Research

Mining for Retention Gems and Unearthing Identity and Belonging

Benjamin D. Aronson\textsuperscript{a,}*\textsuperscript{}, Emily Eddy\textsuperscript{a}, Michelle R. Musser\textsuperscript{a}, Kelly M. Shields\textsuperscript{a}, Jessica L. Hinson\textsuperscript{a}, Kristin K. Janke\textsuperscript{b}

\textsuperscript{a} Ohio Northern University Raabe College of Pharmacy, Ada, OH, USA
\textsuperscript{b} University of Minnesota College of Pharmacy, Minneapolis, MN, USA

ARTICLE INFO

Keywords:
- Professional identity formation
- Professional engagement
- Belonging
- Retention
- Attrition

ABSTRACT

Objective: To determine the relationship between first-year retention and variables related to professional engagement and professional, academic, and personal identities.

Methods: This study evaluated data from 3 cohorts of students at a private 0–6 college of pharmacy. A theoretical and conceptual framework linking professional identity and retention informed the study. Professional engagement scores from the first semester of pharmacy school served as a surrogate of professional identity. Grade point average (GPA) and traditional demographic variables (eg, gender, race/ethnicity, in-state resident) served as surrogates of academic and personal identities, respectively. Logistic regression models were used to determine the relationship between first-year retention and identity variables.

Results: Belonging, a domain of professional engagement, was positively related to first-year retention. In multivariable models, belonging and cumulative GPA were associated with increased odds of retention, while in-state status was associated with decreased odds. In separate models for those with GPA ≥3.00, and < 3.00, belonging was associated with first-year retention in both. Belonging was also associated with first-semester retention, but not second-semester retention.

Conclusion: A decision to leave a Doctor of Pharmacy program is complex, but the vast majority of the literature in pharmacy education appears to focus most intently on academic variables, including GPA. This study demonstrates that belonging, an important element in professional identity formation, remains related to first-year retention, even after controlling for grades and other personal variables. This finding unearths several theory-informed gems and strategies that educators may employ to enhance retention.

1. Introduction

Retention is a concern for our professional programs. Although contemporary external forces, including a global pandemic and widespread burnout among the healthcare workforce, may negatively impact the desire to pursue the profession, there remain untapped mines filled with potential retention gems. One such treasure, professional identity formation, could be leveraged to mitigate student attrition.

Retention in higher education is defined as the continued enrollment of a student from the first year to the second year.\textsuperscript{a–b} Older foundational theoretical models describing student retention in higher education have focused on seminal works, including Spady’s Undergraduate Dropout Process Model\textsuperscript{c–d} and Tinto’s Institutional Departure model.\textsuperscript{d–e} Both models include grade performance and social integration as key elements. Spady’s model posits the student attrition process is an interaction between the individual student with the academic and social system at the college, a process operating chiefly through intellectual development, social integration, satisfaction, and institutional commitment. Tinto’s Institutional Departure model expands on Spady’s model by arguing that social transition for first-year students is paramount. Upon entering college, students must transition from their previous life to college life and develop a new social community to be successful. Thus, retention issues could be described as a problem with the academic system and/or the social system, which impacts student commitment.

These models focus on undergraduate students but appear to have plausible predictive power for pharmacy students. In pharmacy education, grade performance (eg, grade point average [GPA]) is commonly mentioned in programmatic progression policies,\textsuperscript{f} as an indicator of on-time graduation and retention,\textsuperscript{g} and as a predictor of

* Corresponding author.
E-mail address: benjamin.aronson@findlay.edu (B.D. Aronson).

https://doi.org/10.1016/j.ajpe.2023.100094
Received 14 July 2022; Received in revised form 1 February 2023; Accepted 7 March 2023
Available online 9 May 2023

0002-9459/© 2023 American Association of Colleges of Pharmacy. Published by Elsevier Inc. All rights reserved.
transit through the first-year curriculum, when combined with standardized test scores. Grade performance, however, is only 1 component of the educational system influencing retention in the previously mentioned models. Social integration is also an essential component related to retention. The notion of social integration is apparent in work on learning living communities and pre-pharmacy retention, a task force to enhance Doctor of Pharmacy (PharmD) admissions retention through intentional welcoming and relationship building, and a peer mentoring program for first-year PharmD students. Elements of social integration (eg, belonging, connectedness) are reflected in models of professional engagement. Professional engagement is a state of mind toward one's profession that can be measured using the Student Pharmacist Inventory of Professional Engagement (S-PIPE). Elements of social integration are also reflected in models of professional identity formation. Professional identity formation is the process of internalizing a profession's norms, standards, and values, such that one becomes a member of the pharmacy community and comes to “think, act, and feel” like a pharmacist. Identity formation involves a process of socialization, including interactions with members of the community, feedback on progress, and feelings of belonging. Crucess and Cruess go so far as to state that engaging students in the development of their own professional identity can be maintained by “encouraging and monitoring the sense of belonging that should develop” (emphasis ours).

Prior theory and models provide a framework for understanding the interconnectedness of professional identity and professional engagement. Using this framework, this study will answer the question: what is the relationship between professional engagement and first-year retention? In doing so, professional engagement and professional identity may be identified as factors that could buffer attrition.

2. Methods

This work originated during an interdisciplinary university faculty learning community on professional identity, where the co-authors postulated that some issues with retention may be related to inadequate development of professional identity. The retrospective study that came from this development opportunity investigated retention among students matriculating to Ohio Northern University (ONU) in 2019, 2020, and 2021, using data from a classroom survey, exit interviews, and administrative records. This study was approved by the Institutional Review Board at ONU.

Following advice from Varpio and colleagues, a theoretical and conceptual framework for the study is provided in Fig. 1. The framework places the work of learners and the support of educators in the center, recognizing that this developmental work influences both professional engagement and identities. The framework also acknowledges the multiple types of identities (ie, academic, personal, and professional) in development and the hypothesized relationship between professional engagement and first-year retention, which is the subject of this study.

Ohio Northern University is a 0–6 PharmD program in the midwestern region of the United States. Within an updated curriculum, students complete Foundations in Pharmacy Practice 1 in their first semester with the purpose of introducing them to university life, wellness, and the profession of pharmacy. The course attempts to deconstruct the profession of pharmacy into its essence, encouraging students to adopt the philosophy of the practice of the pharmaceutical care practitioner to build a common foundational identity of what a pharmacist is, and exposing students to the many areas of practice to determine which are sparking their interests and passions, and should be further explored. Students also complete assignments where they reflect upon the profession and their fit, as another means to support professional identity formation. During the first semester, students are required to shadow a practicing, patient-facing pharmacist of their selection for 10 h, but no other placements or external role models are provided for students aside from pharmacy faculty.

Several variations in course design between cohorts (due to the impact of the COVID-19 pandemic) are important to note because of their potential impacts on engagement and identity formation. The fall 2019 and 2021 courses were offered fully in person, while the 2020 course was offered in a hybrid format. Social distancing was mandated during the 2020–2021 academic year and facial masking was mandatory from fall 2020 to part way through spring 2022. Other required courses in the PharmD program may also have been similarly hybrid with reduced classroom capacities during the 2020–2021 year. Events that may have professionalism ramifications (eg, University entrance ceremony for new students) were still held, with the exception of fall 2020. Additionally, student organization participation during the 2020–2021 academic year was affected due to limits on large gatherings and guest speakers.

Near the end of the course, students completed a survey for course credit that contained the S-PIPE. The S-PIPE is a measure of professional engagement with validity evidence supporting its use in student pharmacists. It contains 16 items that load on 3 factors (Table 1) labeled belonging ($\alpha=0.942$), connectedness ($\alpha=0.864$), and meaningful experience ($\alpha=0.760$). Response categories for the S-PIPE are on a 7-point scale from ‘Never’ to ‘Always.’ ‘Never,’ ‘Almost never,’ Rarely, Sometimes, Often, Very often, and ‘Always.’ Mean scores on each subscale were computed, as was an overall mean professional engagement score from all items. In this sample, Chronbach’s $\alpha$ was 0.917, 0.768, and 0.763, for the belonging, connectedness, and meaningful experience subscales, respectively. Although the extant literature provides no validity evidence for the S-PIPE in a 0–6 population, unpublished data from several years of administrations at ONU suggest no measurement issues. This study provides the first validity evidence for using the S-PIPE in 0–6 PharmD programs.

To supplement this data, administrative records were used to capture student demographic characteristics related to their personal and academic identities. Personal identity, which is based on an individual’s

![Fig. 1. Theoretical and conceptual framework for the study. Gray, Measures within this study. S-PIPE, Student Pharmacist Inventory of Professional Engagement.](image-url)
Table 1 Domains and Items of the Student Pharmacist Inventory of Professional Engagement (S-PIPE).^a

<table>
<thead>
<tr>
<th>Domain</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belonging</td>
<td>Being a part of the profession energizes me</td>
</tr>
<tr>
<td></td>
<td>I am proud to be a student pharmacist</td>
</tr>
<tr>
<td></td>
<td>I will strive to advance pharmacy practice</td>
</tr>
<tr>
<td></td>
<td>I am excited about the future of pharmacy</td>
</tr>
<tr>
<td></td>
<td>I will have a positive impact on the profession</td>
</tr>
<tr>
<td></td>
<td>I feel involved in my profession</td>
</tr>
<tr>
<td></td>
<td>As a student pharmacist, I can make a positive difference</td>
</tr>
<tr>
<td></td>
<td>I feel connected to others in the profession</td>
</tr>
<tr>
<td></td>
<td>I feel like I belong in pharmacy</td>
</tr>
<tr>
<td>Connectedness</td>
<td>Someone in the profession cares about my professional development</td>
</tr>
<tr>
<td></td>
<td>Someone in the profession cares about me</td>
</tr>
<tr>
<td></td>
<td>I have someone I look up to in the profession of pharmacy</td>
</tr>
<tr>
<td>Meaningful experience</td>
<td>As a student pharmacist, I can help others</td>
</tr>
<tr>
<td></td>
<td>I have inspiring conversations about pharmacy</td>
</tr>
<tr>
<td></td>
<td>What I do as a student pharmacist is valuable</td>
</tr>
<tr>
<td></td>
<td>I have the opportunity to apply what I have learned</td>
</tr>
</tbody>
</table>

^a The S-PIPE is available at no charge for non-commercial uses by contacting the authors (BA or KJ).

A concept of who they are and how they are perceived by others, was operationalized through the surrogates’ gender, race/ethnicity, in-state resident status, and varsity sports participation. Academic identity was operationalized through the surrogates’ high school GPA, and college cumulative GPA at the end of the study period or at the time of leaving the pharmacy program.

Exit interview data of those leaving the program prior to the second year were also examined. Information included self-reported reasons for leaving, and academic action notes (eg, academic warning, suspension) that may have been contributory or the cause for leaving the program. Students’ stated reasons for leaving were categorized by 1 author.

Statistical analysis was conducted using SPSS (Version 27, IBM, Armonk, NY). Descriptive statistics were calculated to summarize the study variables. Bivariate correlations were used to determine the relationships between first-year retention, professional engagement (as a surrogate for professional identity), and personal/academic identity surrogates. Lastly, logistic regression models were computed to determine the relationship between engagement and retention, after controlling for academic and personal identity surrogates. Due to high correlation with cumulative GPA, high school GPA was excluded from the model. Age, due to remarkably low variance and no correlation with the outcome variable was also excluded. Model 1 regressed first-year retention on the 3 components of professional engagement, as well as cumulative GPA, gender (male/female), race/ethnicity (White/non-White), in-state resident, varsity collegiate sports, and year of matriculation. Several additional models were tested in an exploratory fashion to understand possible nuances in factors associated with leaving among those with different GPAs (ie, Model 2 GPA < 3.00, and Model 3 GPA ≥3.00), or at different times (ie, Models 4 and 5, first-semester and second-semester retention, respectively). A GPA of 3.00 was selected as this is near the median for the present sample and represents a letter-grade cutoff. Bivariate correlations and multivariable models contain a list-wise deletion of those students (~7% of the sample) with missing S-PIPE data.

3. Results

The sample included 341 students who matriculated, excluding 4 students currently taking a leave of absence. A total of 316 students provided responses to the S-PIPE during their first semester (93% response rate). Descriptive statistics of the study variables and correlation with retention are shown in Table 2. Most of the sample was younger than 20 years old, an in-state resident, and female. Over three-quarters of the students were documented as White, with 5.3% Asian, 4.4% multiracial, 3.8% African American, 0.9% American Indian, Alaska Native, Native Hawaiian or Pacific Islander, and 0.3% Hispanic. More than 1 in 5 students participated in varsity collegiate athletics (22%). Entering students had a mean high school GPA near 4.0, and cumulative pharmacy school GPA near 3.0.

A total of 51 students left the program within their first year, with 24 of these leaving after their first semester. Most students who left the program remained at the same university selecting an alternative major (n = 21, 41%), followed by those selecting an alternative major at another university (n = 13, 25%) or moving to be closer to home (n = 10, 20%). Other reasons included financial or personal issues (n = 3, 6%), leaving for full-time work (n = 1, 2%), and leaving due to grades (n = 2, 4%). One student who left gave no answer. Of interest, students’ responses sometimes indicated an amalgamation of reasons that were difficult to codify into a single category. For instance, a student may have indicated a primary reason for leaving as selecting a new major at a different university but also indicated that the new college was less expensive and closer to home. In that example, cost and proximity to where they call home are likely reasons that helped them arrive at their decision to leave, although they may have neglected to mention that grades and/or lack of interest in pharmacy were also a

Table 2 Descriptive Statistics of Identity Surrogates and Bivariate Relationship with Retention From 3 Cohorts of First-Year Students.

<table>
<thead>
<tr>
<th>Identity surrogates</th>
<th>Average/ percentage</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
<th>First-year retention</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First-semester professional engagement</strong>^b</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belonging</td>
<td>5.33</td>
<td>0.33</td>
<td>0.56</td>
<td>6.00</td>
<td>0.19^a</td>
</tr>
<tr>
<td>Meaningful experience</td>
<td>4.75</td>
<td>0.87</td>
<td>0.25</td>
<td>6.00</td>
<td>0.07</td>
</tr>
<tr>
<td>Connectedness</td>
<td>5.33</td>
<td>0.96</td>
<td>0.00</td>
<td>6.00</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Academic</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall GPA</td>
<td>3.1</td>
<td>0.79</td>
<td>0.50</td>
<td>4.00</td>
<td>0.28^a</td>
</tr>
<tr>
<td>High school GPA^c</td>
<td>3.9</td>
<td>0.39</td>
<td>2.50</td>
<td>5.20</td>
<td>0.21^a</td>
</tr>
<tr>
<td><strong>Personal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>18.6</td>
<td>1.25</td>
<td>18</td>
<td>28</td>
<td>0.08</td>
</tr>
<tr>
<td>Gender (female = 1)</td>
<td>65%</td>
<td></td>
<td></td>
<td></td>
<td>-0.01</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>23%</td>
<td></td>
<td></td>
<td></td>
<td>0.08</td>
</tr>
<tr>
<td>In state resident</td>
<td>78%</td>
<td></td>
<td></td>
<td></td>
<td>-0.13^c</td>
</tr>
<tr>
<td>Collegiate sports</td>
<td>23%</td>
<td></td>
<td></td>
<td></td>
<td>-0.01</td>
</tr>
</tbody>
</table>

Abbreviations: GPA, grade point average; SD, standard deviation.
^a Pearson correlation coefficient P < .05.
^b Professional engagement is measured on a scale from 0 = ‘Never’ to 6 = ‘Always’, with medians presented as measure of central tendency.
^c n = 309, 7 with no reported high school GPA.
Table 3

Multivariable Relationship Between Retention in First-Year Students and Identity Surrogates.

<table>
<thead>
<tr>
<th>Identity surrogates</th>
<th>First-year retention</th>
<th>First-semester retention</th>
<th>Second-semester retention</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1 (among full sample)^a</td>
<td>Model 2 (among lower GPA)^b</td>
<td>Model 3 (among higher GPA)^c</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>95% CI</td>
<td>OR</td>
</tr>
<tr>
<td>Professional Engagement</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belonging</td>
<td>2.89*</td>
<td>1.42–5.85</td>
<td>2.28*</td>
</tr>
<tr>
<td>Meaningful experience</td>
<td>0.60</td>
<td>0.32–1.12</td>
<td>0.69</td>
</tr>
<tr>
<td>Connectedness</td>
<td>0.97</td>
<td>0.63–1.48</td>
<td>0.83</td>
</tr>
<tr>
<td>Academic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall GPA</td>
<td>3.30*</td>
<td>1.97–5.51</td>
<td></td>
</tr>
<tr>
<td>Gender (female = 1)</td>
<td>0.65</td>
<td>0.30–1.37</td>
<td>0.53</td>
</tr>
<tr>
<td>Nonwhite</td>
<td>1.75</td>
<td>0.70–4.36</td>
<td>1.99</td>
</tr>
<tr>
<td>In state resident</td>
<td>0.22*</td>
<td>0.07–0.74</td>
<td>0.42</td>
</tr>
<tr>
<td>Collegiate sports</td>
<td>0.90</td>
<td>0.38–2.15</td>
<td>1.38</td>
</tr>
<tr>
<td>Year of matriculation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020</td>
<td>0.74</td>
<td>0.29–1.92</td>
<td>1.06</td>
</tr>
<tr>
<td>2019</td>
<td>0.40</td>
<td>0.16–1.00</td>
<td>0.79</td>
</tr>
</tbody>
</table>

Abbreviations: GPA, grade point average; OR, odds ratio; CI, confidence interval.

* P < .05 in logistic regression model.

^n = 316, full sample.

^n = 134, includes students with cumulative GPA < 3.00.

^n = 182, includes students with cumulative GPA ≥ 3.00.

^n = 295, includes students who progressed past the first semester.
militating factor in their decision. A total of 21 (41%) individuals who left the program had academic actions documented at the time of their leaving.

Retention was positively correlated with the belonging subscale of the S-PIPE, cumulative GPA, and high school GPA, and negatively correlated with in-state residency (Table 2). The overall mean professional engagement score (r = 0.15, P = .008) was positively correlated with retention as well.

Multivariable logistic regression models were used to determine the relationship between retention and professional, academic, and personal identity surrogates (Table 3). In Model 1, belonging and GPA had increased odds of first-year retention, whereas being an in-state resident was associated with decreased odds. Among those with GPA < 3.00 (Model 2) and ≥ 3.00 (Model 3) belonging was associated with first-year retention. In Model 4, which used first-semester retention as the dependent variable, belonging and GPA both had significantly higher odds. In Model 5, which was limited to those students progressing to the second semester, GPA was associated with increased odds of second-semester retention, while the 2019 matriculation cohort had decreased odds compared to the most recent cohort. Of note, the 2019 cohort was in their second semester of pharmacy school in March of 2020, when the university abruptly changed to distance education due to COVID-19 pandemic shutdowns and stay-at-home orders. A separate chi-square test did not reveal significant proportional differences between the 2019 and 2021 cohorts in terms of second-semester retention.

4. Discussion

The decision to remain enrolled in or leave a pharmacy program includes a complex mix of personal, professional, and academic factors. Undergraduate retention models have moved beyond GPA and other academic indicators to include other variables, such as social integration. In seeking to unearth these additional retention gems, this study revealed a positive relationship between first-year retention and belonging, a domain of professional engagement with strong theoretical ties to professional identity. This relationship between retention and belonging persisted after controlling for grades and other personal factors. It is particularly striking considering that professional engagement was measured in the first term of a 0–6 program, providing only a few months for engagement to grow. Belonging was also associated with first-semester retention, but not with second-semester retention among those who persisted past the first semester. This could suggest the importance of building a sense of belonging during the first semester, and that earlier belonging scores may not be as influential for second-semester retention. Or it could simply be an issue of type I error. Interestingly, neither the meaningful experience nor the connectedness subscale of the S-PIPE was related to retention. It may be that these 2 components are more important at different points in matriculation, which future research could explore.

Given the present findings, optimizing identity formation, with an emphasis on belonging, seems a reasonable approach for retaining some students. However, pharmacy education has been criticized by some as failing to enable students to develop an identity that is centered in their profession and providing a minimal sense of belonging.29,30 Recently, colleges/schools have been asked to explore, adopt and implement an explicit approach for supporting professional identity formation29 and some guidance for pharmacy educators has been provided.31 As described in Fig. 1, internal and external events and processes are important to both professional engagement and identity formation. However, more work is needed in understanding the influencers (eg, student transitions, provocative moments [or “crises”]) and processes of pharmacy student professional identity formation.32 Foundational professional identity formation strategies, such as mentoring, guided reflection, socialization, and active welcoming into the community of practice34 should be explored and assessed for impact on attrition. Educators may consider methods to help enact these strategies, such as early pharmacy placements which provide time in practice.

Monitoring student professional engagement could be influential in determining those students who need additional support to encourage retention in pharmacy. Prior to this study, there was only anecdotal evidence of the relationship between low professional engagement and attrition. The finding that the belonging subscale of the S-PIPE predicted persisting past the first year represents additional validity evidence around the consequences of low professional engagement. Educators may view this as a canary in the coal mine; a warning that simply surveying faces, monitoring attendance, and documenting involvement are not enough. These all fail to get at the state of mind of professional engagement, which are the items of the S-PIPE measure (Table 1).

This study found 2 additional variables related to retention. Given undergraduate retention models1,12–16 and prior findings in pharmacy education,17,18 the positive relationship between GPA and retention was expected. The less expected finding was in-state resident status being negatively associated with first-year retention. Commitment, either institutional or professional, could be the underlying reason for this relationship (ie, leaving a home state to attend college may require a larger commitment than attending a school ‘close’ to home). This finding, given the nature of our programs which primarily admits students directly from high school, may deviate from other schools. Parental influence in decision to attend, and other unique factors to this sample may play a role in the level of commitment for in-state versus out-of-state students resulting in retention differences.

Although this study did not identify a relationship between many of the personal identity surrogates and retention, it does not mean those variables are unimportant. And indeed, there are many other relevant personal characteristics (eg, protected characteristics such as differently abled status) that are not included here and could be considered. These findings may be influenced by how the measures were operationalized; for instance, there were race/ethnicity categories that came from administrative documentation versus a self-report of identities. It is typically unacknowledged that these demographic factors are wrapped in possible identity implications. However, demographics do not necessarily indicate identity. Both theory33 and the extant literature24,32,34 would suggest that personal identities are primary and relatively stable over time. In addition, personal identity can be at odds with a professional identity and can have more salience than professional identities at different points of one’s training or career.35 Future work would benefit from a fuller exploration and measurement of held identities, their salience, the interactions between personal and professional identities as students undergo professionalization.

The implications of this work need to be juxtaposed with the limitations of the research design. The results are not generalizable to all populations. This study population was composed primarily of first-year college students who are simultaneously entering their first university studies and a new profession. Similar to students in other pharmacy program structures, early 0–6 program students move through a process of professionalization, (eg, taking an introductory pharmacy course, grappling with what it means to be a pharmacist, experiencing the dissonance between teaching and their observations of practice). However, most are experiencing for the first time the social transition from a previous life to college life noted in Tinto’s model,36 at the same time as they adopt a new identity of college freshman and student pharmacist, among other possible identities. Identity status has been argued to be influenced by exploration and commitment37 and this population likely has had fewer opportunities for this search than the student populations of other pharmacy programs. This complex milieu of developmental factors may have influenced variables like the need for belonging. Although this population was navigating multiple unique identities (eg, academic, gender, race), the reality is that all student pharmacist populations are juggling diverse identities as they grow in their professional identity. The present findings align with findings on academic performance and social belonging as key predictors of student retention in existing models2,36,37 and, therefore, likely have some transferability.
Another limitation is that, for 2 cohorts, the cumulative GPA used included classes that took place beyond the second semester of the program, which should be considered when interpreting the relationship between GPA and retention. The unknown impact of the COVID-19 global pandemic on aspects of student identity formation during this timeframe (2019–2022) must also be noted. Although live, in-person classes were held during most of the study period (except part of spring 2020), there were many other aspects of student life impacted by social distancing/COVID restrictions (eg, student organization programming, delayed experiential shadowing opportunities). Each of these components may have had an impact on students’ engagement responses, and their desire to continue in pharmacy school. Despite these restrictions students still scored well in the belonging category, and in the face of trying times, belonging persisted as a factor associated with retention. Future work may further dissect and determine the impact of contextual circumstances on professional identity and professional identity formation.

This work could be expanded upon by future research in several other ways. To better explore the nuance beneath the complexity of retention, fuller exploration of personal and professional identities may be helpful. Future research should test the relationship between identity, engagement, and any mediation or moderation of retention by professional identity/engagement. Longitudinal and repeated measurements may provide additional insight into the salience and strength of the variables and their relationship with retention. Qualitative inquiry appears an attractive methodology for untangling nuance in the context of the variables and their relationship with retention. Qualitative inquiry may be considered robust for understanding the complexities of belonging and professional identity and their association with retention.

Lastly, this study used student retention as an outcome variable of interest, but retention is only one of many student success variables. Retention may fail to tell the whole story of student success, because, at times, attrition is appropriate. Students may find a career more aligned with their identities, goals, passions, and interests. Future work should bear in mind additional markers of student pharmacist academic and professional success beyond progression and retention.

5. Conclusion

This study demonstrated a relationship between belonging, a domain of professional engagement, and first-year PharmD retention in the context of a 0–6 program. Belonging remained associated with increased odds of retention even after controlling for academic and personal identity surrogates. These findings suggest a possible relationship between professional identity and retention in student pharmacists. Educators should explore strategies to grow belonging and professional identity (eg, mentoring, guided reflection, socialization, and active welcoming into the community of practice), as possible methods to mitigate attrition among some students.

Funding/Support

No funding was received for this work.

CRediT authorship contribution statement

Benjamin D. Aronson: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. Jessica L. Hisson: Writing – review & editing, Writing – original draft, Conceptualization. Kelly M. Shields: Writing – review & editing, Writing – original draft, Project administration, Methodology, Data curation. Michelle R. Musser: Writing – review & editing, Writing – original draft, Methodology, Conceptualization. Emily Eddy: Writing – review & editing, Writing – original draft, Methodology, Conceptualization. Kristin K. Janke: Writing – review & editing, Writing – original draft, Project administration, Investigation, Conceptualization.

Declaration of Competing Interests

None declared.

Acknowledgments

The authors would like to thank the members of the 2021 to 2022 Ohio Northern University Faculty Learning Community for their contributions to the conceptualization of this project.

References


