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Organizational Involvement Type and First-Generation College Student Persistence: A Survival Analysis with Time-Varying Covariates

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Organizational Involvement Type and First-Generation College Student Persistence: A Survival Analysis with Time-Varying Covariates

A Dissertation

Presented in

Partial Fulfillment of the

Requirements for the Degree of

Doctor of Philosophy

By

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October, 2022

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Acknowledgements

I need to express my deepest gratitude to my advisor, Dr. Ida Shiela Coronado Salusky. I am profoundly indebted to her immense patience, encouragement, and to her modeling of compassion in academia and professional life.

I owe so much to Dr. Christopher B. Keys for gently and consistently guiding me see the academic I could be, and to Dr. Crystal Young for offering many a hand up when I did not. And I am certain I would not have endured without my cohort-mate Kelly Collins rallying our efforts across each milestone.

It's said that parents are bows from which their children as living arrows are sent forth. To my parents who expended the entirety of their energies sending my brother and I to receive the education and experiences they did not, I owe everything.

To my younger brother, from whom I learned that a balanced life is required for sustainable study, thank you for comparing notes with me and serving as an example.

To my friends, most especially Zach and Taylor, for facilitating this balanced life throughout the intensive constraints of graduate school, thank you for sticking it out with me.

Biography

The author was born in El Dorado, Kansas, on February 16, 1992. He graduated from Heights High School in 2010. He Received his Bachelor of Arts degree in Psychology and Sociology with a Community Psychology Certificate from Wichita State University in 2014. Jordan received his Master of Arts degree in Community Psychology from DePaul University in 2017.

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Abstract

Social integration into the university is the most critical factor in predicting persistence for students, including first-generation college students. Yet social integration takes many forms. Researchers theorize that academic-oriented and marginalized-identity focused organizations have uniquely positive relationships with persistence for students generally. Yet other theorists consider organizational involvement to be an insufficient means of integration and persistence at a student's institution. This dissertation compares these organization types and others to understand their relationships with first-generation students' degree persistence. This analysis was conducted with a sample of 304 students from three institutions. Additionally, while longitudinal methods are inherent to persistence studies and the first two years of college have been identified as critical, recent studies have employed analytic methods that do not appropriately assess predictors that vary in effect over time. This study employs a Cox survival model with time-varying covariates to investigate the relationship between organizational involvement types and persistence over time within the first two years of university enrollment. Using these advanced methods to assess organizational involvement, aggregated based on persistence theory, this study found that organizational involvement of any type did not have a relationship with persistence for the first-generation students sampled from the three institutions studied.

Keywords: First-generation college students, Persistence, Student success, Survival analysis, Revolutionary critical pedagogy

Organizational Involvement Type and First-Generation College Student Persistence: A Survival Analysis with Time-Varying Covariates

While some have cast education as, "the great equalizer" (Mann, 1848), it was designed and still often serves as a class-based filter (Collins, 1971). For first-generation college students (FGCS) who are more likely to come from working-class families (Horn & Nunez, 2000; Hossler, Schmit, & Vesper, 1999), this filtering occurs through norms, mores, and student fit (Collins, 1971). Status groups use the public exhibition of class mores to signal who is welcome and who to exclude within campus life. Social integration predicts academic integration, and decades of extensive research indicate that social integration is the greatest single predictor of student postsecondary persistence (Astin, 1984; D'Amico et. al., 2014; Pascarella and Terenzini, 1991; Rendon, 1994; Tinto, 1993; Wood, 2014; Woodford et. al., 2015). Thus, understanding the types of social groups within which first-generation students are able to participate, and whether each of these relate to their persistence is key to effectively guiding interventions to bring the state of education closer in line with its idealized promise as an equalizer.

The Stakes of Persistence and Degree Attainment

First-generation college students face substantial barriers to graduation. The US Department of Education defines first-generation students as, "an individual both of whose parents did not complete a baccalaureate degree" (Program authority; Authorization of Appropriations, 2012). Twenty percent of first generation college students complete degrees within eleven years, in comparison to 40% of continuing-generation students (Redford & Mulvaney Hoyer, 2017). These students face a substantially limited economic outlook when compared to continuing-generation students because of their substantially lower graduation rates (Carnevale, Rose, & Cheah, 2011). According to Carnevale, Rose, and Cheah (2011), individuals

in the U.S. with a high school degree will earn 84% less than individuals with a bachelor's degree over their lifetime. Understanding the factors that impact persistence for first-generation students is an essential step in increasing the likelihood of graduating and securing a place in the shrinking U.S. middle class.

The Role of Status in Degree Attainment

The United States is currently going through the greatest period of inequality since 1928 (Saegert, 2007; Saez, 2015). In 2019, the top 10% wealthiest Americans held 72% of the wealth, leaving 2% of the wealth for the bottom 50% of Americans (Congressional Budget Office, 2022). In the two years following during the SARS-CoV-2 pandemic, the 10 richest men doubled their wealth (Ahmed, 2022). Between 1989 and 2018, total wealth of the top one percent increased by 21 trillion dollars, while there was a 900 billion dollar decrease in total wealth for the bottom 50% (Bruenig, 2019). The divide between classes is increasing, yet classism and social class are two of the most overlooked topics in psychology (Liu, Ali, Soleck, Hopps, Dunston, & Pickett, 2004; Smith, 2005).

Current income inequality reflects low intragenerational and intergenerational income elasticity. Intergenerational income elasticity is the degree to which income status is transmitted from one generation to the next (Lee & Solon, 1992). Conversely, intragenerational income elasticity is the measure of mobility in earnings within an individual's lifetime. In fewer words, income *in*elasticity is the opposite of the American Dream of a relatively direct relationship between hard work and upward mobility (Lee & Solon, 1992).

Unfortunately, in the present economic system, more economically advantageous positions are disproportionately distributed within an ever decreasing sliver of the population. General income inequality and intergenerational income inelasticity are positively linked;

economists call the relationship demonstrated by plotting these two metrics together for all countries "the Great Gatsby Curve" (Jerrim & Macmillan, 2015; Obama, 2013).

The United States's uniquely low intergenerational income and status elasticity is related to how the present economy developed from this basic competition for status. As stated by Collins (1971), "...the ambition of even a small proportion of persons for more than equal shares [of power, wealth, and prestige] sets up an implicit counter-struggle on the part of others to avoid subjugation and disesteem" (p. 1009). Subcultures in any economy that hold the concentration of resources are known as status groups (Weber, 1946; Collins, 1971). These groups then develop means by which they maintain the overwhelming majority of resources (Collins, 1971). Interpreting this gatekeeping, the Blau-Duncan and Wisconsin models of status transmission both highlight how an individual's educational and occupational attainment is dependent causally on that of their parents (Blau & Duncan, 1967; Haller & Portes, 1973; Sewell, Haller, & Portes, 1969; Sewell & Hauser, 1992). Gatekeeping occurs based on a family's overall status conditionally, based on a constellation of hierarchies, including race, income, property, political influence, prestige of social position, and esteem in the community (Haller and Portes, 1973). Put simply, if you are not sufficient in one of these status markers, you are denied the others.

Socialization in Education and Status Transmission

Social symbols representing these dimensions of status change with the times. Demands of chivalry and other culturally symbolic prerequisites for power in times past have been replaced by education as it is currently employed in the global East and West, argues Weber (1946), Collins (1971), and contemporary theorists (Bowles and Gintis, 1976; Cookson and Malott & Ford, 2015; Persell, 2008; Wildhagen, 2015). Education, they argue, is a modern mechanism of social closure (Weber, 1946), used by status groups, "...to monopolize their access

to scarce resources" by availing said resources only to those who can show they are a part of the status group (Collins, 1971). Specifically, symbols of status are most often exchanged on the social rather than academic side of university life (Collins, 1971).

Unfortunately, there are separate pipelines of socialization for status and non-status groups. For many U.S. students since WWII, education was seen as the great frontier of opportunity, analogous to the western frontier of the 18th century (Bowles and Gintis, 1976). Like the western settlers of that period, many students did not find the opportunity and freedom described in the "folklore of capitalism" (Bowles and Gintis, 1976, p. 3). By the late 1950's, the educational frontier was pushed beyond capacity by a new demographic of students who were not from the elite backgrounds that primarily filled college campuses before WWII (Bowles and Gintis, 1976). It was in this period of educational "massification" after WWII that higher education institutions multiplied by the hundreds (Gumport et. al., 1997, p.2). In this new ecosystem, the experiences of status group members in elite institutions and newcomer non-status group members in the same or newer institutions resembled one another from a distance. Yet in reality, the university experience that non-status groups received and continue to receive is incomplete, and does not result in the same upward mobility (Hayes & Wynyard, 2002).

Arum, Beattie, and Ford (2011) note that, "mass education purports the illusion of meritocratic selection, thereby socializing working class youth to accept their failure as the result of their own shortcomings" (p. 3). Rather, conflict theorists suggest that one purpose of educating non-elite students using the same system but sans the elite sponsor-based pipeline is to create a pool of lower- and middle-level employees who have a respect, admiration, deference, and thus obedience to the dominant culture's elite values and styles (Collins, 1971). This designed obedience creates order in the workplace and the illusion of meritocracy, preserving

hierarchies in favor of status groups (Collins, 1971). Thus, argues Sorkin (1959), this universal

education is said to lead towards aristocratization, rather than democratization of society.

In the education literature, the importance of social integration into the university is

explored with little critical consideration of class context. However, educational research within

the sociological tradition has much to say on the topic, with Collins (1971) claiming,

> "The main activity of schools is to teach particular status cultures, both in and outside the
>
> classroom. In this light, any failure of schools to impart technical knowledge (although it
>
> may also be successful in this) is not important; schools primarily teach vocabulary and
>
> inflection, styles of dress, aesthetic tastes, values and manners. The emphasis on
>
> sociability and athletics found in many schools is not extraneous but may be at the core of
>
> the status culture propagated by the schools." (p. 1010).

Collins goes on to state that these associational pastimes serve as content around which claims to

status is signaled (1971).

The Primacy of Social Integration

Concurring with the conclusion of critical theorists (often without their explanation), the

mainstream consensus in postsecondary persistence and degree attainment research is that social

integration is far-and-above the most important predictor of whether a student will fail or

succeed within these institutions (Astin, 1977; Astin, 1984; Bean, 1985; D'Amico et. al., 2014;

Pascarella and Terenzini, 1991; Rendon, 1994; Tinto, 1975; Tinto, 1987; Tinto, 1993; Thayer,

2000; Woodford et. al., 2015). Social integration is more important than students' aptitude or

motivation (Thayer, 2000), financial need, whether the student takes on loans or receives grants,

whether they work while in school, their high school GPA, or any other variable measured

alongside social integration when predicting persistence (Tinto, 1987; Tinto, 1993). Social

integration is a prerequisite for academic integration (Tinto, 1987), as well as institutional

satisfaction (Woosley & Shepler, 2011), in addition to having the strongest direct relationship

with persistence of all variables studied (see Thayer, 2000 for a review). Additionally, the first

two years of postsecondary education are the ones of greatest risk, and for different reasons

(Ishitani, 2016). It is hypothesized that social integration might be more critical in year one,

while academic integration and major selection might be more important in year two (Ishitani,

2016). In general, the first year of postsecondary education has seen the most attention from

researchers and interventionists, but focus on the "sophomore slump" has increased (Gahagan &

Hunter, 2006; Juillerat, 2000).

How the Primacy of Social Integration is an Obstacle

This disproportionate importance of social integration in university life poses a challenge

for first-generation college students. For many reasons, first-generation college students are the

least likely to have access to opportunities for social integration (Pascarella et al., 2004). First-

generation students are more likely to have obligations to their family of origin, whether as a

caretaker or an income-earner (Hsiao, 1992; Stebleton & Soria, 2013). They are also more likely

to have their own children (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). For these

reasons and because of the costs of attendance generally, they are more likely to work (Nunez &

Cuccaro-Alamin, 1998; Stebleton & Soria, 2013). They are less likely to have disposable income

for expenses incidental to social activities, or direct expenses such as fraternity and sorority dues

(Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996). Finally, they are less likely to live on-

campus (Nunez & Cuccaro-Alamin, 1998). Thus, the average first-generation college student has

little opportunity for social integration, and might be unable to prioritize leisure compared to

working towards graduation and supporting themselves and others. So it is unfortunate that this social leisure is proven to be the true work of upward mobility (Thayer, 2000).

More focally and as alluded to above, any pastime a first-generation college student integrates into may become one that loses value as a class signifier simply because of the involvement of first-generation students. This is because the culture signaled by status groups in social pastimes is specifically defined by their contrast to blue-collar or popular sensibilities, rather than by independently meritorious status values and tastes (Flynn, 2014). Flynn (2014) describes how, particularly when mass education blossomed, drawing distinctions between highbrow, middlebrow and lowbrow sensibilities became an important cause to the academic establishment. In his words, "Blue-collar intellectuals proved as unsettling to the intellectual elite as the nouveau riche had been to old money" (p. 11). What made and makes something highbrow is often simply the product of an instinctive reaction to do the opposite of what middlebrows (those aspirant to status through arts and education) are doing (Flynn, 2014). For example, when classic literature became accessible to middlebrows through the advent of paperbacks, book-of-the-month clubs, and the the multivolume Great Books collection, these works were replaced by the likes of Derrida, Barthes, Habermas on the shelves of the elite as their favored classics were now passé (Flynn, 2014). Applying this observation, there is very little a first-generation college student can do to satisfy the cultural prerequisites of status, as the prerequisites are defined specifically as whatever a first-generation college student would or could not do.

Beyond not having the income, time, or tastes of status group members, first-generation college students are more likely to have immutable group identities that are not the ones within which status groups would like to concentrate power. First-generation college students are more likely to be people of color (Dennis, Phinney, & Chuateco, 2005), and/or immigrants, or children

of immigrants (Dennis, Phinney, & Chuateco, 2005). These students face discrimination whether or not they conform behaviorally to the norms of those with concentrated power (Baum & Flores, 2011). Yet, even if they do try to adhere to middle-class and elite norms and behaviors, these identities (and a lower economic background in general) are associated with collectivist cultural mores rather than the individualist culture within which postsecondary institutions are entrenched (Carson, 2009). The negative impact of this mismatch on student integration has been widely noted (Carson, 2009). In fact, attempts to overwrite one's culture has been shown to have a tragic negative relationship with persistence for students from many cultural backgrounds (Deyhle, 1995; .HeavyRunner & DeCelles, 2002**;** Jackson & Smith, 2001; Waterman, 2007; Waterman, 2012; Waterman, 2019).

Additionally, even institutions that acknowledge the unique backgrounds of first-generation college students, and claim to be responsive to this population, often do so for the sake of brand-management. Wildhagen (2015) noted that institutions' discursive construction, or construction of organizational reality using linguistic themes,

> "offers first-generation students a safe way of adopting a classed identity by constructing them as strong individuals who have overcome the obstacles presented by their class backgrounds. In this way, 'first generation' comes to stand as a hybrid class identity for students who are in the process of gaining upward social mobility, allowing them to continue thinking about themselves in individualistic and autonomous terms while obliquely acknowledging their social class of origin" (p. 290).

Wildhagen (2015) notes that institutional narratives often construct first-generation students as "academically deficient and in need of cultural transformation" (2015, p. 285). This helps

preserve power relations, discourages collective class action, and reinforces neoliberal objectives for the university (Wildhagen, 2015).

Efforts at Parallel Social Integration

While social integration is the single greatest factor impacting whether or not a college student graduates, research indicates that not all forms of integration are equal (Baker, 2008). Because peer group organizations are specifically emphasized in the three foundational persistence theories (Tinto, 1975; Bean, 1987; Astin, 1977) and can also be low-hanging fruit in terms of institutional investment, they pull an outsized and simultaneously under-scrutinized emphasis in persistence literature.

A popular attempt at remediating the cultural barrier in higher education is via organizations, through which first-generation students might attain social integration into at least a subgroup within the university. It is hoped by their proponents these extra- and co-curricular efforts are sufficiently compensatory for the assimilation pressure and challenge of integration. The degree that the student in these groups is intended to conform or hoped to integrate into the larger university via acculturation versus drawing strength from enculturation in their culture of origin varies. Two categories of such organizations highlighted by researchers are academic-oriented organizations and marginalized-identity oriented organizations.

Academic organizations often seek to sidestep the implicit "hidden curriculum" (Kentli, 2009, p.1), to provide socialization oriented around the explicit institutional goal of technocratically-focused acquisition of specialized knowledge and experience. Many university-affiliated academic-focused social organizations such as living-learning communities, by virtue of their formally codified membership requirements and organizational transparency, have the

potential to be more egalitarian, equally accessible, and on-topic surrogate for the more informal traditional social organizations (Inkelas, Daver, Vogt, & Leonard, 2007).

Marginalized identity focused organizations often seek to serve a parallel function to status-conferring social groups, in offering the benefit of integration into a supportive socioculturally-defined -peer group, though these groups are in turn integrated into the institution to differing degrees. Self-governed social organizations that organize around celebrating ethnic identity have gained ground on campuses (Acevedo & Stodolska, 2017; Banda, & Flowers III, 2017; Camacho & Lord, 2011; Hall, 2017; Ross & McGrade, 2016; Springer, 2015).

In either sort of organization, a first-generation college student is likely to face competing intersectional forces influencing their integration. These organizations seek to capitalize on the benefits of social integration (Inkelas, Daver, Vogt, & Leonard, 2007). while sidestepping parental status-based social closure. Students can control the types of peer-groups they associate with, and advisors and mentors can aid in this process. As such, knowing which groups help and which groups negatively impact the likelihood of graduating has served as an obvious locus for research and intervention. However, there is a lacuna of research in comparing these organizations in terms of how they fulfill integration theories by facilitating persistence. Further, it is unclear whether extra- and co-curricular intervention will be sufficient at supporting first-generation and other subaltern students without curricular and other fundamental institutional reform.

Literature Review

Attrition Models

There are three main frameworks to explain attrition among first-generation college students: Alexander Astin's Involvement Model (1977), Vincent Tinto's Student Integration

Model (1975), and John Bean's Student Attrition Model (1985) (Thayer, 2000). These models present social integration as the most important factor when predicting persistence. However, many studies furthering their theories lack the methodological sensitivity to distinguish between type, number, and timing of social involvement as it relates to student persistence.

Cited nearly 15,000 times, Vincent Tinto's comprehensive college retention model (1975; 1987), based on Durkheim's theory of suicide (1951) represents the foundation of most attrition research. This theory posits that dropout decisions are dependent on students' goal level and institutional commitment (Tinto, 1975). According to Tinto, the two factors that impact these commitment factors directly are academic and social integration. Tinto measures and conceptualizes social integration as, "informal peer group associations, semi-formal extracurricular activities, and interaction with faculty and administrative personnel within the college" (1975, p.107). Tinto emphasizes peer-group associations as the most critical part of social integration (1975). Tinto argues that social rewards from peer-group associations enhance institutional commitment (1975).

Tinto also theorizes about whether different quantities or forms of integration were more or less likely to increase persistence. Tinto asserts that relationships with friends who have strong academic orientations are less likely to cause strain (1975). Further, Tinto suggested that negative effects of excessive social focus are less likely when the relationships are within semi-formal and formal extracurricular activities, as they may more likely to serve as a link between academic and social integration (1975). Tinto emphasizes that peer-group associations are most directly related to social integration, whereas, "extracurricular activities and faculty interactions appear to be of approximately equal secondary importance in developing commitment to the institution" (1975, p. 110).

John Bean further expanded the importance of peer-groups over interacting with faculty finding that, "informal faculty contact had no effect on institutional fit for any group" and "Social life had the greatest effect on fit for all three classes" (1985, p. 56). This model differs from Tinto's in that it includes "social fit" as a variable, where this is assumed to be explained by "social integration" variables in Tinto's model. However, both Tinto and Bean agree that other students, "can be considered the primary agents of socialization" in a student's academic career (1985, p. 60). Additionally, Bean notes that his findings suggest that rather than passive interpretations of socialization, active student control of integration and self-development or personal growth is more representative of how fitting in occurs (1985).

In his study of 24,847 students, Alexander Astin found that, "the strongest single source of influence on cognitive and affective development is the student's *peer group*. In particular, the characteristics of the peer group and the extent of the student's interaction with that peer group have enormous potential for influencing virtually all aspects of the student's educational and personal development" (Pomfret, 2000, p. 5). Astin's student involvement theory, also called the input-environment-output model, suggests that all factors that positively relate to persistence are by their nature different forms of involvement, or the degree to which a student is invested (1977). Astin asserts specifically that "students who join social fraternities or sororities or participate in extracurricular activities of almost any type are less likely to drop out", also naming sports, honors programs, and involvement in ROTC (1984, p. 524). As can be seen by these conclusions, the persistence theories of the 1970s and 1980s on which most contemporary studies treat student organizations as the preeminent type of integration entity. This may be a product of the time, yet veneration of organizations over other more evidence-based and intentionally designed interventions remains.

First-Generation Specific Attrition Studies

Few studies specific to first-generation college students have focused explicitly on social integration, and fewer still intentionally captured information to this end. Yet those that have overwhelmingly supported the influence of social integration on student persistence (Beil et al., 1999; Berger & Braxton, 1998; Cabrera, Nora, and Castaneda, 1992; Stage, 1988; Swecker, Fifolt, & Searby 2013). Most of these studies applied broader models of attrition from Tinto (1977) or Astin (1977) to first-generation college students.

Terry Ishitani has highlighted the importance of social integration with first-generation students in his longitudinal studies (2003, 2006), including studies focusing specifically on the concept (2016a, 2016b). In the first of two studies using the Beyond Postsecondary Study (BPS) 04/09 collection (administered by the National Center for Education Statistics (NCES)), using two-level logistic regression modeling, and when considering just the first and second years, Ishitani (2016a) found social integration was not related to persistence. However, using the same dataset and an exponential model with period-specific effects (a return to their seminal 2006 recommendations to use time-to-event methods), Ishitani found that the effect of social integration on persistence increased as students progressed through college, while the effect of academic integration on the same was stronger in freshman and sophomore years (2016b). In both of these studies, academic integration was measured as an aggregation of participation in study groups, meeting with faculty, meeting with an academic advisor, and talking with faculty about academic issues, while social integration was measured by an aggregation of things like participating in fine arts activities, intramural or varsity sports, and school clubs. It is likely that the time-to-event analysis in Ishitani's second study in 2016 was a step in the right direction

compared to their first with regard to using the right methods to represent the relationships between involvement and persistence within the BPS data.

Pike and Kuh (2005) applied Astin's (1977) model of input-environment-output to a stratified sample of first-generation students from institutions across six Carnegie classifications. Their research tested a new causal model, based on research indicating that social and academic engagement are related to integration into the university, and that this integration is related to a student's intellectual development (Pike, 1999, 2000; Pike & Killian, 2001; Pike, Kuh, & Gonyea, 2003). Their findings supported a modified model supporting this causal ordering (Pike & Kuh, 2005). Pike and Kuh (2005) and suggest that academic advisors discuss co-curricular and extracurricular activities and their potential benefits with their first-generation students.

Measuring Organizational Involvement

Unfortunately, research on student attrition rarely measures integration using methods that can distinguish organizational involvement by type. This is even less common in research focused on attrition among first-generation college students. For example, Pike and Kuh's (2005) study used a list of acquaintances alongside self-reported personal experiences and topics of social conversation to measure social integration. Often, studies that investigate the impact of organizations do so one at a time, or they investigate the self-reported concept of integration by combining all groups (Pace, 1984). This is an issue because the studies that have investigated one or more organizations demonstrate that some organizations have a positive impact on persistence, and some have a negative or no impact (Baker, 2008; Zunick, 2017). Thus, claims made about the impact of general organizational involvement are muddied. If there are some groups that have negative impacts on persistence and others have positive impacts, combining

them might result in countervailance and reduce the detectable relationship between social integration and persistence in the whole.

The College Student Experience Questionnaire is historically one of the most often used aggregated indicators of social group involvement. It was created by Alexander Astin's colleague Robert Pace (1984) and licensed for use until its discontinuation in 2014. This questionnaire included a *campus facilities* scale and *clubs and organizations* scale, each of which included items assessing social group involvement, amongst other item topics. These scales asked students about the frequency of their organizational behaviors, including, "Attended a cultural or social event in the campus center or other campus location," or "Worked on a campus committee, student organization, or project (publications, student government, special event, etc.)". These scales in the College Student Experience Questionnaire served as a useful way to measure some organizational behaviors in aggregate, but do not facilitate comparing organization types, beyond whether the group was university-affiliated.

A source of more broadly and longitudinally applied social integration measurement are those questions asked in the BPS as analyzed by Ishitani (2016a, 2016b). The BPS asked about the frequency with which students reported talking with faculty outside class, meeting with an advisor about academic plans, informal meetings with faculty, attending study groups, participating in school clubs, attending fine arts activities, and participating in sports. However, Ishitani (2016a, 2016b) and other studies using BPS' social integration questions do so by aggregating all items.

In general, aggregating student informal interactions and involvement in a haphazard sampling of organization types to represent the concept of social integration is useful for exploratory research, but research comparing integration types that are indicated as promising in

single-organization studies is required to advance understanding any further. Aggregating integration types without using categories suggested by the literature combines experiences, like membership in an honors society and socializing with non-college-going friends, which might have quite different impacts on persistence, into one variable. Even worse, combining groups that have either a negative or positive impact on persistence would reduce the detectable relationship between social integration and persistence. Additionally, disregarding the logic of using integration categories included in seminal persistence models and contemporary studies forgoes the opportunity to connect new data to dominant theories in the literature.

Few studies have compared the influence of multiple organization types simultaneously. One notable exception is Baker (2008), who analyzed the relationship between underrepresented student membership in a varsity or junior varsity sports team, intramural sports team/sports club, sorority or fraternity, political group, religious group, and/or art/music/theater group on college GPA, by race and gender of the respondent. Baker (2008) found that participation in varsity or junior varsity sports or religious organizations was not related to GPA. However, intramural sports team/sports club involvement was slightly negatively predictive of higher GPA scores for Latina students (Baker, 2008). Conversely, Greek letter organization membership was negatively predictive of GPA for Black males and females, and Latino students, but not Latina students (Baker, 2008). For all races and genders, involvement in political organizations was predictive of higher GPA (Baker, 2008). And membership in art-centered student organizations was positively predictive of a higher GPA for Black male and female students (Baker, 2008). This comparison study serves as a good example of how similar methodologies can help mentors and institutional personnel help first-generation college students navigate their options, but their involvement categories were not based a-priori on theory, but on what data was accessible (Baker, 2008).

Organization Categories Indicated by Literature

It is notable that while most persistence research is based on Tinto's theory, none have specifically compared the association type that he posited as most valuable -one with other students who are strongly academically-oriented- against other types. The logic of academic-focused student organizations on increasing persistence is twofold. Some may seek to increase persistence via direct effect on academic performance, which is not the dynamic of focus for Tinto (Allen & Robbins, 2018). Other organizations stick to Tinto's proposition that connecting students who prioritize degree attainment together will increase the likelihood that any one of them will meet that goal.

On the other hand, if social integration is more critical than academic performance when predicting persistence, the merits of social integration beyond groups that are explicitly academic-focused should also be investigated. One other promising type of integration includes participation in identity-focused organizations for minoritized students. First-generation college students are more likely to be members of multiple marginalized populations whose membership further decreases their likelihood of persistence (Horn & Nuñez, 2000; Warburton, Bugarin, & Nuñez, 2001). Twenty-five percent of white and Asian-American undergraduates are first-generation college students, compared to 41% of African American and 61% of Latinx undergraduates (Skomsvold, 2014). The ostentensible objective of marginalized-identity focused student organizations is to provide an explicit, adapted version of the implicit and exclusionary culture of academia. It is then often expected that this superficial interface provides something for students belonging to groups excluded from Tinto (1975), Bean (1987), and Astin's (1977) vision to integrate into, if not the university at large.

Several studies have investigated the impact of membership in specific peer-group organizations for these underrepresented college students. Acevedo and Stodolska (2017) found that four Latinx student organizations on one college campus facilitated group members' adjustment to college, by cultivating bonds and reinforcing cultural heritage. Similar positive effects have been found for culture-based student organizations for Native American (Springer, 2015), African American, and Latinx students (Hall, 2017), including Black engineering students (Ross & McGrade, 2016) and Latinx STEM and engineering students (Banda, & Flowers III, 2017; Camacho & Lord, 2011). Of note, however, is that marginalized-identity focused organizations that show greatest promise are those that reject the idea of the student integrating into the institution, and rather call for resistance to or transformation of the institutions' culture (Acevedo and Stodolska, 2017; Deyhle, 1995; .HeavyRunner & DeCelles, 2002**;** Jackson & Smith, 2001; Waterman, 2007; Waterman, 2012; Waterman, 2019).

Issues with Superficial Organizational Involvement

In contrast with mainstream hegemonic student success literature, critical educational theorists considering the experiences of subaltern students have cast doubt on the value of organizations in general. The argument is that such programming represents the university adapting to non-white, non-continuing generation students in the most superficial way, while demanding said students adapt themselves to the university on the deepest level (HeavyRunner & DeCelles, 2002**)**.

An extensive parallel intellectual history exists positing how to recreate education such that it serves as a mode of learning that would be inclusive of first-generation college students and other minoritized students (Malott & Ford, 2015). This history draws more representively on wisdom outside of the high-status foundations of the current system, and is often and easily

ignored by those seeking to avoid surgical reconstruction of the system with a quick salve. Its wisdom largely centers around humanization, the development of conscientization, and restoration of agency to the learner, which is suggested to come from a demystification of the learner's place in the oppressive structures in society and in higher-education specifically (Malott & Ford, 2015). In the eyes of critical researchers, student organizations, or indeed any effort under the umbrella of student affairs, is doomed to fail without this foundation.

McClaren (in Malott & Ford, 2015) notes that Paulo Freire is one of the few of these thinkers whose work is taught in universities in the U.S. and whose work influences higher education faculty and staff. However, McClaren judges that Freire's ideas have been, "politically domesticated in the process of bringing such works to bear on the actual service of teaching. Freire's ideas have been uprooted from their soil in working-class communities and repotted in reading lists in graduate schools more for decoration than for substance" (p. x). Paulo Freire warned that it is a contradiction in terms for oppressors to facilitate liberatory education (1970). Freire (1970) unveils the false generosities of the elite class offering their type of formal education later echoed by Wildhagen (2015), and how its prescriptive forms are mainly used to transform thinking away from the potential for conscientization. Freire levies the concern that systematic education can only be changed with political power, which is often only attained through systematic education (1970).

To sidestep the gatekeepers of the current banking model of education, where educators try to fill students' minds with information unidirectionally, Freire prescribes a problem-posing model that honors the knowledge of students from different backgrounds and, more importantly, trusts and bolsters their capacity for judging information and being active agents in their learning

and lives (1970). He also elevates educational projects by communities for themselves, over systematic education (Freire, 1970).

Freire's thinking and his collaborations with Ira Shor (Freire, 1970; Shor & Freire, 1987), retroactively labeled "critical pedagogy" have inspired an outflow of pedagogies which can be broadly categorized by their intention to be similarly critical (examining root causes) and liberatory. Some of these modern strains include inclusive, dialogic, Black feminist, intersectional, social justice, anti-racist, and radicalized pedagogies (Reed, June 2022). Internal critique between the progeny of critical pedagogy often centers vigilant avoidance of movement-capture or domestication by neoliberal interests, whether of the type noted by McClaren or self-imposed via internalized neoliberal values.

Malott and Ford argue that critical pedagogy has been domesticated as a, "'method' of dialogue or an approach to navigating the teacher-student relationship" (Malott & Ford, 2015, p. 5) that can be modularly inserted into systematic mass education without critique of and resistance to exploitation, which thereby defenestrates the foundation of critical pedagogy as envisioned by Giroux and Freire. They point out that, "As a body of literature and praxis, critical pedagogy has historically been oriented toward intervening in and transforming exploitative and oppressive social relations [...] focused heavily on revealing systems of oppression and exploitation, of demonstrating the systemic and interconnected mechanisms operating behind the backs of the oppressed." (Malott & Ford, 2015, p. 5). To evoke this original meaning and distinguish it from what they consider to be critical pedagogy's diluted use, Malott, Ford, and Peter McLaren (2015) use new terminology: revolutionary critical pedagogy. They highlight critiques of the mass education system that focus on the role "culture, knowledge, language, and

desire" (Malott & Ford, 2015, p. 6) play in the maintenance and reproduction of oppression, and how these have historically been the true foci of formal education.

Deeper egalitarian influence is the objective of proponents of critical pedagogy, participatory pedagogy, and the UK student voice conception of student engagement. Participatory pedagogy largely shares contexts and characteristics with the UK concept of student voice (Müller-Kuhn et. al., 2021). Both traditions focus on students taking part in curriculum design, student representation systems, partnerships between staff and students, and co-production of knowledge (Buckley, 2018, p. 8, Collins et. al., 2016). Researchers applying Sherry Arnstein's ladder of citizen participation to institutions of higher education distinguish between tokenism and in-class or extracurricular interaction which characterizes domesticated critical pedagogy (Malott & Ford, 2015), with real partnership and shared control (Buckley, 2018; Carey, 2013). Michael Fielding's radical student voice model also provides a continuum of student engagement, including students as data source, students as active respondents, students as coenquirers, students as knowledge creators, students as joint authors, and 'intergenerational learning as lived democracy' (Fielding 2012, p.50, cited in Buckley, 2018). However, adoption of these practices is deeply challenging within the structures of power inherent to mass education.

Chronology of Mass Education

Malott and Ford (2015) define the primary function of preventing the resistance of immisurated workers as essential to formalized education from its start in the western world. This tracks through the beginning of the industrial revolution, where simplified and standardized tasks simultaneously lead to devaluing the labor of a primary breadwinner and thus to requiring/enabling the whole family -women and children as young as 9- to sell their labor.

Following this, there was some fight for worker rights. A seeming compromise (truly suiting

only capital) came in the form of the Factory Acts beginning in 1833 (Marx, Fowkes, & Mandel,

1992). This early case of statutorily standardized, metrics-driven education was also an early

manifestation of Goodhart's Law in said context. The result was a two hour period where as

many children as possible were crammed into a room within the factory, most often either doing

nothing or being taught to be less childlike (Marx, Fowkes, & Mandel, 1992). The target metric,

the schoolmaster's voucher, was often signed with a cross or misspelled name, as the

schoolmaster was commonly an older factory worker and perhaps barely more literate (Marx,

Fowkes, & Mandel, 1992). In other words, most often children were obedience-trained, not

enriched and enlightened in this system of education.

As with the child laborers, Malott and Ford (2015) argue that resistance of adults to this

dehumanization inspired "ideological management" through mass education that prevails to this

day. Malott and Ford (2015) describe it thusly:

> "…the exception is elite education, which emphasizes intelligence and problem-solving
>
> skills at the expense of obedience and passivity found in more working-class forms of
>
> schooling. The overwhelming vast majority of us experience education as an exaggerated
>
> series of rituals consisting of exercises in following directions and obedience training at
>
> the great expense of critical thinking and creativity" (p. 102).

Malott and Ford (2015) add that,

> "state and federal standards and high-stakes standardized exams function as a sort of
>
> industrial machine, displacing a certain amount of teachers' manual and mental labor.
>
> The teacher here becomes more and more of an automaton controlled by the curriculum

and the process of schooling rather than an educator creating and directing instruction"

(p. 112).

From Horace Mann's early vision, through No Child Left Behind, Race to the Top, and

Common Core, non-elite education has targeted learning that prepares students for future utility

to capital rather than targeting the holistic development of and with the student (Malott & Ford,

2015). Math and reading have been increasingly emphasized across these programs,

conveniently at the increased expense of social studies: at the expense of demystifying the why

behind mass standardized education (Malott & Ford, 2015). Again, this excludes elite students

who have access to private college preparatory schools, one of which Malott and Ford (2015)

identified as using the slogan "Uncommon to the Core" on a billboard advertisement (p. 115).

Higher Education

After the massification of primary and secondary education came the massification of

postsecondary education. *In Ebony & Ivy: Race, Slavery, and the Troubled History of America's*

Universities, Craig Steven Wilder (2013) makes clear the initial function of institutions of higher

education in the period of North American colonization by Europeans that endures to this day.

He explains:

"college initiated young white male elites: …into the slave regimes of the Atlantic world.

The founding, financing, and development of higher education in the colonies were

thoroughly intertwined with the economic and social forces that transformed West and

Central Africa through the slave trade and devastated indigenous nations in the Americas.

The academy was a beneficiary and defender of these processes. College graduates

exploited these links for centuries. They apprenticed under the slave traders of New

England, the Mid-Atlantic, and Europe. They migrated to the south and to the West

Indies for careers as teachers, ministers, lawyers, doctors, politicians, merchants and

planters…The antebellum south represented a field of opportunity, where the wealth of

the cotton planters was funding the expansion of the educational infrastructure. (p. 1–2, in

Malott and Ford, 2015, p. 119).

This profoundly empowering education for elite whites happened concurrently with mandatory

ignorance laws within the Black Codes (Malott & Ford, 2015). After emancipation, HBCUs were

permitted to form. However, HBCUs were excluded from grants to expand mechanical,

agricultural, and military (capital-serving) education provided by the Morrill Acts and Land

Grant University laws because they were not recognized as "operating at the college level"

(Malott & Ford, 2015, p. 129) until later. And not long after they were recognized and somewhat

funded, the Brown v Board of Education ruling provided justification for whites to question if

HBCUs were still needed (Young, 2013, in Malott & Ford, 2015). This seamless transition of

justifications to wrest educational power from Black Americans should illuminate how agile the

system is at gatekeeping through the times against reform efforts.

The massification of higher education hit peak expansion after WWII, when congress

passed the Servicemen's Readjustment Act of 1944 (GI Bill) to reduce the pressure of returning

service members on the labor market (Gumport et. al., 1997) and to avoid the labor uprisings

caused by the delay in veteran benefits after WWI (Ortiz, 2009). However, the GI Bill has been

called "affirmative action for whites" as it was designed to comply with Jim Crow laws and was

capitalized mostly by white men (Katznelson, 2005). Not long after funds were granted to found

land-grant universities (Hoang, 2012), capital began lobbying to cut this funding. Where

successful, said capitalists then went to the newly desperate institutions offering to replace the

cut funding, with strings attached. In an example case of the various Koch brothers' foundations

as well as Branch Banking and Trust Company, this includes contractual influence over faculty hires, course offerings, curricula, and access to students' non-institutional email accounts as well as grades (Beets, 2015). In this arrangement, capitalists sire the genes of the institution, and are granted direct means to pick of the resultant litter. Other corporations have followed suit in the modern era, and some modern campuses resemble NASCAR jackets with the number of corporate names emblazoned on their buildings (Weinberg, 2014). Through each explicit effort across generations to make education serve all, elite white men have used their power, implicit to the global hegemony, to ensure their dominance without lapse or diminishment.

Student Affairs Versus the Neoliberal University

In *The Corporatization of Student Affairs: Serving Students in Neoliberal Times* (2021) Cairo and Cabal dissect how this corporatization of institutions shackles staff seeking to develop students, including via student organizations. Their qualitative (interview, focus groups, document surveying, and observations of retreats and meetings) examination focuses on a large, Midwest institution whose rapid expansion and mission-creep very transparently follows the prototypical trajectory of massification of education in service of capital (Cairo and Cabal, 2021). They describe how their institution started as a vocational school for factory workforce training during WWII, transitioned into a community college granting technical associates degrees, then a four-year college offering industry-serving bachelors' degrees, and finally to being a masters' granting university (Cairo and Cabal, 2021).

The student affairs professionals interviewed by Cairo and Cabal (2021) articulate the paradoxical result of a singular focus of student affairs on persistence. Student affairs professionals are compelled to focus on persistence, "to achieve institutional imperatives to retain revenue streams. This shifts the student affairs profession away from the mission to

'develop the whole person' (Hinton et al., 2016; Nus, 2003) toward a mission to sustain institutional resources [...] and improve the institutional reputation…" (p. 119). This pressure to focus narrowly on persistence at the exclusion of the types of humanizing dimensions of the educational process called for by Freire and other critical theorists can have an iatrogenic effect on persistence. As Cairo and Cabal (2021) state, "These narrowed metrics result in performativity and competition that is eroding higher education and hurting students by widening the equity gap." (p. 17).

The characteristically neoliberal ever-growing pressure to do more with less leaves student support staff less and less equipped to support persistence as it becomes more and more solely the goal. Student affairs staff discussed trying to adopt an "Amazon Model" or "TurboTax Model" of service meant to resolve one "customer" interaction and get to the next as fast as possible (p. 212). This too-little-too-late type of student interaction serves something analogous to an antagonist drug; it takes the place of true support without affecting it, and by doing so, student awareness of having no real access to support is blocked until it is too late. It is possible that student organizations may aid non-elite students to experience success to some degree, but when they do not, it may be due to this mirage of supportive programming.

Most professionals interviewed reported having a more expansive view of student success than the university, one that included humanizing transformation where a student fulfills their potential in terms of self, culture, and role in their community (Cairo & Cabal, 2021). In fact, many respondents had stories of students who stood out to them as fitting their definition of success while taking pauses in their education, or stopping before they completed their credential:

"the idea of student success may not necessarily be completion. It might be that for this

student success for them was planning a specific event. And yeah, their academics is

extremely important. But success is defined differently for the student. Or their success is

that, um let's say they have really severe anxiety and their success is that they were able

to make it to an event today [...] they may never graduate and that's okay." (p. 144).

Another student affairs professional recalls a shy student who went on to take a leadership

position in an American Indian advocacy organization, which they consider a success, even

though the student negatively affected the university's metrics by frequently switching from part

time to full time student status in order to stay on a sustainable pace. This aligns with Varlotta's

(2016) questioning of whether institutions should define student success without having

graduation as the objective. Cairo and Cabal (2021) and the student affairs professionals they

interviewed feel that a both/and (serving neoliberal metrics while resisting through applying their

own holistic standard of service) is a path to improving their role. This is similar to Malott and

Ford's (2015) drawing on Rikowski (2014) to recommend subversion of the capitalist goals by

critical pedagogues. This willingness to reform through internal resistance, while not being

satisfied without revolution, is further highlighted when Malott and Ford (2015) evoke Harry

Haywood, who championed the same in his work for the self-determination of Black and

working-class Americans and against their "bourgeois assimilation" (p. 132).

Researchers have identified subpopulations of students for whom organizations aren't

effective in terms of persistence, that when considered together amount to most non-elite

students. Rovai demonstrated that Tinto's model does not generalize to students in distance

learning programs (2002). Similarly, Torres and Solberg (2001) found that their method of

measuring integration was not associated for persistence for Latinx students. And Tinto himself

admitted that his model does not apply to non-traditional students such as commuter students (1982).

Further, Tinto's narrowly applicable model is becoming all the less useful, as, "the average student enrolling directly after high school into college, maintaining full-time status, and earning a degree within four years is no longer the majority" (Cairo & Cabal, 2021, p. 95). Over the past few decades, the proportion of Black and Latinx students in elite preparatory high schools has dropped fourfold in some cases (Hayes, 2012, in Cairo and Cabal, 2021). White students graduate at a rate of 63.7%, while Black students graduate at 40% and Native students graduate at 35.3%. According to Berkner and colleagues (2003), 41% of college students attend more than one institution during their college career. And, "there has been little change in retention and degree completion rates in more than four decades" (Habley et al. 2012. p. 16). Finally, the nation's professoriate has only become more elite in the past 50 years. Taking economics PhDs for example, in that time frame, the proportion of said PhDs whose parent(s) had a graduate degree rose from 1 in 5 to roughly 2 in 3 (Schultz & Stansbury, 2022). It is even worse in the top 15 elite schools, where, "since 2010, 78% of US-born economics PhDs in these programs have been from households where at least one parent has a graduate degree, and only six percent were first-generation college graduates" (p. 52).

It is exceedingly tenuous to argue, then, that the disparate purposes of mass and elite education have ever been reconciled. In other words, as elites have a more and more monopolized path to ascend the ivory tower, there are more and more WASP continuing generation students for whom the literature supports a simple organization-facilitated institutional fit and student success story. Thus, even promising connections between

organizations and persistence for broader student samples do not indicate that organizations are

solving the problem of success for first-generation college students.

Analytical challenges

Much of the data collection for peer-group affiliation in higher education is atheoretical

and does not assess multiple groups simultaneously. When categories are aggregated, they are

based on convenience or data availability rather than a-priori categorization based on educational

theory. The need to clarify the applicability of Tinto's (1975) hypothesis regarding the positive

impact of integration through organizations of peers with an academic focus using more

sophisticated methods is clear. Further, strong contemporary research proposing that

marginalized-identity focused organizations can replicate the integration benefits reaped by non-

minoritized students deserves to be assessed categorically alongside such academic-focused

organizations. Both categories proffered by theory should be contrasted with an exhaustive group

of organizations in general to determine if their contributions are truly unique.

Researchers like Ishitani have advocated the use of event history modeling (otherwise

known as survival analysis), rather than traditional longitudinal methods of analysis such as

linear regression, discriminant analysis, or structural equation modeling when studying college

student persistence (2003, 2006, 2016a, 2016b). This is because survival analysis offers distinct

advantages over traditional methods, in that it can incorporate enrollment status information at

different points in time as a within-subject variable, it is more suited for handling highly skewed

dichotomous dependent variables, such as enrollment status, including when such variables are

confounded with study dropout or participant death, and some subtypes allow for modeling when

a predictor variable has different values at different points in time (eg different

semesters/quarters) (DesJardins, 2003; Ishanti, 2003, Willett, & Singer, 1991). Originally used

by biostatisticians to model time to infection or mortality following certain diagnoses or treatments (Miller, 1981), and later by applied economic and social science research (Allison, 1995). Survival analyses have been used increasingly in investigating student persistence and dropout behavior (e.g., DesJardins, 2003; DesJardins, Ahlburg, & McCall, 2002; Chen & DesJardins, 2008; Bates, 2012; Gross, & Hochbein, 2015; Rodriguez, Potvin & Kramer, 2016; Royster, Giani, 2015; Johnson, 2006) including that of first-generation students specifically (Ishitani, 2003; Ishitani, 2006; Martinez, Sher, Krull, & Wood, 2009). While Ishitani was able to say that social support in general becomes more important than academic support after students' sophomore year in college, as previously stated, no such time-sensitive distinctions between different organization types may be made without collecting data and conducting an analysis with organization types differentiated.

Additionally, event-history analyses are not always used, and when they are used they are not always well-understood. The two most cited first-generation-specific persistence studies from the past decade, both by Ishitani, reflect this problem. Ishitani (2016a) used two separate regressions, one for each year, while inferring effects across years. Meanwhile, Ishitani (2016b) used an exponential survival model with period-specific effects, because he claimed that Cox proportional hazards modeling does not address time varying covariates. In fact, an extension of the Cox model for this exact application has been the primary way that researchers have handled time-varying covariates with time-to-event (survival) data (Andersen & Gill, 1982; Cox, 1974; Zhang et. al., 2018). Cox-proportional hazard modeling with time-varying covariates permits the analysis of repeated measurements of a covariate during the period of interest (Allison, 1995). This methodology is the prevailing technique in other fields, but is yet to be applied in academic persistence research, with first-generation students or not.

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Finally, and most importantly, though Ishitani's (2016b) analysis includes time-varying *coefficients,* it treats involvement as though it doesn't fluctuate across a student's academic career by not analyzing involvement as a time-varying *covariate*. Thus, their analysis commits the immortal time bias (Shintani, 2014). This is a critical flaw that Van Walraven and colleagues (2004) found in 41% of the relevant medical journal publications they reviewed. It is a bias that is difficult to envision intuitively.

Immortal time bias is specific to survival studies where participant classification on a variable is assigned or transitioned to after the beginning of the study (Shintani, 2014). Immortal time bias is so-called because in order to be in new variable classification after the beginning of the study, a participant *could not have died (or departed in the current study)* between the beginning of the study, and when they joined the classification (Shintani, 2014). The issue is that without analyzing that variable as a time-varying covariate, statistically speaking, the participant's new classification in said variable is credited for the time *inherently* survived prior to the new categorization, though it did not contribute to that period of survival (Shintani, 2014).

An example used in statistics courses is the erroneous belief that winning an Oscar makes you live longer than your less-acclaimed peers, when the average lifespan of Oscar winners is actually higher because they lived and acted long enough to be awarded one (Shintani, 2014). In the case of Ishitani's (2016b) study, a student could have joined an organization at the end of the study period (perhaps after they got the hang of their studies and gained more free time), but by analyzing this involvement as one value across the whole study period, the analysis will credit this late organizational involvement for the student's persistence to that point. Strong statistical effects that prevail in the literature can disappear when analyzed correctly with time-varying

covariates, as seen in the Stanford Heart Transplant study which is a common reference in survival analysis courses (Grant, Chen, & May, 2014).

Rationale

According to the more theoretical than data-driven, yet nonetheless most prolific school of thought on the matter, student engagement is the most influential factor in explaining persistence. Much of the research on student engagement continues to focus on the low-hanging fruit of student organizations. Yet, a growing, more data-driven contemporary literature drawing on critical traditions and structurally examining postsecondary education questions the universality of the association between organizations and persistence. In his time, Vincent Tinto, the progenitor of the social integration theory of persistence, made concessions that his assertions may only apply to the most traditional of students (1982).

Tinto suggested that academic-focused student engagement might be exceptionally valuable in contributing to persistence. Subsequent theorists, drawing on the idea of refitting of student engagement to the students Tinto knew he could not generalize to, suggest that marginalized-identity-focused student engagement efforts can also contribute to persistence.

Alongside the dominant tradition of explaining persistence as a matter of interfacing student to institution is a more critical tradition. These theorists claim mere shallow interfacing cannot mesh an institution whose raison d'etre was and remains to some degree to set apart elite, European males, with those students who have since been allowed to take part in academia. Conflict and critical theorists claim that organizational involvement would be insufficient to increase persistence for first-generation college students, who are by definition outsiders of these status groups. More often, they would expect the deleterious effect of conforming to an arbitrary and unspoken set of mores and comporting to a violent hierarchy of status would alienate and

push out many students who aren't elite, European males. Continued thoughtfully and precisely designed studies as modeled by this subset of theorists will hopefully continue to gather evidence that distinguishes the applicability of either explanation of fit and persistence.

Researchers assessing involvement in persistence are almost always limited to a scattering of involvement types in institutional data, self-report about one subtype, or a collection of subtypes not aggregated according to the categories offered by prevailing theories to explain which involvement type(s) most associate with persistence. Data collection designed a-priori to capture the breadth of involvement subtypes as exhaustively as possible, and with the intent to aggregate them based on theory, is a preferable data-driven approach to test dominant claims in the literature.

Finally, so few persistence studies have used survival analysis methods. Survival analyses are designed for longitudinal examinations where the sample size is expected to decrease over time points, and where those participants change from one status to another (as with institutional departure). Even fewer correctly apply a survival analytic method that retains fidelity to the time-varying nature of factors whose values change over one quarter/semester to another, like organizational involvement.

This study combines organizational involvement data allowed to vary over time, collected exhaustively, and aggregated according to prevailing theoretical involvement categorization, with purpose-built survival analyses, to provide the most cleanly data-driven look at how the competing popular understandings of persistence in contemporary literature apply to first-generation college students.

Research Questions

Research Question I

Is there a relationship between involvement in primarily academic-focused organizations (ex: honors societies and learning communities) and persistence for first-generation college students in the first two years of enrollment?

Research Question II

is there a relationship between involvement in marginalized identity-focused organizations (ex: Cultural or racial/ethnic organizations and LGBTQ groups) and persistence for first-generation college students in the first two years of enrollment?

Research Question III

Is there a relationship between involvement in organizations in general and persistence for first-generation college students in the first two years of enrollment?

<center>**Method**</center>

Participants

This study included 304 university freshmen who are first-generation college students and were recruited into a larger longitudinal study examining first-generation student persistence. The participants for this project were drawn from two cohorts of Drs. Ida Salusky and Elizabeth Raposa's longitudinal study "The Roles of Identity and Supportive Social Networks in College Persistence for First-Generation College Students". The analysis was conducted on two years of Cohort 1 data collection (4 time points) and one year of Cohort 2 data collection (2 time points). Baseline data collection for this study occurred in summer and autumn 2018 for cohort 1 and summer and autumn 2019 for cohort 2. A breakdown of participants by site and cohort is presented in Appendix B in Table 2, and participant demographics are presented in Table 3 and Table 4. An exit survey for those students who stop-out, drop-out, or transfer institutions was administered in order to determine the particular date the student elected to depart from their first institution.

Description of Each Site

The three different institution types are included in the study. DePaul University, a private catholic research university, specifically recruits first-generation and other marginalized students (Malone, 2010). Norfolk State University is a historically black university (HBCU), while the College of William and Mary is a selective public research university, the second oldest institution of higher education in the United States (Adams, 1887).

Materials

Persistence: Participant persistence in the first institution enrolled (i.e. DePaul, Norfolk State University, or the College of William and Mary) was assessed using a number of redundant

<center>36</center>

methods. The most likely case was that a respondent indicated they ceased attendance in a regular follow-up survey instrument, or via email in response to the invitation to complete said instrument. An alternative involved the participant not completing a follow-up instrument either because they forgot that their involvement in the study was not conditional on being enrolled and ignored messages from the research team, or because they lost interest in the study for one of many possible reasons. In any of the above cases, the researcher sent an exit survey that asks exactly when the respondent ceased attendance at their institution. For the DePaul sample, when the researcher lost contact with a respondent entirely, or in a case where they were communicative but did not want to complete any more instruments, the researcher checked to see if they consented to tracking using National Clearinghouse data of student enrollment records. For participants who provided consent, at each data collection time point the researcher used National Clearinghouse data to verify whether they were still enrolled in the university they started at, another university, or no university. If they were not enrolled at their first institution, they were coded as having not persisted through the respective term.

For those participants who did not respond to an exit survey and who did not provide consent to use National Clearinghouse data to track their enrollment, their values for the dependent variable were coded as right-censored for the interval between their last completed survey instrument and the time that the second instrument was sent out and not responded to. *Organizational Involvement Type:* Whether a student participated in a specific organization category was assessed by coding their responses to a question that lists 21 student organization types, and asks, "How many hours per week do you spend doing activities related to this entity? Leave the answer blank if you did not participate in the activity." The choice of "other (please name)" was included for the student to nominate organizations they are involved with that the

respondent might not feel fits into the provided categories. The responses to the "other" prompt were coded as academic-focused organizations, identity-focused organizations, or other organizations, and incorporated in the aggregated categories accordingly. Baseline responses to this question in its entirety are summarized in Appendix A, Table 1.

These data were binary-coded between any or no involvement in each category of organization, as the overwhelming majority of respondents reporting involvement in an organization type reported one hour of activity. The study's analyses were conducted using ordinal data with the same result (not reported herein), and the power analysis indicates a binary independent variable is more suitable for the study's sample size, so binary data was used. The organizations included in each category are defined below:

Academic-focused organizational involvement Organizations from the list considered to be academic-oriented include: "An Academic support program/organization (e.g. tutoring, etc.)", "Academic/honors sorority or fraternity", "A mentoring program/organization", "A career development organization", and "a living-learning community". Responses to the "other (please name)" selection will be coded in order to determine whether the orientation of the named organization is primarily academic, including using materials available from the organization's online presence where applicable. Where the primary orientation of an organization is unclear, it was coded as not academically-oriented.

Marginalized-identity focused organizational involvement Organizations from the list considered to be marginalized-identity focused include: "a cultural or racial/ethnic organization", "an LGBTQ Organization," and "a health advocacy organization (mental health, sexual health, substance use, healthy relationship etc.)." As with academic-focused social involvement,

responses to the "other (please name)" selection were coded in order to determine whether the named organization is a form of marginalized-identity focused organizational involvement.

Organizational involvement in general To measure organizational involvement in general, reported involvement in any category, and responses to the "other (please name)" prompt that were clearly organizations, were aggregated in this variable.

Procedure

Beginning in summer of 2018 for Cohort 1 and summer 2019 for Cohort 2, participation in the original study was primarily advertised via an email sent by the admissions office of all three sites. This email was sent to all students who accepted an admissions offer to attend DePaul beginning autumn quarter 2018 as non-transfer students and who indicated they were first generation college students. At Norfolk State University and the College of William and Mary, these emails were sent to all new students in general. For the emails at the College of William and Mary, the content was included with other content in an electronic newsletter. All recruitment flyers sent via email included a link to the screening measure.

Secondary recruitment efforts at all sites supplemented the email advertisement. At DePaul University and Norfolk State University, the research team employed a recruitment table in common areas during orientation week. At these tables, the research team took contact information from interested participants, and also permitted interested participants to complete the screening measure using tablets or laptops provided by the research teams. At all sites, flyers with links and QR code directing to the screening measure were posted on campus and on bulletin boards at locations in the respective communities that are known to be frequented by students.

The Qualtrics screening instrument first provided a brief description of the purpose of the study, the reason for the screening instrument, and a summary of the questions to be asked in the instrument to determine eligibility. The screening instrument asked the respondent to provide the highest level of education for their parent(s) or guardians. If the student selected, "high school" or less for their highest level of parental education attained, they meet the minimum criteria for participation.

Baseline Scheduling

For Cohort 1 at DePaul University, the Qualtrics screening instrument instructed respondents to select a date and time that they were willing to attend a baseline session on-campus. Alternatively, for students who could not meet before autumn classes began, or who preferred not to attend a face-to-face baseline, the Qualtrics screening instrument asked if they would be willing to complete the baseline instrument online.

Face-to-face Baseline surveys were conducted in private classrooms on-campus. Students completed 2-hour questionnaires about demographic characteristics and family background, ethnic and socioeconomic identity, social support, help-seeking beliefs and behaviors, future plans and beliefs about the likelihood of completing college. Online baseline sessions were administered via an online-specific copy of the same baseline measure used face-to-face. The difference between the two measures was that the online version asks the participant to provide their age, and used this to direct them to complete an asset or consent form, with e-signature. Both face-to-face and online participants received $40 for their participation. The baseline survey asked participants for detailed contact information including: phone number, email address, phone number of a close family member or friend, as well as usernames for different types of social media. Providing a phone contact and email contact were requirements for

participation in the study because of the need to track participants over time. All other forms of contact were optional. Asking for the contact of a close family member or friend as well as asking for social media usernames are standard tracking practices in long-term longitudinal research.

For Cohort 2 at DePaul University and all cohorts at Norfolk State University and the College of William and Mary, baseline orientation and survey administration was done exclusively online. All procedures were identical to the procedures for Cohort 1 participants who selected the online option at DePaul University above.

Follow-Up Collection

Participants were oriented to the longitudinal nature of the study using a script. This study entailed the participant responding to a maximum of 6 total questionnaires: screening measure, baseline, and online measures in December and June during years 1 and 2 of college.

Follow-up surveys took between 30-45 minutes to complete, and respondents received $20 for their participation in each follow-up instrument. When a participant dropped out, transferred, or completed school prior to the end of the study, an exit questionnaire designed to assess reasons for leaving school, as well as an estimate of the date at which they elected to depart their first institution was administered.

For DePaul University, at baseline during adult consent or in parental consent in the screening measure, participants were asked to provide consent/asset and/or their parents were asked to provide permission for the study team to communicate with DePaul's Office of Institutional Research and Market Analysis (IRMA) to receive information about where the participant enrolls in the event that they transfer from DePaul to a new institution. DePaul's IRMA participates in the National Student Clearinghouse which aids researchers by providing

institutional data connected with a student, including data about transferring to new institutions. This permission is requested for the researcher to submit requests for this information from IRMA for those students to verify whether they are enrolled in another institution.

Follow-Up Contact

For the follow-up survey administrations, reminder contact was made based on the participant's preferred method of contact. This included email, phone calls, text messages, messages via social media, and messaging or calling parents. If participants responded that they had departed at any data collection point (quantitative or qualitative) or in communication with researchers, they were sent a link to the exit survey. Those who provided permission to do so were tracked through the National Student Clearinghouse in order to determine their enrollment status.

Statistical Analysis

This study employed an extended Cox proportional hazards modeling methodology with time-varying covariates. Survival analyses are required for dropout studies because this time-to-event data is subject to censoring (Allison, 1984) and because such analyses adjust for a sample size that decreases across data collection time points (Klein & Moeschberger, 2003). This time-varying version of the Cox survival analysis method, unlike the Kaplan-Meier and exponential survival analysis methods used by Ishitani (2016a, 2016b), can use predictor variables whose varying values are recorded over multiple time points and can detect whether these variables have relationships with the outcome variable that change strength or direction over time.

As an example, a common application of these standard Cox models is to compare the efficacy of pharmaceuticals or health behaviors over time not via the impact of each dose, but by assuming all respondents adhere perfectly to the treatment and control designs. This workaround

treats any differences in outcome as determined at the beginning of the study, when treatment and control groups are assigned. An extended Cox proportional hazards model with time-varying covariates permits repeated measures of explanatory variables, alongside the traditional repeatedly measured time-to-event response variable data, and other once-measured explanatory variables whose values do not vary over time. In a similar example, with an extended Cox proportional hazards model with time-varying covariates, one can record fluctuating doses of a pharmaceutical (such as sodium bicarbonate for dialysis patients which constantly varies) or fluctuating healthy behaviors, and assess how the changing quantity relates to outcomes at each time point, and over the course of the study generally, alongside other fixed variables like patient sex.

As in other regression analyses, one may have both ordinal and categorical independent variables in a Cox model with time-varying covariates. Categorical variables can be used, however, more care needs to be taken in the manner they are coded and interpreted. Researchers must dummy-code categorical variables. In this analysis, students' institutions (DePaul University, Norfolk State University, the College of William and Mary) were included as dummy-coded variables for use as control variables.

A forward stepwise model selection process was used separately for each categorization of organization (academic-focused, identity-focused, and organizations in general). Model selection was assessed using a likelihood-ratio significance test. This tests the omnibus null hypothesis which is that all of the independent variable coefficients are zero. An alpha of *0.05* was used.

Assumptions

This method of specifying dropout time is critical, as precise measurement of the time-to-event in survival analysis is an important assumption. This assumption is addressed with questions in the exit survey asking respondents exactly when they discontinued attendance at their first institution. The assumption of proportionality and independent censoring assumption was corrected by including time-dependent covariates and controlling for the covariate in the model. The remaining assumptions have to do with data censoring.

Data censoring is a definitive part of survival analyses and a main reason that non-survival statistical methods are inappropriate for attrition-type data (Allison, 1984). Left-censoring is when, based on their data, the researcher knows an event of interest has already happened, but not when it happened (Klein & Moeschberger, 2003). This left censoring is not relevant to this study, as no participants can be included if they've already dropped out before their baseline survey.

Right-censoring is where, at a given time point, the event has not yet happened (Klein & Moeschberger, 2003). This type of censoring is inherent in most all survival analyses, whether the subject is human lifespans, time to infection after kidney transplant (Nahman et. al., 1991), insurance subscription attrition (Aziz & Razak, 2019), or failure of mechanical parts, for example. If a study does not follow all participants to mortality, or if a transplant patient never gets an infection for example, then that data is right-censored (Klein & Moeschberger, 2003). In the case of this study, many respondents will not have discontinued attendance or graduated by study end. This is an example of *singly Type I right-censored* data, or data where all cases that are right-censored are censored at the same time (singly), and the time is controlled by the investigator (who decides when the study ends; Type I) (Allison, 1995). Maximum likelihood

methods, such as the extended cox-proportional hazards model with time-varying covariates used here, handle this type of censoring with "no appreciable bias" (Allison, 1995, p. 13).

Alternatively, there is *random right-censored* data, where the investigator does not control when they lose the ability to observe an event for a participant. In this study, this occured if a person is one of the respondents who did not provide consent to track them using National Student Clearinghouse data, and had not reported discontinuing attendance at their first institution, but suddenly does not respond to messages from the investigator. In this uncommon case, they discontinued attendance without the researcher knowing if they departed their first institution or not.

It is preferred that in cases of random right-censored data, the censoring is not *informative.* Noninformative censoring is when the person who is censored is not censored because of some factor that would also make them more or less likely than those not censored to experience the event being studied. One example provided by Allison (1995) of informative right censoring that could bias an analysis would be if, in a study about divorce, some respondents stop participating in the research due to marital difficulties, which is associated with a greater likelihood of divorce. In the case of the present study, a participant who stops responding completely and who also did not consent to be tracked using National Student Clearinghouse data could likely also be a student at greater risk of discontinuing attendance at their first institution. This person is unlikely to stop responding due to losing access to institutional email addresses, because in addition to these email addresses, the study uses non-institutional email addresses, phone numbers, parents' phone numbers, and social media contact information for participants. However, such a respondent could choose to discontinue participation out of a desire to sever all interaction with the institution they left, or because they did not remember that

the study included data collection after they discontinue attendance, and they elected to ignore the research team's messages stating otherwise.

There are no statistical tests to determine if a censored case is likely to be informative or noninformative, and thus the primary way to satisfy this analytic assumption is through a study design, like the one described here, that does everything possible to reduce random censoring.

Finally, unlike in a standard Cox proportional hazards model, in the extended model for time-varying covariates, there exists no assumption of proportional hazards, nor requirement to specify a baseline hazard function.

Results

Power Analysis

The R package PowerEpi.default in the package PowerSurvEpi was used to conduct a power analysis. A simplified version of the study analysis is assessed with this technique. Should this version have insufficient power, one could conclude that the more sophisticated study analysis would also lack sufficient power. Efforts to build techniques to assess power for specific extensions of the Cox model are expanding, with the technique most relevant to the present study focusing on discrete time-varying covariates and rolling enrollment by Austin (2012). However, no arithmetic or simulation-based methods exist in the literature that are specific to the study design herein with two-cohort enrollment and discrete time-varying covariates, so a simplified power analysis package that came with sufficient documentation was employed.

The R package PowerSurvEpi applies Latouche et al.'s (2004) power calculation formula, which takes into account the correlation between two covariates in Cox proportional hazards models. In addition to N size and type I error rate, this formula requires inputting a postulated hazard ratio, proportion of subjects taking the value one for the covariate of interest,

square of the correlation between the covariate of interest and the other covariate (in this case, either type of social involvement), and a proportion of participants who will experience the event of interest (in this case students leaving their first postsecondary institution).

For the purposes of using PowerSurvEpi which is limited to simulating only two covariates, involvement in academic-focused organizations was treated as the first covariate of interest, and involvement in marginalized-identity-focused organizations the second. The proportion of participants who will be involved in academic-focused organizations through the life of the study was estimated based on a cross-section of collected data from time point two for each cohort. Across both cohorts and all institutions, 15.8% of participants participated in academic-focused organizations at time-point two. The requisite square of the correlation between both covariates was also derived from this data; $\varrho^2 = 0.1296$.

The estimated proportion of first-generation participants who will leave their first postsecondary institution (dropout and transfer) by year two was 44 percent, based on year-two data from a study of approximately 150,000 students at 70 institutions conducted by the ACT using National Student Clearinghouse data, the same follow-up method in this analysis (Radunzel, 2018). The calculated power based on this information and the aforementioned estimated values was 0.84.

Descriptive Analyses

Participants largely persisted throughout the study period from all three institutions. From the 2 years of data collection, 28 (17.6%), 16 (24.2%), and 6 (7.6%) students departed from DePaul University, Norfolk State University, and the College of William and Mary, respectively. Student persistence probability over all study time points by institution is represented in Figure 1 in Appendix C.

Regarding organizational involvement, 122 (77%) students from DePaul University participated in any organization at any time point, as did 38 (56%) students from Norfolk State University and 76 (96%) students from the College of William and Mary. Sixty seven (42%) students from DePaul University participated in academic-focused student organizations at any time point, compared to 23 (35%) students from Norfolk State University and 42 (53%) students from the College of William and Mary. Finally, 38 (24%) students from DePaul University participated in marginalized-identity-focused university student organizations at any time point, with 4 (6%) students from Norfolk State University and 35 (44%), from the College of William and Mary participating in such organizations. A summary of these statistics can be found in Table 5 in Appendix C.

Main Inferential Analyses

A total of three stepwise analyses were performed to assess the relationship between student organizations and persistence. One stepwise analysis assessed academic-focused organizations, one assessed identity-focused organizations, and one assessed organizations in general. The goal was to discover how each common type of organization might relate to student persistence. All analyses began with a common Model 1 controlling for the institution the student attended, and a Model 2 controlling for the baseline procedure used to recruit the student (online or in-person). Thereafter Model 3 for each stepwise analysis added the student organization type (of the three being examined).

As expected, for the common Model 1 in all stepwise analyses, attending Norfolk State University was significantly and strongly associated with greater risk of departure from a student's first institution compared to The College of William and Mary (HR=3.00, 95% CI= [1.14, 7.91]), while attending DePaul University was not significantly associated with departure

risk in this model. Additionally, and as anticipated for Model 2 for all analyses, students who were recruited into the study using an online baseline recruitment procedure were significantly and strongly associated with greater risk of departure from a student's first institution compared to those who were recruited using an in-person baseline recruitment procedure (HR=3.30, 95% CI= [1.27, 8.59]). In this second model adding recruitment procedure to site from Model 1, attending DePaul University became significantly associated with greater risk of departure (HR=3.08, 95% CI= [1.24, 7.66]) alongside attending Norfolk State University (HR=3.14, 95% CI= [1.19, 8.28]), the latter of which was also significant in Model 1. It should be noted that DePaul recruited more students via the in-person process, and the variable of recruitment type entered in Model 2 was included to account for this. Model 2 had significantly more explanatory power than Model 1, X^2 (1, $N = 304$) = 8.05, $p < .0005$. Summaries of these model statistics are included in Appendix D, Tables 7 and 8.

The following three stepwise analyses (A1 through A3) assessed different categorizations of student organizations and first-generation students' departure from their first postsecondary institution. Model 3 of analysis A1 added student engagement with academic-focused student organizations, which was not significantly related to student departure. In the second stepwise analysis (A2), Model 3 added engagement with identity-focused student organizations, which was not significantly related to student departure. Finally, in the third stepwise analysis (A3), Model 3 added engagement with student organizations in general, which was not significantly associated with risk of departure

Discussion

This study sought to address the question of whether organizations are related to departure, categorized according to the literature and using advanced and technically appropriate

statistical methods. Specifically, the study used Cox proportional hazards modeling with time-varying covariates, which can incorporate student's varying involvement in organizations in each academic period (semester/quarter). It examined two subtypes of organizations (academic and identity-focused), as well as organizations overall. The answer to all three research questions is that organizational involvement was not significantly related to student departure when subcategorized by academic or identity focus, or examined in general, for first-generation students.

This study provides evidence that arguments for a simple connection between student organizations and persistence are likely more theory-based than exhaustively tested, and that more hard data around the underlying assumptions of theories venerating organizations needs further examination with first-generation college students. It is more likely that the value of organizations in terms of persistence is highly conditional on many factors rather than being consistently beneficial. In light of the limits of organizational research indicated by critical and non-critical theorists and by this study, it is reasonable to suspect and investigate a potential file-drawer problem muddling our understanding of those characteristics of certain organizations in certain contexts that are related to persistence.

A future source of risk for this muddling can come as more persistence researchers laudably foray into more sophisticated and statistically appropriate methodologies more commonly used and taught in biostatistics. Publishably significant though false results are a hallmark of survival studies that do not use time-varying covariates for classifications and exposures that can change over time, like with organizational involvement (Shintani, 2014). Ishitani's (2016b) analysis supporting the association between organizational involvement and persistence uses such methods known to, when rectified, lead to reversed findings (Grant, Chen,

& May, 2014). Therefore, though Ishitani's second of their two 2016 first-generation persistence studies that used BPS data lead the way by using time-to-event analyses specifically with first-generation students, their first study of the two that found no relationship between involvement and persistence may have reached the correct conclusion. Thankfully first-generation student persistence research is progressing methodologically, and an understanding of common pitfalls like the immortal time bias will hopefully propagate along with this progress.

In many ways, the state of the literature is calling for more incisive and intricate studies to disentangle issues that have been known about for some time, and that particularly effect first-generation students. Tinto himself acknowledged that his integration model is significantly limited in value to non-traditional students (1987), and persistence researchers since then have cataloged a litany of other student types for which the model or common methods of assessing it does not work, to nearly encompass most modern students (Bean & Metzner, 1985; Davidson & Wilson, 2013; Rovai, 2002). Beyond student types, organizations (even categorized by focus according to the literature) vary so profoundly in the manifold dimensions of their manifestation, including resources, programming, solidarity primacy between conformity of the student or the institution, and the institutional context. This study indicates it is unsound for researchers to broadly suggest that organizations facilitate integration and persistence for first-generation students. Additionally, where persistence is primarily attained by those students whose cultures were most effectively overwritten by organizations that facilitate integration through assimilation, persistence alone is an unethical way to measure institutional and student success.

Critical education theory, contemporary to Tinto, theorizes why organizations might not be associated with persistence for first-generation college students. Education was initially designed to aid in enforcing status boundaries (Malott & Ford. 2015; Collins, 1971; Wildhagen,

2015). Later came the massification of education, wherein new and old institutions gradually opened their doors wider (Gumport et. al., 1997). First-generation students, whether they hope to integrate and persist into exclusive institutions like The College of William and Mary which was part of the original elite education in the colonial era, or in newer institutions with missions to serve minoritized students like Norfolk State University and DePaul University, face forces that are bigger than their institution's student affairs office and student organizational resources. As outlined by critical theorists, mass education admitting first-generation and other marginalized students is in many ways still an invitation for them to try to conform to the norms and needs of capital for obedient workers (Malott & Ford. 2015; Collins, 1971; Wildhagen, 2015). This is especially the case at the College of William and Mary, an institution committed wholly to its colonial identity as "the Alma Mater of the Nation" in ways that are thoroughly exclusionary (Cowing, 2016).

This core alignment, as described by Cairo and Cabal (2021), precludes many university student affairs employees or student organization members and leaders from having the time or resources to attend to the needs of first-generation students. Therefore, it is possible in the case of this analysis that though students took part in organizations, the organizations were not rich with engaging programming and therefore did not affect persistence.

However, even if the organizations at the universities studied were exceptionally resourced and programmed, they are still constrained by being extracurricular to a system that serves to perpetuate the existing superstructure of power, which has no interest in being modified by newcomers. If students in this study were faced with well-resourced organizations whose ultimate function was to treat them as deficient and in need of transformation (Wildhagen, 2015), they would be feeling the opposite of the hypothesized integrative and engaging effect of

organizations. This is another possible explanation for the non-significant relationship between organizations and persistence. Learning that 90% of low-income first-generation college students like yourself do not graduate within 6 years if at all (EAB, 2020), navigating an invisible curriculum of exclusionary social mores, and investing extra time compared to your peers in an organization that claims to remediate you to these standards is instead a recipe for alienation and departure, not a system of support.

In some institutions, student affairs workers and student organization members and leaders might be practicing a clandestine resistance via serving the whole student rather than conforming the student to the institution's bottom-line as advised by Cairo and Cabal (2021). Even in this case, it would not be surprising if many students in this sample still did not find enough purchase to succeed in the small surface footholds that can be carved by the most critically conscious and affirming student organizations in an institution that otherwise retains its design to dehumanize and subjugate said students.

A student organization could hypothetically be associated with greater persistence at a predominantly white institution if it encouraged the student to *resist* engagement and integration with the institution at large. It is well-documented that when American Indian students, for example, distanced from and resisted the culture of their PWI, and anchored themselves even deeper into their tribal values, they were more likely to persist (Deyhle, 1995; .HeavyRunner & DeCelles, 2002; Jackson & Smith, 2001; Waterman, 2007; Waterman, 2012; Waterman, 2019). At HBCUs such as Norfolk State University in this analysis, fortunately the university itself can be a source of this resistance to white neoliberal hegemony. However, there are several factors that limit the benefit of their organizational offerings specifically. Firstly, HBCUs are under-funded when compared to the average PWI (Gasman, 2010). Thus they are similarly, if not more,

constrained in the resources available to student affairs professionals and student organization leaders. In addition, HBCUs are noted as less integrative to the LGBTQIA+ community (Lewis & Ericksen, 2016). Of the Norfolk State University sample, 22% of students identified with an identity other than heterosexual, and yet only three of these participants (5%) participated in an organization serving LGBTQIA+ students. Most critically, only four (6%) of Norfolk State University students reported participation in any marginalized-identity focused organizations at all. The Norfolk State sample, then, is assuredly biased for marginalized-identity focused organizations.

For first-generation students in this sample, it appears either extracurricular remediation or solidarity is insufficient, or not truly available. In the United States, first-generation college student persistence is decreasing (Van Dam, 2022). The concentration of power in society and the academy in the hands of the few is only rapidly increasing (Van Dam, 2022). First-generation college students are less represented in the professoriate of elite institutions than they have been in the past 80 years (Van Dam, 2022). Student organizations are not reversing the exclusionary trend; it is doubtful that they are even slowing it down. The current most parsimonious predictor for who gets what amidst the runaway growing inequality in the United States is whether they were included in the decision-making process when the country's institutions were first designed, or whether they were amongst those whom its institutions were designed to exploit. If this exploitation is to cease, the culture and associated pedagogies of all prospective students must contribute to the redesign of our institutions.

Employing participatory pedagogy and following the UK student voice literature, subversive instructors can design a syllabus with student input, including students selecting readings and topics, tailoring assignments to the individual, inviting guest speakers, and students

developing participatory learning activities to employ with one another (Buckley, 2018; Collins, et, al., 2016). Further, investment in community-led informal education programs, not resulting in a credential, are also more likely to amplify understanding and knowledge without dehumanizing their co-creators of knowledge (Freire, 1970).

This meshing of curriculum and student more evenly embeds the first-generation student more deeply into the process of education and humanizes them more broadly. Such a deep and wide platform is more hospitable to holistic growth than the superficial foothold of a student organization, however supportive. Through and beyond this, revolutionary critical pedagogy offers that students can be agentic stakeholders in demystifying the oppressive structures that plague their institutions, in developing a critical consciousness, and in direct participation in a revolutionary reshaping of those broader societal arrangements currently using higher education for subjugation. Malott and Ford (2015) proffer a hope that critical pedagogists can enable this subversion from enclaves in the academy in a way that inspires larger movements within and without.

Limitations

Longitudinal survival analyses have particular challenges, and this study was designed to prevent these and other methodological issues. One contributor of ambiguity was students' (anticipated) misremembering guidance from study-onboarding that they remain part of the study even if they have left their first institution. Study administrators uncovered indications of this misunderstanding in communications with multiple students. In these cases, some students simply ignored study text messages and did not open study emails. Ultimately, not all participants were eventually responsive in each wave, and not all participants consented to all contact methods.

In some cases, students would miss a wave but then respond to a later wave, resulting in missing data for all variables except their enrollment status for the missed wave. Some students who departed their institution were willing to provide details about their status and other questions in text or phone conversations, but did not feel inclined to complete further surveys or were only willing to complete the much shorter exit survey, which also provided event data but not data for the study's other variables of interest.

Other study limitations centered around data for the non-status variables of interest. A study with a larger sample size would have the power to use ordinal rather than binary data for organizational involvement for each quarter/semester. It is possible there is a more nuanced relationship between average number of hours per week spent with organizations and persistence. However, participants in this dataset largely spent one hour per week doing something with an organization they endorsed involvement with. It is possible this is the case with students broadly, and thus finding a difference in persistence related to hours invested may be difficult. Such an analysis could have prescriptive value, but might do little to describe how organizations work for the average student, nor indeed how a time- and resource-constrained first-generation student might capitalize.

In cases where a student's enrollment status data was available for a wave, but data for a student's organizational involvement was missing, the Last Value Carried Forward data imputation technique was applied. However, in a few cases, respondents had missing values for these variables for two consecutive waves. In these cases, the second wave of missing data remained missing.

This study is limited in its ability to investigate the essential deeper distinctions between organizations, their institutional contexts, and the students they serve, because larger sample sizes are required to do so with survival analyses.

Additionally, the low participation of Norfolk State University students in marginalized-identity-focused organizations was unanticipated, and it is unclear whether this is representative of participation at Norfolk State University or HBCUs in general, or if sampling bias is more likely. It was expected and accounted for in the analysis that students enrolled in the study in-person to be more likely to persist than those enrolled online. However, it is likely that any student with the awareness, availability, and orientation to enroll in a study at the beginning of their transition to postsecondary education would be more prepared or exhibit greater academic self-efficacy than the larger first-generation student population.

Future Directions

Future studies should address a number of theoretical and data issues. Regarding data, the most critical challenge of survival analyses is precise event data. Reducing informative censoring (study attrition associated with institutional attrition) by staying in touch with students who have departed their institution is key. A number of participants in this study provided an email furnished through their high-school's domain during study recruitment and so that email did not work for follow-ups. Similarly, when prompted to update emails each wave, some provided their university email, which did not work if they departed. Future studies should more uniformly apply the backup layers that resolved this and other issues for the current study- all participants should be required to consent to being checked through the National Student Clearinghouse each wave, as that method does not rely on the student's communication, honesty, or understanding of the university system- it is a direct measure of whether they are enrolled or not. If all students are

required to provide a non-institutional email and perhaps to consent to being contacted on social media, it could be helpful for collecting non-status variables of interest. Future studies should amplify the power of personalized, informal text message conversations by hiring research personnel who have the capacity for this individualized focus in proportion to the number of students who are anticipated to be reluctant or unresponsive each wave. Finally, future studies of this nature should utilize Experian's True Trace service, which allows researchers to keep track of consenting participants across changing phone numbers and email addresses, as well as LexusNexus' Single Best Phone Database Search, both of which are used for longitudinal studies by the National Center for Educational Statistics (Hustedt, Franklin, & Tate, 2019). Future research with a larger sample size would have the power to compare the performance of various direct measures of self-reported student integration, both in directly predicting persistence, and as mediators of organization engagement. This could include University Attachment (France, Finney, & Swerdzewski, 2010), School Belonging (Whiting, Everson, & Feinauer, 2018), Psychological Sense of School Membership (Alkan, 2016), and others. Integration remains an idea without a consensus definition in the literature, and further data is needed to disambiguate the tangled competing conceptualizations.

Additionally, while some theorists promote organizations generally, a more useful granularity of inquiry is present for some subtypes of student organizations. For example, amongst academic-oriented organizations, living-learning communities and growth mindset programs are more formal, evidence-based, and more systematically assessed (Inkelas et. al., 2007; Kim et. al., 2022). The dimensions that contribute to effective formal mentoring programs are also thoroughly investigated (DuBois et. al., 2011; Raposa, et. al., 2019). In these more mature research areas, it is recognized that not all manifestations of an organizational category

are associated with positive student outcomes. It is likely that such data-driven scrutiny is more useful than theories that venerate peer organizations in general or in broad, heterogeneous categories.

Alongside investigation within organization subtypes, an attempt to identify useful features generalizable across subtypes could be of value. For example, in mentoring programs, cultural humility training and training that supports a mentor facilitating critical consciousness for their mentees is suggested to be of vital importance (Anderson et. al., 2022; Monjaras-Gaytan et. al., 2021; Sánchez et. al., 2021a; Sánchez et. al., 2021b). Such training could be adapted for use with student and staff leaders and peer members in a variety of organizations. In this manner, previously less data-driven organizations, like Greek-letter organizations, have endeavored to adopt valuable features from other organization types by establishing living-learning communities and mentoring programs within their chapters (Zunick, 2017). More clarity around effective facets of support can facilitate an interchange of best practices/critical foci and provide a selection pressure that leads to a new generation of evidence-based student organizations.

As these generalizable facets of organizations, such as increasing social capital (Glass & Gesing, 2018) or increasing critical consciousness (Anderson et. al., 2022; Andrews & Leonard, 2018; Monjaras-Gaytan et. al., 2021; Sánchez et. al., 2021a; Sánchez et. al., 2021b) are collected, future research can employ a battery of inventories assessing these facets across an exhaustive list of organizations and across multiple institutions. This can illuminate the scope of variability, and provide direction for making more meaningful comparisons. Beyond self-report, in cases where future studies are similarly focused on a finite number of students' first institutions, researchers can contact and interview or survey university student and/or staff organizational

leadership and membership directly for each organization, to capture their program design and intent in relation to the theories said study would hope to examine. Having information beyond each organization's basic subtype will facilitate explaining their variance in efficacy.

In the meantime, studies should comparatively analyze the currently more data-driven and intensively intentional integration intervention types using survival analysis, such as formal mentoring programs (DuBois et. al., 2011; Raposa, et. al., 2019), growth-mindset programming (Kim et. al., 2022), and intentional living-learning communities (Inkelas et. al., 2007). Enough is understood about these organization types that they are more ready for use with survival analysis than broad categories or more vaguely understood organizations.

To address the larger implications of an education system designed for some students that expects assimilation from others, future research should bridge the work examining participatory decision making, feedback, and students-as-partners with organizational research. Additionally, studies contrasting first-generation college students who participate in curricular offerings by critical pedagogists with students only involved in extracurricular programming targeting such students would help determine if the former are more effective.

Finally, compassionate researchers investigating the educational experiences of first-generation and otherwise minoritized students can do as student affairs professionals do in Cairo and Cabal (2021), and resist the dehumanization of said students by using a both/and practice of focusing on alternative success outcomes concurrently with persistence. Future studies can use participatory research driven by first-generation students to collect holistic developmental objectives, design ways to measure these outcomes, and assess institutions for their ability to grow holistic human knowledge, wisdom, and growth, in addition to granting students a marketable credential.

Conclusion

When scrutinized with state-of-the-art methods, organizations, academically-focused, identity-focused, or in general, do not appear to be invariably associated with first-generation student persistence. However, this does not contravene the understanding that certain types of student engagement can enhance student persistence and holistic development. Engagement in one sense describes the meshing of two components that fit together and can thus facilitate a transfer of power. First-generation students have stretched toward institutions past their point of plastic deformation; they bend so far that many of them break. And there is often not yet enough engagement to transfer much beyond friction.

Institutions must be reshaped toward the image of first-generation and other minoritized students to complete engagement between the two. However, this change is antithetical to the role education, both mass and elite, plays in American society. Therefore, any remodeling will not be done from the top down by those who wield traditional authority in neoliberal society or its constituent institutions.

The masters' tools have been busy; they have been used to build machines that expand the master's house much faster. Marx distinguishes a tool as a thing that requires skill and knowledge, is used as willed by the operator, and that outputs in proportion to effort. This is in contrast to a machine, wherein an operator is run by their apparatus, which enables a runaway increase in output, and alienation of the worker (Malott & Ford, 2015; Marx, Fowkes, & Mandel, 1992). Therefore, even while student affairs, organizational, and faculty workers toil in the academy, they cannot dismantle it while run by the mechanistic curriculum of capital concentration and without tools to change it.

Therefore, a wrench in the machinery is called for (Malott & Ford 2015; McClaren, 2005, Cairo & Cabal, 2021). A tool from the worker's toolbox: the revolutionary critical pedagogy of the oppressed, when inserted into the workings of academe, may begin the remodeling of its form, curriculum, and purpose in the image of all students.

As Du Bois stated, "I insist that the object of all true education is not to make men/women carpenters, it is to make carpenters men/women" (1903, p. 63, in Malott & Ford, 2015). This prescient adjective phrase-head reversal is too aptly applied to the modern trend of describing first-generation students as "Blue-Collar Scholars" (Martinez et. al., 2009, p.1; Hodges, 2016; Soria, 2015); to make possible first-generation student success, the object of a true education should not be to make blue-collar people scholars, but to make scholarship blue-collar, de-colonial, participatory, and humanizing.

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Appendix A

Table 1: Organizational involvement inventory, with baseline student interest responses

Activity	Frequency	%
Athletic team (e.g. football, basketball, volleyball, track & field)	24	16.1
Debate team	7	4.7
Student Government	25	16.8
Intramural sports team or sports/fitness organization	45	30.2
Community service organization	101	67.8
Academic support program/organization (e.g. tutoring, etc.)	52	34.9
Mentoring program/ organization	43	28.9
Foreign language organization	40	26.8
Sorority or fraternity (not academic/honors)	44	29.5
Academic/honors sorority or fraternity	33	22.1
Cultural or racial/ethnic organization	62	41.6
Political organization	21	14.1
LGBTQ Organization	20	13.4
Health advocacy organization (mental health, sexual health, substance use, healthy relationship etc.)	26	17.4
Career development organization	46	30.9
Religious organization	24	16.1
Music, arts, or theater organization	48	32.2
Learning community	24	16.1
University-affiliated social media group	12	8.1
Hobby/Enthusiast club/community (not	48	32.2

previously specified)

Other (combined; individual below)	6	4
"Actuarial Science Club"	1	0.7
"Creative Writing"	1	0.7
"Possibly the ESports team"	1	0.7
"Publications/newspaper"	1	0.7
"Upward Bound"	1	0.7
"Veteran Group"	1	0.7

Note: the prompt for this question is: "The next set of questions asks about student activities, clubs, groups, or organizations that you have participated in. Please select all activities you participated in during [time frame]." The option, "A videogame/Esports organization" was added at the DePaul site beginning at follow-up 1. Totals do not equal 100% due to missing responses and rounding to the nearest tenth of a percent.

Table 2: baseline survey sample size by study site

	Cohort 1		Cohort 2		Both Cohorts	
Institution	N	%	N	%	N	%
DePaul University	77	25.3%	82	27.0%	159	52.3%
Norfolk State University	13	4.3%	53	17.4%	66	21.7%
The College of William and Mary	27	8.9%	52	17.1%	79	26.0%
Total	**117**	**38.5%**	**180**	**61.5%**	**304**	**100%**

Table 3: baseline survey demographics, over all sites

Measure	Frequency	Percent
Sex assigned at birth		
Female	235	77.3
Male	69	22.7
Ethnicity (select all that apply)		
White	112	36.8
African American	87	28.6
American Indian or Alaska Native	4	1.3
Asian American	35	11.5
Native Hawaiian or Pacific Islander	4	1.3
Latinx	99	32.6
Other	8	2.6
Family Immigration History		
Gen 1.0 Not Born in USA; Recent immigrant	4	1.3
Gen 1.5 Not Born in USA; Immigrated by Age 13	23	7.6
Gen 2.0 Both Parents Not Born in USA	87	28.6
Gen 2.5 One Parent Not Born in USA	29	9.5
Gen 3.0+	157	51.6
Family Income		
Less than $24,120	62	20.4
$24,120 - $32,480	30	9.9
$32,480 - $40,840	32	10.5
$40,840 - $49,200	22	7.2
$49,200 - $57,560	27	8.9
$57,560 - $65,920	23	7.6
$65,920 - $74,280	21	6.9

$74,280 - $82,640	13	4.3
$82,640 - $90,000	18	5.9
$90,000 - $100,00	16	5.3
Greater than $100,000	32	10.5

Note: totals for family immigration history and income do not equal 100% due to missing responses and rounding to the nearest tenth of a percent.

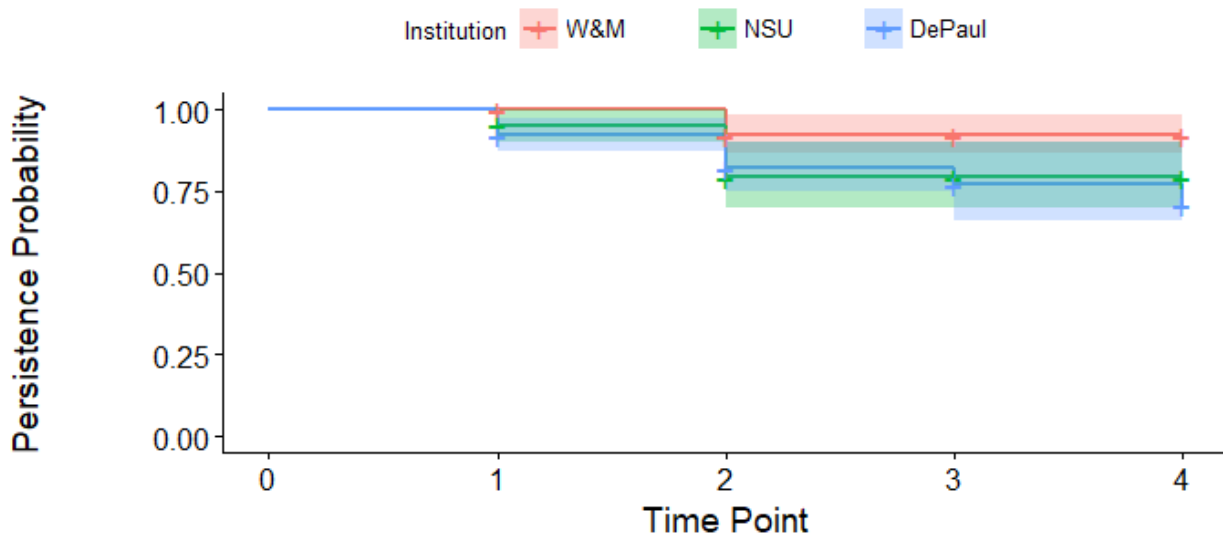*Table 4: baseline survey demographics, by study site*

Measure	DePaul	W&M	Norfolk
Sex assigned at birth			
Female	120	62	53
Male	39	17	13
Ethnicity (select all that apply)			
White	71	35	6
African American	13	13	61
American Indian or Alaska Native	2	1	1
Asian American	14	21	-
Native Hawaiian or Pacific Islander	2	2	-
Latinx	73	21	5
Other	5	1	2
Family Immigration History			
Gen 1.0 Not Born in USA; Recent immigrant	4	-	-
Gen 1.5 Not Born in USA; Immigrated by Age 13	12	11	-
Gen 2.0 Both Parents Not Born in USA	57	25	5
Gen 2.5 One Parent Not Born in USA	15	8	6
Gen 3.0+	69	34	53
Family Income			
Less than $24,120	27	9	26
$24,120 - $32,480	16	5	9
$32,480 - $40,840	17	7	8
$40,840 - $49,200	7	7	8
$49,200 - $57,560	16	7	4
$57,560 - $65,920	16	5	2
$65,920 - $74,280	13	7	1
$74,280 - $82,640	8	5	-
$82,640 - $90,000	9	6	3
$90,000 - $100,00	11	4	1
Greater than $100,000	15	14	3

Table 5: Organizational involvement by type, over total study period

	W&M		NSU		DePaul		Total	
Organization type	N	%	N	%	N	%	N	%
Academic-oriented								
did not participate	37	46.8%	43	65.2%	92	57.9%	172	56.6%
participated	42	53.2%	23	34.8%	67	42.1%	132	43.4%
Identity-focused								
did not participate	44	55.7%	62	93.9%	121	76.1%	227	74.7%
participated	35	44.3%	4	6.1%	38	23.9%	77	25.3%
Any								
did not participate	3	3.8%	28	42.4%	37	23.3%	68	22.4%
participated	76	96.2%	38	57.6%	122	76.7%	236	77.6%
Total	**79**		**66**		**159**		**304**	

Figure 1: Persistence probability by institution over study period

Table 7: Model 1 Summary

	HR	95% CI	P Value
NSU instead of W&M	3.00	1.14, 7.91	0.03
DePaul instead of W&M	2.09	0.86, 5.10	0.11

Table 8: Model 2 Summary

	HR	95% CI	P Value
NSU instead of W&M	3.14	1.19, 8.28	0.02
DePaul instead of W&M	3.08	1.24, 7.66	0.02
Study enrollment online instead of in-person	3.30	1.27, 8.59	0.01