AASCU, 2021; Jones et al., 2021; Pelletier, 2021) and advanced communication tools (Scrivener & Au, 2007; Van Jura & Prieto, 2021; Varney, 2013).

Our study's conceptual framework suggests that proactive advising improves student outcomes, such as GPA, persistence, and timely graduation, although these outcomes are contingent on clear definitions and institutional integration (Brabender, 2017; Chamberlain & Burnside, 2021). We view "institutionalizing" as the systemic integration of specific practices, tools, and strategies into organization structures, processes, and culture to ensure consistent and sustained application. As Kezar & Sam (2013) clarified, institutionalization "moves beyond standard operating procedures to the actual value system of the organization. Members come to a consensus, accept the value of innovation, and see the innovation as normative behavior for the institution" (p. 60). Institutionalizing proactive advising within a college or university is accomplished through three broad sets of tactics:

1. Campus-level implementation strategies that define proactive advising and its goals (AASCU, 2021; Brabender, 2017; Fowler & Boylan, 2010), support its utilization (Institute of Education Sciences, 2021; Scrivener et al., 2015), and train and develop proactive advisors (Tyton Partners & Bay View Analytics, 2022; UIA, 2021).
2. Honing advisors' proactive advising practices around identifying and encouraging meetings with students in advance of, rather than as reaction to, academic or other difficulty.
3. Ensuring that appropriate technology pervades the advising ecosystem to optimize proactive advising's timely and targeted delivery (Chamberlain & Burnside, 2021).

Finally, we also adopt the position that when students are not successful in college or when academic advisors are not effective in promoting student success, it is a result of institutional problems, not a failure of the student to assimilate or of an advisor to fix the institutional issues (Bensimon, 2007; Museus, 2014; Taylor, 2022).

Data and Methods

In collaboration with advising administrators from 13 urban-serving, public, four-year universities within the APLU PxP cluster, we developed the Survey of Proactive Advising (Rust & Chadwick, 2021). This web-based questionnaire was designed based on a review of proactive advising literature and collected data on demographics, advising roles, institutional models, conceptions of proactive advising, and perceptions of its institutionalization. Utilizing a drop-down menu with 2,933 four-year institutions from the Department of Education's IPEDS for 2019 (National Center for Education Statistics, 2019), respondents consented to have their responses linked to institutional data. Following a pilot phase with cluster colleagues, we refined the survey for clarity.

Survey Procedure

We identified potential respondents through web scraping and obtained 20,294 email addresses linked to academic advising roles at four-year institutions. Participants were incentivized to participate in this survey, which we conducted from March 16 to April 8, 2021, with a webinar

invitation. This protocol received Institutional Review Board approval.

Respondents

Complete responses were received from 968 individuals at 323 unique, four-year institutions across 48 states, the District of Columbia, and Guam, representing a response rate of 4.8%, assuming all emails were successfully delivered. Academic advisors comprised 64.2% of respondents, while 35.8% were advising administrators (see Table 1 for detailed demographics). The most common advising structure was decentralized (49.6%), followed by coordinated (27.3%), and centralized (23.1%). For most respondents' institutions, advising was done by primary-role/professional advisors (53.7%). The modal student-to-advisor ratio was 300 to 399 (see Figure 1). We incorporated IPEDS 2019 data for institutional characteristics, detailed in Appendix A. While the exact population of academic advisors and administrators remains unknown, our data offers a representativeness assessment and indicates a possible over-representation of larger and public institutions and of institutions with lower retention rates.

Measures

The survey collected extensive respondent demographic data used in the regression analysis. Key measures on roles and institutions included:

- institution name, which was tied to institutional details from IPEDS data;
- respondent-identified advising role, which enabled differentiation between administrators and academic advisors and accounted for time in role and impacted student populations;
- advising model and structure description for respondent institution (e.g., faculty, primary-role advisors, or split) and organizational structure (decentralized, centralized, or coordinated: multiple common advising efforts or strategies with decentralized delivery and reporting);
- advising caseload average size: respondent selection of estimated student advising caseload size from predefined categories;
- attributes of proactive advising: respondent selection of top five attributes of proactive advising from a list;
- reactions to proposed definition: respondent-rated agreement with the proposed definition of proactive advising, developed by our APLU PxP cluster:

> Proactive advising is an institutionally initiated advising practice that includes coordinated, collaborative, personalized, and intentional outreach strategies and practices designed to anticipate potential barriers to student success, provide timely interventions, and invite meaningful engagement between advisors and students. By anticipating barriers, providing interventions, and inviting engagement, proactive advising strategies and practices support improved student experiences and outcomes;

- personal belief in proactive advising;
- institutionalization approaches: respondents indicated the status and importance of various institutionalization approaches (i.e., implementation strategies, advising practices, and technologies);
- composite impression of institutionalization: primary dependent variable in regression analyses, averages three items to gauge respondents' views on proactive advising's institutionalization (validity discussed below in results);
- open comments for respondents to discuss strengths and challenges in institutionalizing proactive advising at their institution.

Analytical Strategy

We employed a concurrent triangulation strategy within our mixed-method design to collect both quantitative and qualitative data, optimizing the strengths and mitigating the limitations of each data type (Bryman, 2006; Creswell & Plano Clark, 2007). Our initial analysis utilized descriptive nd inferential statistics to examine understanding and institutionalization of proactive advising and to identify any discrepancies between advisor and administrator perceptions. Recognizing the risk of inflated Type II error rates due to multiple comparisons, we treated any observed differences as exploratory, informing our decision on whether to include role indicators in the regression analyses. We then used multilevel linear regression to identify predictors of institutionalization of proactive advising and to explore whether these predictors depended on respondent role. Lastly, to enrich our quantitative findings, we conducted a content analysis of open comments to identify themes. Qualitative insights allowed us to navigate potential tensions among our conceptual and paradigmatic lenses (Jones et al., 2014).

Table 1. Descriptive Statistics on Respondents for all Variables Used in Regression Analyses

	N	% or *M* (*SD*)	Min. (for Means)	Max. (for Means)
Respondent Characteristics				
Gender Identity				
Woman or Female or Feminine	967	79.3		
Man or Male or Masculine	967	18.0		
Transgender Woman or Female or Feminine	967	0.0		
Transgender Man or Male or Masculine	967	0.3		
Gender Non-conforming or Gender Queer	967	0.7		
Gender Identity Not Listed	967	0.1		
Preferred to Not Identify	967	1.6		
Race, Ethnicity, or Origin Identity				
American Indian or Alaska Native	966	0.7		
Asian	966	3.8		
Black or African American	966	12.3		
Hispanic, Latinx, or Spanish Origin	966	6.9		
Middle Eastern or North African	966	0.1		
Native Hawaiian or Other Pacific Islander	966	0.4		
Two or More Race, Ethnicity, or Origin Identities	966	4.7		
White	966	67.7		
A Race, Ethnicity, or Origin Identity Not Listed	966	0.4		
Preferred to Not Identify	966	2.9		
Year of Birth (Mean Rounded to Whole Year)	945	1979 (10)	1949	2001
Advisor Role (no administration responsibility)	968	64.2		
Administrator Role ($\geq$ 50% administration)	968	35.8		
Time in Role				
More than Five Years in Role	968	40.2		
One to Five Years in Role	968	49.9		
Less than One Year in Role	968	9.9		
Time at Institution				
More than Five Years at Institution	968	60.8		
One to Five Years at Institution	968	33.5		
Less than One Year at Institution	968	5.7		
Student Populations Impacted by Role				
Undergraduates	968	88.2		
Graduate and Professional Students	968	10.5		
First-year Students	968	67.1		
Low Income Backgrounds	968	62.8		
Students of Color	968	58.0		
Transfer Students	968	61.9		
Exploratory Major Students	968	43.0		
First Generation Students	968	61.9		
Personal Belief in Proactive Advising	968	3.69 (0.495)	1	4
Institutional Characteristics				
Organizational Structure for Advising				
Centralized	968	23.1		
Coordinated	968	27.3		
Decentralized	968	49.6		

Table 1. Descriptive Statistics on Respondents for all Variables Used in Regression Analyses (cont.)

	N	% or *M* (*SD*)	Min. (for Means)	Max. (for Means)
Advising Delivery Model				
Predom. Primary-role/Professional Advisors	968	53.7		
Predominantly Faculty Advisors	968	6.6		
Split of Faculty and Primary-role Advisors	968	39.7		
Estimated Avg. Caseload Size	968	352.67 (186.79)	0	1000+
Proactive Advising Institutionalization				
Absent But Needed Advising Practices	968	3.85 (2.82)	0	13
Absent But Needed Implementation Strategies	968	4.05 (2.53)	0	8
Absent But Needed Technologies	968	3.69 (2.60)	0	11
Composite Impression of Institutionalization of Proactive Advising	968	2.82 (0.69)	1	4
APLU PxP Metropolitan University Cluster	968	14.6		
IPEDS-Reported Characteristics				
Public	968	86.4%		
Full-time Enrollment	963	16466.05 (11118.11)	129	59447
First Time, Full-time, First-year Retention Rate	950	78.95 (9.68)	40.00	100.00

Note. The mean for estimated average caseload size is approximated by calculations from the frequency distributions shown in Figure 1. Institutional characteristics are reported here at individual respondent level. Clustering by institution is accounted for in later tables showing multi-level models. Institution level means and proportions are reported in Appendix A.

Results

Defining Proactive Advising

To address our first research question, we analyzed the 20 attributes respondents deemed most important in defining proactive advising. The most frequently selected attributes included: developmental, appreciative, intrusive, coaching-based, caseload management, teaching students to anticipate obstacles, focused on specific student demographics, meeting early in the academic term, initiated by the advisor, and student participation on a required basis. We then examined potential differences by advising role (administrator vs. advisor) and gauged reactions to our proposed definition. Table 2 displays the attribute frequency distributions, disaggregated by role. Notably, differences emerged in prioritizing developmental advising (72% of advisors, 64.3% of administrators), intrusive approaches (48.0% of advisors, 58.8% of administrators), focus on at-risk students (15.8% of advisors, 25.1% of administrators), and the preference for opt-in participation (2.1% of advisors, 4.9% of administrators). These potential differences by role supported the inclusion of the role indicator variable in later regression analyses.

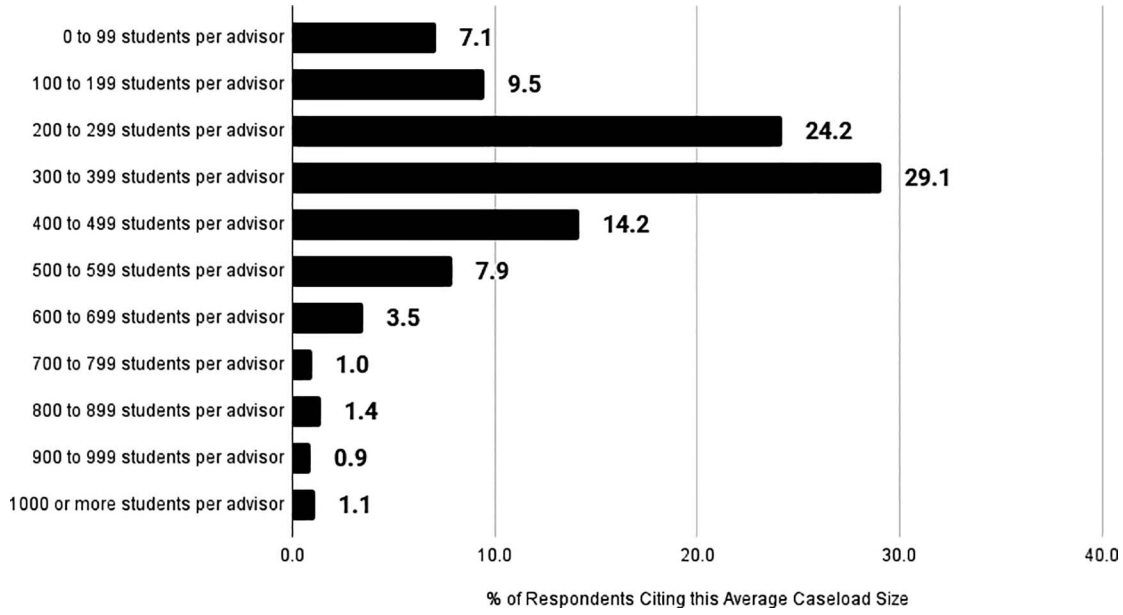
Reaction to Proposed Definition

Respondents' reactions to our proposed definition of proactive advising illustrated that almost all respondents (97.9%) agreed/strongly agreed that the definition is accurate; 91.7% agreed/strongly agreed that it is comprehensive; and 93.4% agreed/strongly agreed that it is helpful, with no apparent differences in agreement by role. Forty-nine respondents (5.2%), who expressed some level of disagreement, provided suggestions to improve the definition, including: shorten the definition; use more student strength-centered language and less jargon; and change "institutionally initiated" to "advisor-initiated." These results informed the revised definition of proactive advising in our discussion.

Approaches to Institutionalization of Proactive Advising

Addressing our second research question, we examined three sets of institutionalization approaches. As dissatisfaction is often a precursor to organizational change (Rosenbaum et al., 2018) and institutionalization requires members to value innovation (Kezar & Sam, 2013), we focused on the approaches deemed absent but needed. This focus

Figure 1. Estimated Average Student Advising Caseload Size



was also important because responses were bi-modal with most respondents deeming practices, implementation strategies, and technologies as either absent-but-needed or present-and-important.

Advising Practices

Respondents evaluated thirteen proactive advising practices that have not been happening but need to (see Figure 2). The most frequently cited missing and needed practice was, "Requiring students at risk for departure from institution to meet frequently with an advisor," selected by 59.5% of respondents. Table 3 shows four practices where advisors and administrators differed in their identification of the practice as absent but needed: "Assigning students to levels of risk for insufficient academic progress" (24.0% of advisors, 32.0% of administrators); "Conducting outreach to students enrolled in high D, F, W or gateway courses" (38.6% of advisors, 45.2% of administrators); "Conducting outreach to students with low activity or low grades in the Learning Management System" (27.4% of advisors, 42.7% of administrators); and "Requiring first year students to meet with an advisor once per academic term (semester/quarter)" (23.5% of advisors, 29.4% of administrators). On average, administrators identified more absent but needed practices ($M = 4.23$, $SD = 2.78$) than advisors ($M = 3.64$, $SD = 2.83$).

Implementation Strategies

Respondents next assessed eight proactive advising implementation strategies. As Figure 3 shows, the top absent-but-needed strategies (each selected by over 64% of respondents) related to incentivizing advisors through informal recognition, formal performance review, or promotional structures. Table 3 presents two strategies differently selected by advisors and administrators as absent-but-needed: "Defining institutional motivations or goals for implementing proactive advising" (44.3% of advisors, 51.0% of administrators), and "Incentivizing advisors to utilize proactive advising strategies through performance review or promotional structures" (60.9% of advisors, 70.3% of administrators). No differences were observed in total missing strategies by role.

Technologies

Respondents then evaluated eleven proactive advising technologies. As Figure 4 reveals, the most frequently cited missing but needed technology was "Real-time filtering of student advising caseloads." Table 3 compares frequencies for all selection choices by role and identifies three potential differences in selection of missing but needed: "Appointment reminders to students by text messaging" (37.7% of advisors, 45.2% of administrators); "Direct text messaging to students

Table 2. Top Five Most Important Attributes Selected for Proactive Advising by Role

Attribute	Advisor % (N = 621)	Admin. % (N = 347)	Total % (N = 968)
Approach based in Developmental Advising (focused on the student's academic and professional goals)	72.0	64.3*	69.2
Approach based in Appreciative Advising (strengths-based, positive psychology)	57.3	51.9	55.4
Approach based in Intrusive Advising (intentionally initiating relationships with students)	48.0	58.8**	51.9
Approach based in Coaching techniques (asking questions that honor students' expertise and nudge toward their goals)	47.7	44.7	46.6
Approach based in Caseload Management strategies (organizing work to appropriately meet needs of all assigned students)	35.7	41.5	37.8
Teaching students to anticipate obstacles to success	26.9	28.0	27.3
Focused on specific student demographics (e.g., first generation, low income, under-represented)	23.8	22.2	23.2
Meeting early in the academic term (semester/quarter)	24.8	20.5	23.2
Initiated by the advisor	23.2	22.8	23.0
Student participation is on a required or mandatory basis	23.3	21.3	22.6
Meeting often during the academic term (semester/quarter)	23.8	19.9	22.4
Teaching students something before they know they need it	20.0	18.2	19.3
Focused on specific students at risk for departure from the institution without a degree	15.8	25.1***	19.1
Approach based in Learning-Centered Advising (teaching the logic of the curriculum and the co-curriculum)	18.8	19.3	19.0
Focused broadly on the entire student population	9.5	12.7	10.6
Initiated by the student	10.8	8.1	9.8
Approach based in Prescriptive Advising (advisor as authority dispensing information)	9.5	6.6	8.5
Student participation is on an opt out basis, as opposed to opt in	4.7	5.8	5.1
Student participation is on an opt in basis, as opposed to opt out	2.1	4.9*	3.1
Initiated by the institution	2.3	3.7	2.8

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

(individually or in groups)" (36.1% of advisors, 44.7% of administrators); and "Early alert system based on student activity in the Learning Management System (LMS)" (45.9% of advisors, 54.5% of administrators). No differences were observed in total missing technologies by role.

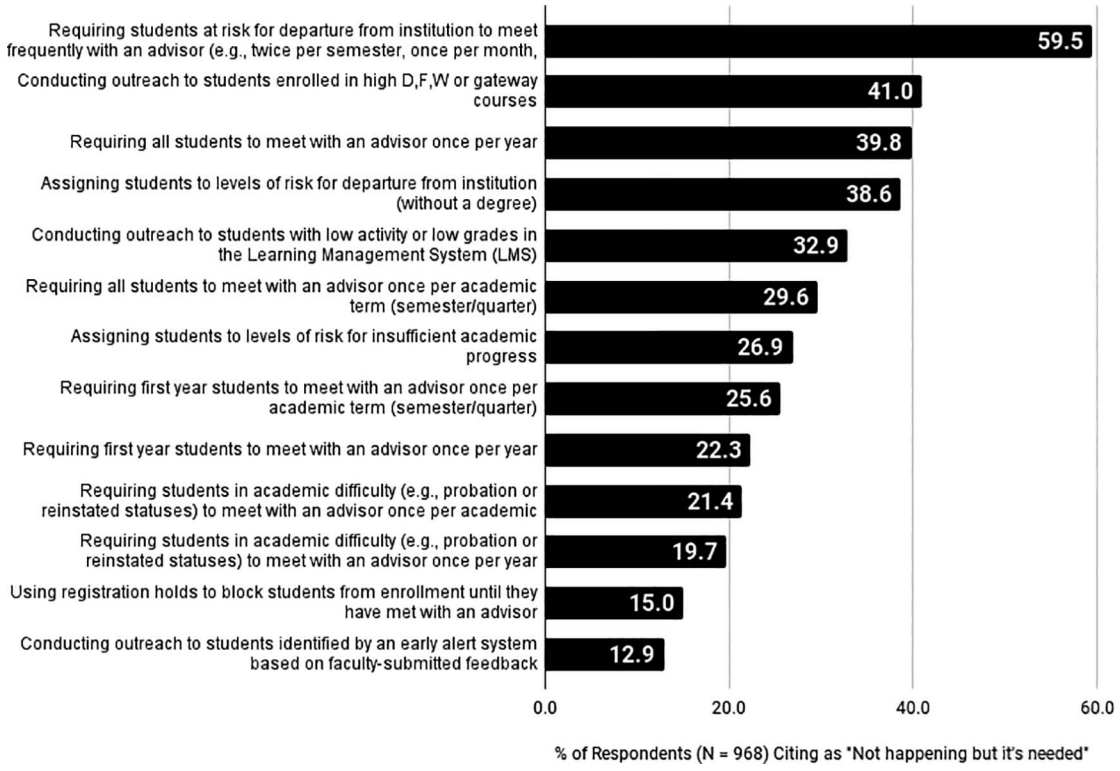
Predicting Composite Impression of Institutionalization of Proactive Advising

To address our third research question, we constructed a dependent variable representing respondents' overall perception of the institutionalization of proactive advising at their respective institutions. Our composite measure was derived from averaging three items, which showed decreasing levels of agreement on our 4-point scale:

1. "I believe my institution has been working to implement or improve our use of Proactive Advising" ($M = 3.11$, $SD = .74$).
2. "I believe my institution has specific goals related to our use of Proactive Advising" ($M = 2.83$, $SD = .83$).
3. "I am satisfied with the current state of Proactive Advising at my institution" ($M = 2.52$, $SD = .82$).

These items formed a reliable scale with a Cronbach's Alpha of .84, with inter-item correlations between .569 to .714, indicating measurement of a similar underlying concept. These survey items also exhibited face validity as field administrators had reviewed and refined the survey items, ensuring their relevance and accurate representation of proactive advising institutionalization. We used this composite

Figure 2. Practices That Have Not Been Happening but Need To



measure, with an average score of $M = 2.82$, $SD = .69$, as our regression analysis' dependent variable.

Personal Belief in Proactive Advising

In response to the statement, "I believe that Proactive Advising is an important student success strategy," the average rate of agreement was very high ($M = 3.69$, $SD = 0.50$). This predictor is included in the regression analyses given the connection between institutionalization of innovation and valuing of innovation (Kezar & Sam, 2013). We identified no differences of belief between advisors and administrators in the importance of proactive advising.

Multilevel Linear Regression

To discern respondents' perceptions of institutionalization of proactive advising and account for response clustering by institution, we employed a multilevel modeling approach. This method recognizes the data's nested structure (individuals within institutions) and divides the variance between the two levels (Snijders & Bosker, 2012). Starting with a null model (Model 0 in Table 4), we found significant variability in perceptions across institutions, with 17% of the variance due to within-institution similarities ($\sigma^2 = .40$, $\tau_{00} = .08$, ICC = .17, $R^2_{\text{marginal}} = .00$, $R^2_{\text{conditional}} = .17$), justifying a multilevel approach.

Individual/Level 1 Models. We then began maximum likelihood estimation of models with individual-level (i.e., Level 1) predictors (Models 1–3 in Table 4). In Model 1, the fixed effect for "Black or African American" race/ethnicity origin indicated a more positive perception compared to the White reference group. Model 2 introduced more respondent details, revealing a slight decline in positive perceptions among younger respondents and those in their roles longer. Model 3 shows the strong influence of "Personal Belief in Proactive Advising" on perceptions, with only age, administrator role, and time in role having significant effects. The Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) statistics favored Model 3 over the null model. There was virtually no reduction in the Intraclass Correlation Coefficient (ICC) in these Level 1 models, indicating individual level variables did little to explain variance between institutions.

Table 3. Current State and Importance of Institutionalization Approaches by Role

	Absent And Don't Need It		Absent But We Need It		Present But Don't Need It		Present And We Need It	
Institutionalization Approaches	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**
Advising Practices								
Assigning students to levels of risk for departure from nstitution (without a degree)	6.9	7.5	37.2	41.2	3.5	2.3	52.3	49.0
Assigning students to levels of risk for insufficient academic progress	3.2	4.3	24.0	32.0**	2.3	2.6	70.5	61.1**
Conducting outreach to students enrolled in high D, F, W or gateway courses	4.5	3.5	38.6	45.2*	2.1	2.3	54.8	49.0
Conducting outreach to students identified by an early alert system based on faculty-submitted feedback	0.8	0.6	12.1	14.4	1.9	0.9	85.2	84.1
Conducting outreach to students with low activity or low grades in the Learning Management System (LMS)	3.2	4.6	27.4	42.7***	3.4	1.7	66.0	51.0***
Requiring all students to meet with an advisor once per academic term (semester/quarter)	18.7	25.6*	28.2	32.3	4.7	4.0	48.5	38.0**
Requiring all students to meet with an advisor once per year	24.2	25.1	37.7	43.5	2.4	1.7	35.7	29.7
Requiring first-year students to meet with an advisor once per academic term (semester/quarter)	6.9	4.3	23.5	29.4*	1.3	0.3	68.3	66.0
Requiring first-year students to meet with an advisor once per year	22.1	23.1	21.6	23.6	1.4	1.7	54.9	51.6
Requiring students in acad. difficulty (probation/reinstated statuses) to meet with advisor once per term (sem./quart.)	0.5	0.9	21.3	21.6	1.4	2.0	76.8	75.5
Requiring students in academic difficulty (probation or reinstated statuses) to meet with an advisor once per year	13.7	16.1	19.2	20.7	1.0	0.9	66.2	62.2
Requiring students at risk for departure to meet frequently with advisor (2X per semester, monthly, bi-weekly)	11.0	12.7	57.3	63.4	2.3	2.9	29.5	21.0**
Using registration holds to block students from enrollment until they have met with an advisor	5.8	12.4***	16.1	13.0	3.5	9.8***	74.6	64.8**

Table 3. Current State and Importance of Institutionalization Approaches by Role (cont.)

	Absent And Don't Need It		Absent But We Need It		Present But Don't Need It		Present And We Need It	
Institutionalization Approaches	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**
Total for Advising Practices (out of 13)	1.21 (1.49)	1.41 (1.65)	3.64 (2.83)	4.23** (2.78) $d = -.21$	0.31 (0.04)	0.33 (0.83)	7.83 (2.99)	7.03*** (2.83) $d = .27$
Implementation Strategies								
Charging councils, committees, or administrators with implementation of proactive advising strategies	5.6	2.9	37.4	39.2	1.8	3.5	55.2	54.5
Defining institutional motivations or goals for implementing proactive advising	2.6	2.9	44.3	51.0*	2.6	2.0	50.6	44.1
Distinguishing proactive advising practices from reactive advising practices	2.9	3.7	51.7	54.2	2.1	2.3	43.3	39.8
Harmonizing inconsistencies in implementation of proactive advising across campus	5.2	4.6	60.9	65.7	1.3	2.3	32.7	27.4
Identifying student populations for proactive focus (first generation, low income, predicted risk categories)	1.4	2.6	27.5	27.7	1.6	0.9	69.4	68.9
Incentivizing advisors to utilize proactive advising strategies through informal reward or recognition	14.3	15.6	63.0	66.9	3.2	1.2*	19.5	16.4
Incentivizing advisors to utilize proactive advising strategies through performance review or promotional structures	13.5	11.5	60.9	70.3**	3.9	1.7	21.7	16.4*
Training advisors to utilize proactive advising strategies	1.1	0.9	51.2	44.7	1.1	0.3	46.5	54.2*
Total for Implementation Strategies (Out of 8)	0.47 (1.04)	0.47 (0.97)	3.97 (2.57)	4.20 (2.44)	0.18 (0.63)	0.14 (0.48)	3.39 (2.53)	3.22 (2.34)
Technologies								
Appointments scheduling through an online appointment system	0.6	1.2	4.2	4.9	1.0	0.9	94.2	93.1
Appointment reminders to students by email	1.4	0.9	8.5	7.5	1.4	2.0	88.6	89.6
Appointment reminders to students by text messaging	7.7	3.5**	37.7	45.2*	4.3	2.9	50.2	48.4
Appointment campaign function (contacting specific group of students w/direct link to dedicated appoint. availability)	6.1	4.0	23.5	24.5	3.1	3.5	67.3	68.0

Table 3. Current State and Importance of Institutionalization Approaches by Role (cont.)

	Absent And Don't Need It		Absent But We Need It		Present But Don't Need It		Present And We Need It	
Institutionalization Approaches	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**	**Advisor % or *M* (*SD*) (N = 621)**	**Admin. % or *M* (*SD*) (N = 347)**
Case management functionality to prioritize student needs being fully addressed	4.5	3.5	48.8	45.2	2.1	2.6	44.6	48.7
Direct text messaging to students (individually or in groups)	9.5	4.6**	36.1	44.7**	2.9	2.0	51.5	48.7
Early alert system based on faculty-submitted feedback	1.0	0.6	13.8	13.8	1.8	1.4	83.4	84.1
Early alert system based on predictive analytics (predicting students' future success)	14.5	11.2	40.6	47.0	5.5	4.9	39.5	36.9
Early alert system based on student activity in the Learning Management System (LMS)	10.6	7.2	45.9	54.5*	2.3	2.9	41.2	35.4
Real-time filtering of student advising caseload by relevant characteristics or success indicators	9.2	7.2	51.0	52.4	1.1	2.6	38.6	37.8
Wrap around service referral functionality	6.0	5.8	46.7	50.7	0.8	0.6	46.5	42.9
Total for Technologies (Out of 11)	0.71 (1.29)	0.50** (0.96) $d = .18$	3.57 (2.60)	3.90 (2.58)	0.26 (0.74)	0.26 (0.69)	6.46 (2.72)	6.33 (2.66)

Note. Standard deviations presented in parentheses. Cohen's *d* reported only for *t* tests with $p < .05$. Importantly, these Chi Square and *t* tests are merely exploratory and inform whether to include the administrator indicator in the regression analyses.
$^*p < .05$, $^{**}p < .01$, $^{***}p < .001$ for Chi Square or *t* test of differences by role.

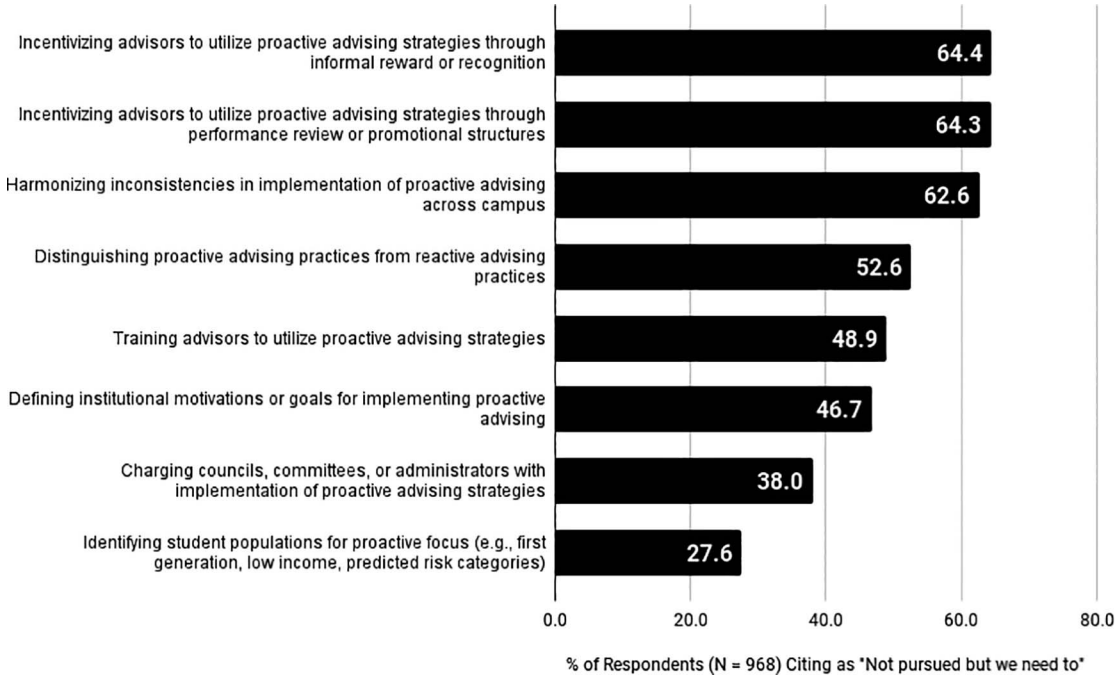
Institutional/Level 2 Models. Models 4 through 9 (Table 5) integrated institutional variables. Model 4 highlighted that decentralized advising structures and larger caseloads negatively impacted perceptions, while Model 5 revealed that missing proactive advising practices, strategies, and technologies negatively influenced perceptions. Model 6's inclusion of APLU PxP Metropolitan University Cluster and IPEDS data did not yield significant effects. Model 7's cross-level interactions showed that administrators were less negatively impacted by missing technologies than advisors. Models 8 and 9 refined the predictors, with Model 9 ($\sigma^2 = .22$, $\tau_{00} = .02$, ICC = .07, $R^2_{\text{marginal}} = .51$, $R^2_{\text{conditional}} = .54$) being the most parsimonious, per the BIC values, as it minimized model complexity while maintaining explanatory power. The marginal R^2 values remained stable from Models 5 through 9, explaining about 51% of the variance. The ICC values decreased by over 50% from the Level 1 models, indicating that institutional characteristics accounted for significant proportions of the initial within-institution similarity. Our final model is of the form:

$$Y_{ij} = \beta_{0j} + \beta_1 X_{1ij} + \beta_2 X_{2ij} + \beta_3 (X_{1ij} \times W_{8j}) + R_{ij}$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01} W_{1j} + \gamma_{02} W_{2j} + \gamma_{03} W_{3j} + \gamma_{04} W_{4j} + \gamma_{05} W_{5j} + \gamma_{06} W_{6j} + \gamma_{07} W_{7j} + \gamma_{08} W_{8j} + U_{0j}$$

where Y_{ij} is the composite impression of institutionalization of proactive advising for respondent *i* in institution *j*; β_{0j} is the intercept for institution *j*; β_1, β_2, β_3 are the fixed effects for administrator role (X_1), personal belief in proactive advising (X_2), and the cross-level interaction between

Figure 3. Implementation Strategies We Have Not Pursued but We Need To

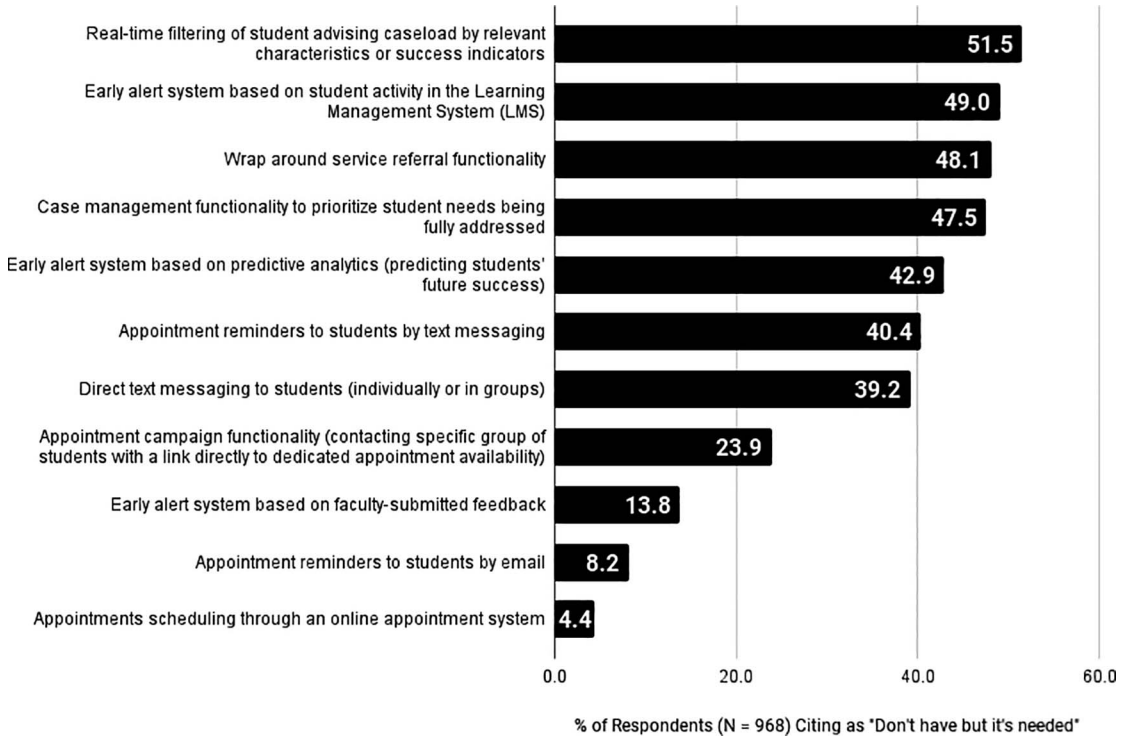


administrator role (X_1) and absent/needed technologies at the institution level (W_8), respectively; R_{ij} is the Level-1 residual (the individual-level deviation from the predicted outcome within institutions); γ_{00} is the grand mean intercept across all institutions; γ_{01} to γ_{08} are the slopes for institution-level predictors: coordinated organizational structure (W_1), decentralized structure (W_2), predominantly faculty advisors (W_3), split faculty and primary-role advisors (W_4), average caseload size (W_5), absent/needed advising practices (W_6), absent/needed implementation strategies (W_7), and absent/needed technologies (W_8), respectively; and U_{0j} is the Level-2 residual (between institutions).

Standardized Final Model Insights. In the standardized final model presented in Table 6 ($\sigma^2 = .22$, $\tau_{00} = .02$, ICC $= .07$, $R^2_{\text{marginal}} = .51$, $R^2_{\text{conditional}} = .54$), the most influential predictor was "missing but needed implementation strategies," which was negatively associated with impressions of institutionalization ($\beta = -.35$, $SE = .02$, $t(634) = -19.34$, $p < .001$). The next largest standardized effect was personal belief in proactive advising, which positively influenced impressions of institutionalization ($\beta = .14$, $SE = .02$, $t(634) = 8.71$, $p < .001$). Missing advising practices ($\beta = -.09$, $SE = .02$, $t(634) = -4.91$, $p < .001$), missing technologies ($\beta = -.09$, $SE = .02$, $t(634) = -3.95$, $p < .001$), and decentralized advising structures ($\beta = -.08$, $SE = .02$, $t(634) = -3.77$, $p < .001$) all negatively impacted perceptions with similar magnitudes. The interaction between the administrator role and missing technologies showed a mitigating effect for administrators ($\beta = .07$, $SE = .03$, $t(634) = 2.39$, $p = .02$). The administrator role itself had a negative effect ($\beta = -.07$, $SE = .03$, $t(634) = -2.68$, $p = .01$).

Assumptions. We checked multilevel modeling assumptions (Snijders & Bosker, 2012) regarding our final standardized model. Using the "ranef()" function from R's lme4 package (Bates et al., 2015; R Core Team, 2023) to extract Level 2 residuals, we found their covariance (0.005) to be nearly zero, confirming their independence. We then ensured the independence between Level 1 and 2 residuals by comparing their aggregated covariances, which was zero, indicating no inter-level dependency. Residual plots against each predictor showed a random dispersion, affirming the independence of Level 1 residuals (see Appendices B and C). QQ-plots for both residual levels suggested an approximately normal distribution with minimal outliers (see Appendices D and E). To address potential multicollinearity, we calculated the Variance Inflation Factor (VIF) for each predictor in two separate linear models, one for each level. All

Figure 4. Technologies We Don't Have but They are Needed



VIF values (see Table 6) were below the 2.5 threshold recommended by Allison (2012), with the highest being 1.66, indicating no significant multicollinearity among predictors at either level.

Qualitative Findings on Strengths and Challenges in Institutionalization

Of the respondents, 42% (408 individuals) provided substantive comments on the strengths and challenges of institutionalizing proactive advising at their respective institutions. We distilled these responses into seven primary themes.

Decentralization and Inconsistencies

The most prevalent theme, present in over a third of responses, highlighted the challenges of silos, lack of standardization, and disparities due to decentralization. One advisor noted, "After the students are advised in the 'first-year' advising center, they move on to their colleges, which each do things differently . . . In many cases, the ball that was once in play gets dropped." An administrator emphasized, "Each unit operates as if it's not a part of the University with very [different] rules that are sometimes [contradictory] to University policy and procedures."

Large Caseloads

The second most common theme was concerns about the feasibility of proactive advising given large caseloads. An administrator remarked, "the lack of resources to hire adequate numbers of professional/primary-role advisors to keep caseloads low enough to provide 'high touch' advising for all undergraduate students has been and continues to be a challenge." An advisor mentioned, "Caseloads are too large to manage multiple contacts with students that would develop the meaningful relationships required for successful proactive advising approaches."

Faculty Engagement

Over 60 respondents remarked on the lack of faculty buy-in. Some respondents felt that faculty commitments hindered prioritizing advising. One administrator observed, "faculty advisors who have limited training or expertise in advising [present a challenge] it is not a high priority for them among competing demands." An advisor suggested a

Table 4. Multilevel Linear Regression of Composite Impression of Institutionalization of Proactive Advising – Level 1

	Model 0	Model 1	Model 2	Model 3
Fixed Effects				
Intercept	2.80*** (0.03)	5.13* (2.3)	9.24*** (2.61)	8.49*** (2.51)
Level 1 - Respondent Characteristics				
Gender Identity				
Woman or Female or Feminine		−0.04 (0.06)	−0.05 (0.06)	−0.03 (0.05)
Transgender Man or Male or Masculine		0.19 (0.38)	0.11 (0.38)	0.13 (0.36)
Gender Non-conforming or Gender Queer		0.09 (0.25)	0.08 (0.25)	0.09 (0.24)
Gender Identity Not Listed		0.8 (0.64)	0.68 (0.65)	0.63 (0.62)
Preferred to Not Identify		−0.3 (0.29)	−0.3 (0.28)	−0.11 (0.27)
Race, Ethnicity, or Origin Identity				
American Indian or Alaska Native		−0.07 (0.25)	−0.12 (0.25)	−0.06 (0.24)
Asian		0.1 (0.11)	0.06 (0.12)	0.06 (0.11)
Black or African American		0.17* (0.07)	0.14 (0.07)	0.12 (0.07)
Hispanic, Latinx, or Spanish Origin		0.16 (0.09)	0.14 (0.09)	0.12 (0.08)
Middle Eastern or North African		0.91 (0.65)	0.85 (0.65)	0.72 (0.62)
Native Hawaiian or Other Pacific Islander		−0.19 (0.34)	−0.17 (0.34)	−0.28 (0.32)
Two or More Race, Ethnicity, or Origin Identities		−0.14 (0.1)	−0.14 (0.1)	−0.11 (0.1)
A Race, Ethnicity, or Origin Identity Not Listed		−0.18 (0.34)	−0.19 (0.33)	0 (0.32)
Preferred to Not Identify		0.2 (0.19)	0.18 (0.19)	0.16 (0.18)
Year of Birth		0 (0)	−0.01* (0)	−0.01** (0)
Administrator Role			−0.09 (0.05)	−0.10* (0.05)
Time in Role				
More than Five Years in Role			−0.24* (0.1)	−0.21* (0.1)
One to Five Years in Role			−0.20* (0.1)	−0.17 (0.09)
Time at Institution				
More than Five Years at Institution			−0.04 (0.13)	−0.07 (0.12)
One to Five Years at Institution			0 (0.13)	−0.03 (0.12)
Student Populations Impacted by Role				
Undergraduates			−0.08 (0.07)	−0.05 (0.07)
Graduate and Professional Students			−0.02 (0.07)	−0.04 (0.07)
First-year Students			−0.03 (0.06)	−0.03 (0.05)
Low Income Backgrounds			0.03 (0.1)	0.03 (0.09)
Students of Color			0.03 (0.09)	0.06 (0.08)
Transfer Students			0.01 (0.06)	0.01 (0.05)
Exploratory Major Students			0.03 (0.05)	0.01 (0.05)
First Generation Students			−0.08 (0.08)	−0.11 (0.08)
Personal Belief in Proactive Advising				0.38*** (0.04)
Random Effects				
σ^2 (Variance Within Institutions)	0.40	0.39	0.38	0.35
τ_{00} (Variance Between Institutions)	0.08	0.07	0.07	0.07
ICC	0.17	0.15	0.16	0.17
$N_{Institutions}$	323	321	321	321
Observations	968	945	945	945
Marginal R^2/Conditional R^2	0.000/0.172	0.019/0.170	0.036/0.191	0.108/0.257
AIC	1988.184	1948.406	1956.836	1880.379
BIC	2002.810	2035.727	2107.223	2035.617
Log Likelihood	−991.092	−956.203	−947.4182	−908.1897

Note. Standard errors in parentheses. Reference groups for categorical variables are as follows. Gender Identity: Man or Male or Masculine; Race, Ethnicity, or Origin Identity: White; Time in Role: Less than One Year; Time at Institution: Less than One Year.
*$p < .05$, **$p < .01$, ***$p < .001$.

Table 5. Multilevel Linear Regression of Composite Impression of Institutionalization of Proactive Advising – Levels 1 and 2

	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Fixed Effects						
Intercept	8.59*** (2.45)	6.06** (1.9)	5.88** (1.93)	5.86 ** (1.92)	6.06** (1.9)	2.72*** (0.13)
Level 1 - Respondent Characteristics						
Gender Identity						
Woman or Female or Feminine	−0.06 (0.05)	0.04 (0.04)	0.02 (0.04)	0.02 (0.04)	0.03 (0.04)	
Transgender Man or Male or Masculine	0.04 (0.35)	0.26 (0.28)	0.22 (0.28)	0.21 (0.28)	0.25 (0.28)	
Gender Non-conforming or Gender Queer	0.1 (0.24)	0.05 (0.18)	0.06 (0.19)	0.05 (0.18)	0.04 (0.18)	
Gender identity Not Listed	0.56 (0.61)	0.41 (0.48)	0.4 (0.48)	0.43 (0.48)	0.42 (0.48)	
Preferred to Not Identify	−0.11 (0.27)	−0.1 (0.21)	−0.11 (0.21)	−0.1 (0.21)	−0.08 (0.21)	
Race, Ethnicity, or Origin Identity						
American Indian or Alaska Native	−0.08 (0.24)	0.02 (0.18)	0.05 (0.18)	0.07 (0.18)	0.05 (0.18)	
Asian	0.08 (0.11)	0.07 (0.08)	0.09 (0.09)	0.09 (0.09)	0.08 (0.08)	
Black or African American	0.13* (0.07)	0.06 (0.05)	0.07 (0.05)	0.07 (0.05)	0.06 (0.05)	
Hispanic, Latinx, or Spanish Origin	0.14 (0.08)	0.02 (0.06)	0.02 (0.07)	0.02 (0.07)	0.02 (0.06)	
Middle Eastern or North African	0.74 (0.61)	0.44 (0.48)	0.43 (0.48)	0.46 (0.48)	0.46 (0.48)	
Native Hawaiian or Other Pacific Islander	−0.26 (0.32)	−0.04 (0.24)	−0.07 (0.24)	−0.04 (0.24)	−0.02 (0.24)	
Two or More Race, Ethnicity, or Origin Identities	−0.14 (0.1)	−0.06 (0.07)	−0.06 (0.07)	−0.06 (0.07)	−0.07 (0.07)	
A Race, Ethnicity, or Origin Identity Not Listed	−0.15 (0.31)	0.06 (0.24)	0.05 (0.24)	0.02 (0.24)	0.04 (0.24)	
Preferred to Not Identify	0.12 (0.18)	−0.01 (0.14)	0 (0.14)	0 (0.14)	−0.01 (0.14)	
Year of Birth	−0.01** (0)	0 (0)	0 (0)	0 (0)	0 (0)	
Administrator Role	−0.10* (0.05)	−0.03 (0.04)	−0.03 (0.04)	−0.11 (0.08)	−0.13* (0.06)	−0.16** (0.06)
Time in Role						
More than Five Years in Role	−0.18 (0.1)	−0.07 (0.08)	−0.07 (0.08)	−0.07 (0.08)	−0.07 (0.08)	
One to Five Years in Role	−0.14 (0.09)	−0.07 (0.07)	−0.06 (0.07)	−0.06 (0.07)	−0.07 (0.07)	
Time at Institution						
More than Five Years at Institution	−0.04 (0.12)	0.01 (0.09)	0.03 (0.09)	0.03 (0.09)	0.02 (0.09)	
One to Five Years at Institution	−0.01 (0.12)	0.01 (0.09)	0.02 (0.1)	0.02 (0.1)	0.02 (0.09)	
Student Populations Impacted by Role						
Undergraduates	−0.06 (0.07)	0 (0.05)	0 (0.05)	0.01 (0.05)	0 (0.05)	
Graduate and Professional Students	−0.05 (0.07)	−0.03 (0.05)	−0.06 (0.05)	−0.06 (0.05)	−0.02 (0.05)	
First-year Year Students	−0.06 (0.05)	−0.05 (0.04)	−0.04 (0.04)	−0.05 (0.04)	−0.05 (0.04)	
Low Income Backgrounds	0 (0.09)	0.06 (0.07)	0.09 (0.07)	0.09 (0.07)	0.06 (0.07)	
Students of Color	0.1 (0.08)	0.03 (0.06)	0.01 (0.06)	0.01 (0.06)	0.03 (0.06)	
Transfer Students	0.01 (0.05)	0 (0.04)	−0.01 (0.04)	−0.01 (0.04)	0 (0.04)	
Exploratory Major Students	0 (0.05)	−0.01 (0.04)	−0.02 (0.04)	−0.02 (0.04)	−0.01 (0.04)	
First Generation Students	−0.13 (0.08)	−0.08 (0.06)	−0.08 (0.06)	−0.08 (0.06)	−0.07 (0.06)	
Personal Belief in Proactive Advising	0.36*** (0.04)	0.27*** (0.03)	0.28*** (0.03)	0.28*** (0.03)	0.27*** (0.03)	0.28*** (0.03)
Level 2 - Institutional Characteristics						
Organizational Structure for Advising						
Coordinated	−0.13* (0.06)	−0.06 (0.05)	−0.08 (0.05)	−0.08 (0.05)	−0.06 (0.05)	−0.07 (0.05)
Decentralized	−0.32*** (0.06)	−0.17*** (0.04)	−0.18*** (0.05)	−0.18*** (0.05)	−0.17*** (0.04)	−0.16*** (0.04)
Advising Delivery Model						
Predominantly Faculty Advisors	−0.12 (0.09)	−0.1 (0.07)	−0.1 (0.08)	−0.11 (0.08)	−0.11 (0.07)	−0.11 (0.07)

Table 5. Multilevel Linear Regression of Composite Impression of Institutionalization of Proactive Advising Levels 1 and 2 (cont.)

	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Split of Faculty and Primary-role Advisors	0.10* (0.05)	0.06 (0.04)	0.07 (0.04)	0.07 (0.04)	0.06 (0.04)	0.05 (0.03)
Avg. Caseload Size	−0.03* (0.01)	0 (0.01)	0 (0.01)	0 (0.01)	0 (0.01)	0 (0.01)
Proactive Advising Institutionalization						
Absent But Needed Advising Practices		−0.03*** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)
Absent But Needed Implementation Strategies		−0.14*** (0.01)	−0.14*** (0.01)	−0.14*** (0.01)	−0.14*** (0.01)	−0.14*** (0.01)
Absent But Needed Technologies		−0.02** (0.01)	−0.02** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)	−0.03*** (0.01)
APLU PxP Metropolitan University Cluster			0.03 (0.06)	0.03 (0.06)		
IPEDS-Reported Characteristics						
Public			−0.09 (0.06)	−0.09 (0.06)		
Full-time Enrollment			0.00 (0)	0 (0)		
First Time, Full-time, First-year Retention Rate			0.00 (0)	0 (0)		
Cross-level Interactions						
Administrator × Absent/Needed Advising Practices				0 (0.01)		
Administrator × Absent/Needed Implmnt Strat's				−0.01 (0.02)		
Administrator × Absent/Needed Technologies				0.03* (0.01)	0.03* (0.01)	0.03* (0.01)
Random Effects						
σ^2 (Variance Within Institutions)	0.34	0.21	0.21	0.21	0.21	0.22
τ_{00} (Variance Between Institutions)	0.05	0.01	0.01	0.01	0.02	0.02
ICC	0.13	0.06	0.06	0.07	0.07	0.07
$N_{Institutions}$	321	321	304	304	321	323
Observations	945	945	927	927	945	968
Marginal R^2/Conditional R^2	0.165/0.276	0.512/0.542	0.513/0.542	0.515/0.547	0.513/0.546	0.509/0.541
AIC	1838.399	1354.442	1336.121	1337.360	1352.147	1345.142
BIC	2017.893	1548.490	1548.727	1564.461	1551.045	1413.395
Log Likelihood	−882.199	−637.221	−624.061	−621.680	−635.073	−658.571

Note. Standard errors in parentheses. Reference groups for categorical variables are as follows. Gender Identity: Man or Male or Masculine; Race, Ethnicity, or Origin Identity: White; Time in Role: Less than One Year; Time at Institution: Less than One Year; Organizational Structure for Advising: Centralized; Advising Delivery Model: Predominantly Primary-role/Professional Advisors.
*$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

solution, stating, "We also need to generate [faculty] buy-in by providing data that shows some strategies actually have an impact."

Technology Can Help or Hinder

Over 50 respondents mentioned that, while technology was a valuable tool, its effectiveness was contingent upon its reliability, accuracy, and user-friendliness. An advisor expressed frustration, stating, "Advisors are expected to do far, far too much data mining … This is not a failure of technology. The technology is available. It's a failure of intuitive and sensical design and programming." Another advisor lamented time lost for meaningful conversations with students due to the challenges of navigating inefficient systems.

Training is Necessary

Over 40 respondents highlighted the need for continuous training. One advisor emphasized, "Relevant

Table 6. Standardized Final Model of Composite Impression of Institutionalization of Proactive Advising

Fixed Effects	Estimate	*SE*	*p*	VIF
Intercept	2.82	0.02	<0.001	
Level 1 – Respondent Characteristics				
Administrator Role	−0.07	0.03	0.008	1.002
Personal Belief in Proactive Advising	0.14	0.02	<0.001	1.002
Level 2 – Institutional Characteristics				
Organizational Structure for Advising				
Coordinated	−0.03	0.02	0.106	1.631
Decentralized	−0.08	0.02	<0.001	1.666
Advising Delivery Model				
Predominantly Faculty Advisors	−0.03	0.02	0.115	1.190
Split, Faculty and Primary-role Advisors	0.03	0.02	0.138	1.117
Avg. Caseload Size	−0.00	0.02	0.786	1.202
Proactive Advising Institutionalization				
Absent/Needed Advising Practices	−0.09	0.02	<0.001	1.350
Absent/Needed Implementation Strats	−0.35	0.02	<0.001	1.339
Absent/Needed Technologies	−0.09	0.02	<0.001	1.539
Cross-level Interaction				
Administrator × Absent/Needed Technologies	0.07	0.03	0.017	1.234
Random Effects				
σ^2 (Variance Within Institutions)	0.22			
τ_{00} (Variance Between Institutions)	0.02			
ICC	0.07			
$N_{Institutions}$	323			
Observations	968			
Marginal R^2	0.509			
Conditional R^2	0.541			
AIC	1345.142			
BIC	1413.395			
Log Likelihood	−658.571			

Note. This model uses standardized versions of the predictor variables from Model 9 in Table 4. Dependent variable is still in original scale. The VIF values are calculated separately at Levels 1 and 2 because multicollinearity can occur at each level of the model.

or targeted professional development/best practices trainings are needed on a continual basis to ensure advisors are up-to-date with best practices and strategies to best service student needs."

Objections to Proactive Advising

Over 30 respondents raised one of three common objections to implementing proactive advising: (1) students do not want or value it, (2) it is enabling instead of educating students, and (3) it can lead to an overwhelming number of communications. An advisor shared, "A concern is that too much convenience leads to a lack of patience, empathy, and autonomy … [Texting is causing] duress from ever-increasing emails/online chats/and so many other direct venues to connect."

Goals and Accountability Desired

A final frequent theme, observed in over two dozen responses, was a desire for clear institutional goals, metrics, and accountability mechanisms related to proactive advising. One administrator mentioned challenges such as, "inconsistent job descriptions of advisors, lack of career ladder and promotions/recognition for advisors, [and] inconsistent expectations…" Another administrator stated, "We need to create more specific metrics and acknowledgements for proactive outreach."

Discussion

Our findings suggest proactive advising is perceived as an important strategy for promoting student success across a range of institutions. In our

first research question, we uncovered high levels of agreement—among advisors and administrators—with our proposed definition of proactive advising, though improvements were suggested. Based on open comment themes and most frequently selected attributes of proactive advising, we propose this revised definition for proactive advising:

> *Proactive advising is an advisor-initiated, institutionally empowered approach that includes coordinated, collaborative, personalized, and intentional outreach strategies and practices designed to anticipate potential barriers to students' learning goals, to provide timely interventions based in the students' strengths and identities, to make meaningful engagement between advisors and students a standard student experience, and to achieve the institution's student success goals.*

This revision gives more agency to the advisor, while still holding the institution responsible for empowering advisors to adopt proactive advising. It also honors student identities and strengths and expects proactive advising to be common practice.

We observed differences between advisors and administrators in their understanding of proactive advising. Administrators leaned towards intrusive methods, focusing on identifying students at risk of leaving the institution. In contrast, advisors more frequently linked proactive advising with developmental approaches. These differing motivations behind proactive advising—preventing attrition versus individual development—should be acknowledged when institutional leaders are defining proactive advising in their contexts.

Regarding our second research question, advisors and administrators reported different institutionalization approaches (i.e., advising practices, implementation strategies, and technologies) they deemed absent-but-needed at their institutions. Administrators expressed greater interest in strategies that identify students at-risk for attrition and enable intrusive communication to those students. Nevertheless, there was considerable support in the aggregate for requiring students to meet frequently with advisors, for implementation strategies of incentivizing advisors to engage in proactive advising, for harmonizing inconsistent practices across campus, and for technologies that support real-time filtering of student caseloads based on variables that identify students needing intervention.

Our third research question yielded a multilevel model, explaining over half the variance in impressions of institutionalization of proactive advising. The model emphasized the importance of absent-but-needed implementation strategies over specific practices or technologies. While all three approaches showed significant effects, focusing on implementation strategies might yield more substantial progress in institutionalizing proactive advising. We also found a significant interaction between role and the total number of absent-but-needed technologies, indicating that administrators perceive the negative impact of absent-but-needed technologies less strongly than advisors. Importantly, decentralized advising structures were a consistently negative predictor of respondents' impressions of proactive advising institutionalization, while caseload size and delivery models (faculty vs. professional advisors) were not significant predictors in any model accounting for institutionalization approaches.

Finally, our fourth research question provided richer insights into the strengths and challenges of proactive advising institutionalization. Open-ended responses mostly reinforced our quantitative results, emphasizing the challenges of decentralization. These qualitative insights also suggested that caseload size and faculty roles might be more influential in proactive advising institutionalization than our regression models indicated.

Limitations

Several limitations need to be considered. The study's sample, derived through web scraping and focusing on individuals with significant roles in advising or advising administration, most likely omitted faculty advisors. Designed by administrators at large, urban, public institutions, the survey may not resonate across institution types, potentially affecting the representativeness of our findings. The reliance on self-reported data introduces the risk of biases in reporting institutional commitment and personal perceptions towards proactive advising. Additionally, conducting the study during the COVID-19 pandemic and the peak advising period (mid-March through early April) might have impacted response rates. Given its cross-sectional design, the study highlights correlations at a specific point in time without implying causation.

Implications for Practice

Drawing from the insights of our quantitative and qualitative analyses, we identify two key areas of

focus for university administrators, like us, aiming to embed proactive advising within their institutions.

Champion a Unified Vision and Objectives

Institutionalizing proactive advising necessitates rallying around a shared definition and vision. We recommend forming a dedicated task force of advisors, advising administrators, and campus leaders, to deliberate upon and endorse our proposed definition of proactive advising or a tailored version of it. With a consensus on the definition, the subsequent phase should involve articulating transparent, unified objectives that resonate with the broader institutional mission. It is imperative for advisors and administrators to collaboratively design frameworks that guarantee consistently excellent advising experiences for students. If existing organizational structures in advising pose challenges to maintaining uniformly high standards, the structure should be re-evaluated, not the benchmarks. These efforts should enhance the personal belief of advisors and advising administrators in proactive advising as a key strategy for student success.

Commit to Resource Allocation

A shared vision and objectives, though foundational, will remain aspirational without the institution's commitment to resource allocation. It is paramount for institutional leaders to ensure that staffing is optimized, reflecting strategic caseload sizes that align with the proactive advising model. The technological infrastructure, including data systems, should be reliable, current, and designed to offer clear, actionable insights to its users. Advisors and advising administrators, being the primary users, should be influential stakeholders in the selection or development of these technological tools. New and existing advisors and advising administrators should be systematically introduced to the proactive advising standards through training programs and opportunities for continuous professional growth. Finally, proactive advising practices should be expected, recognized, and rewarded through formal and informal incentive structures including job descriptions, performance reviews, and promotional ladders.

Conclusion

This study provides empirical evidence of high belief in the importance of proactive advising and insights into how it is being implemented at U.S. four-year colleges and universities. We hope that the revised, comprehensive definition of proactive advising and the empirical findings presented serve as a call to action for colleges and universities. We look forward to a future where more institutions have championed a unified vision and objectives for proactive advising and have appropriately allocated resources to institutionalize this important student success strategy.

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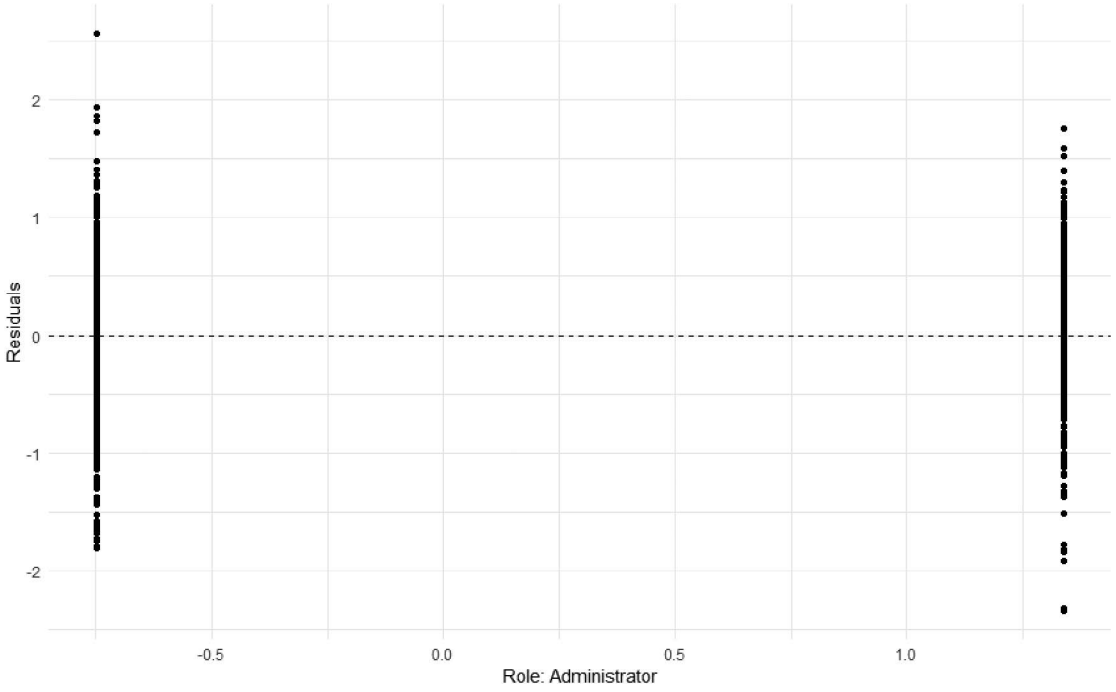
Appendix A. Institutional Characteristics Comparison: IPEDS 2019 and Survey of Proactive Advising

Characteristics	IPEDS 2019 Total Staff FTE $N = 2{,}560{,}507$	Survey of Proactive Advising 2021 $N = 968$
Institution size		
Not applicable	0.7%	0.2%
Not reported	0.0%	0.0%
Under 1,000	3.4%	1.3%
1,000–4,999	19.9%	12.2%
5,000–9,999	11.6%	12.0%
10,000–19,999	19.6%	20.0%
20,000 and above	44.8%	54.2%
Institution Control		
Public	60.3%	86.4%
Private not-for-profit	37.4%	13.1%
Private for-profit	2.3%	0.5%
Carnegie Classification		
Not applicable, not in Carnegie Universe	0.9%	0.2%
Associate's: High Transfer-High Traditional	0.0%	0.0%
Associate's: High Transfer-Mixed Trad/Nontrad	0.2%	0.3%
Associate's: Mixed Transf/Vocat & Tech-High Trad	0.1%	0.0%
Associate's: Mix Transf/Vocat & Tech-Mix Trad/Nontrad	0.2%	0.0%
Associate's: Mix Transf/Vocat & Tech-High Nontrad	0.1%	0.0%
Associate's: High Vocational & Technical-High Trad	0.0%	0.0%
Associate's: High Vocat & Technical-High Nontraditional	0.0%	0.0%
Special Focus Two-Year: Health Professions	0.0%	0.0%
Special Focus Two-Year: Technical Professions	0.0%	0.0%
Special Focus Two-Year: Arts & Design	0.0%	0.0%
Special Focus Two-Year: Other Fields	0.0%	0.0%
Baccalaureate/Associate's Colleges: Assoc Dominant	2.0%	0.4%
Doctoral Universities: Very High Research Activity	44.6%	41.8%
Doctoral Universities: High Research Activity	12.0%	24.3%
Doctoral/Professional Universities	6.1%	4.3%
Master's Colleges & Universities: Larger Programs	11.9%	15.4%
Master's Colleges & Universities: Medium Programs	3.3%	3.7%
Master's Colleges & Universities: Small Programs	1.7%	3.1%
Baccalaureate Colleges: Arts & Sciences Focus	4.0%	1.7%
Baccalaureate Colleges: Diverse Fields	2.5%	3.1%
Baccalaureate/Associate's Colleges: Mixed Bacc/Assoc	1.3%	0.7%
Special Focus Four-Year: Faith-Related Institutions	0.5%	0.0%
Special Focus Four-Year: Medical Schools & Centers	5.7%	0.1%
Special Focus Four-Year: Other Health Prof Schools	1.1%	0.6%
Special Focus Four-Year: Engineering Schools	0.1%	0.0%
Special Focus Four-Year: Other Tech-Related Schools	0.1%	0.0%
Special Focus Four-Year: Business & Manage Schools	0.2%	0.2%
Special Focus Four-Year: Arts, Music & Design Schools	0.8%	0.1%
Special Focus Four-Year: Law Schools	0.1%	0.0%
Special Focus Four-Year: Other Special Focus Inst	0.1%	0.1%
Tribal Colleges	0.1%	0.0%
Historically Black College or University	1.8%	3.6%
Degree of Urbanization		
{Not available}	0.0%	0.0%

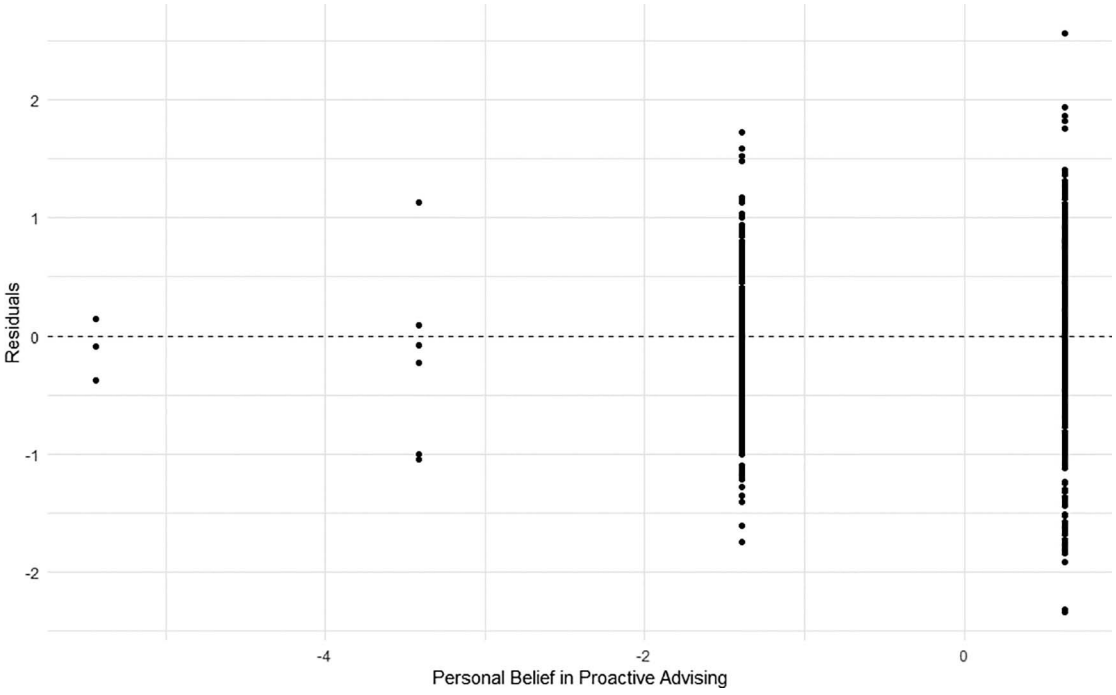
Appendix A. Institutional Characteristics Comparison: IPEDS 2019 and Survey of Proactive Advising (cont.)

Characteristics	IPEDS 2019 Total Staff FTE $N = 2{,}560{,}507$	Survey of Proactive Advising 2021 $N = 968$
City: Large	37.3%	35.1%
City: Midsize	17.1%	14.6%
City: Small	16.4%	17.4%
Suburb: Large	1.6%	14.6%
Suburb: Midsize	4.7%	2.8%
Suburb: Small	3.5%	2.4%
Town: Fringe	0.3%	1.2%
Town: Distant	0.8%	6.7%
Town: Remote	0.2%	4.2%
Rural: Fringe	2.1%	0.9%
Rural: Distant	13.7%	0.1%
Rural: Remote	2.3%	0.0%
Percent of First Time Full Time Awarded Pell		
Not Reported	8.1%	0.9%
< 10%	1.0%	0.1%
10–19%	24.6%	12.0%
20–29%	25.6%	24.6%
30–39%	15.7%	20.8%
40–49%	11.0%	19.9%
50–59%	6.5%	14.0%
60–69%	3.6%	5.2%
70–79%	2.3%	1.7%
80–89%	1.1%	0.8%
90%+	0.6%	0.0%
Fulltime Retention Rate		
Not Reported	11.3%	1.9%
<10%	0.0%	0.0%
10–19%	0.0%	0.0%
20–29%	0.1%	0.0%
30–39%	0.4%	0.0%
40–49%	0.6%	0.2%
50–59%	1.6%	2.1%
60–69%	6.2%	15.4%
70–79%	18.4%	32.1%
80–89%	26.4%	32.6%
90%+	35.0%	15.7%
Six Year Graduation Rate (Bachelor's)		
Not Reported	11.7%	1.5%
< 10%	0.5%	0.1%
10–19%	1.0%	0.6%
20–29%	2.0%	4.8%
30–39%	3.2%	5.4%
40–49%	8.0%	18.7%
50–59%	11.7%	22.9%
60–69%	15.2%	19.4%
70–79%	12.8%	13.1%
80–89%	18.6%	11.1%
90%+	15.2%	2.4%

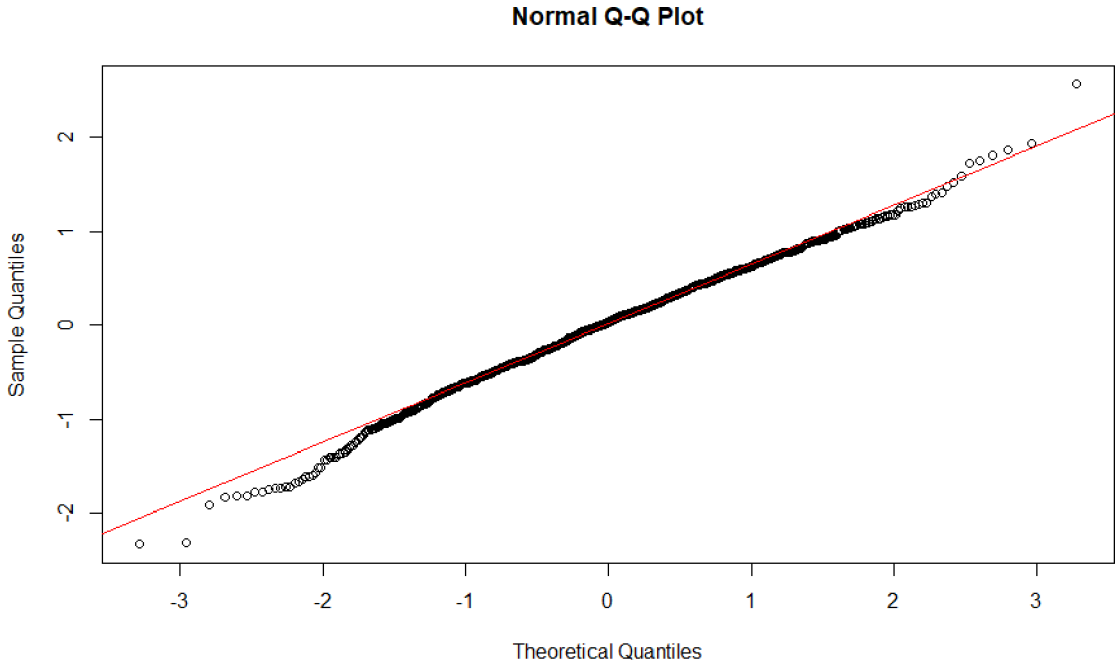
Appendix B. Plot of Level One Residuals by Level One Predictor: Administrator Role



Appendix C. Plot of Level One Residuals by Level One Predictor: Personal Belief in Proactive Advising



Appendix D. Q-Q Plot of Level One Residuals



Appendix E. Q-Q Plot of Level Two Residuals