

Integrating the INFUSE Framework and Mentoring Web Models for College Student Success

Aron, D.¹, & Vogel, J.²

¹Dominican University, ²Stockton University

This paper explores the anticipated benefits of integrating the career-based INFUSE framework with mentoring webs in academia. The proposed integration of INFUSE into university mentoring initiatives leverages existing mentoring web structures to align students with diverse mentors and mentoring roles. The research highlights how this model can be practically implemented across academic settings. Data collected from student surveys assesses how they currently use, seek, or need different categories of the INFUSE web-based mentoring model, informing further refinement, expanded applications, and greater accessibility of this integrated approach.

Keywords: INFUSE, mentoring networks, academic mentoring, student satisfaction, higher education

Introduction

Mentoring is a critical component of personal and professional development in both career and academic settings. While traditionally studied within their respective domains, there are interconnections and transferable principles between career and academia that can synthesize mentoring practices within these two contexts. For the purpose of this research, mentoring is defined as a developmental relationship of guidance, support, and knowledge-sharing between a more experienced mentor and a less experienced mentee. This relationship serves two core functions: career development and psychosocial support (Kram, 1985). Though it may present itself differently, these underlying principles of mentoring are intrinsically shared by both career and academia, thus providing the opportunity for cross-sector mentoring strategies.

A recent article on mentoring as it applies to careers describes a model built on the acronym INFUSE, which lists the characteristics of a mentor that a mentee might consider valuable: from one's INDUSTRY, physically or virtually NEARBY, from one's FIRM, from one's same UNDER-REPRESENTED population, at a SIMILAR position in a career setting, and a mentor who is EMPATHETIC and supportive in personal interactions. The INFUSE model was first introduced by Aron (2024) and has since been adapted by the author as described here. For the purpose of integrating this model into an academic setting, we reconstruct the acronym to be similarly defined for higher education: from one's INSTITUTION, physically NEARBY or accessible, being in one's FIELD, from one's UNIQUE life experiences, from

a SIMILAR position or peer group, and a mentor who projects EMPATHY and support. The literature on mentoring affirms the importance of these characteristics in a mentor. Studies reveal higher GPAs and retention rates for students with mentors within their institution, with an additional positive correlation between GPA and amount of contact in the mentoring relationship (Campbell & Campbell, 1997). This analysis supports the INSTITUTION and NEARBY components of the INFUSE model. Perhaps surprisingly, this same study did not find a correlation between academic achievement or retention and the gender or ethnic match of mentor/mentee. More recent studies have continued to examine the connection between achievement and mentor/mentee similarities with findings that are more nuanced. Perceived similarities, rather than direct demographically defined similarities (e.g., race, gender, etc.), are positive factors in mentoring success and satisfaction (Hernandez et al., 2017). These perceived similarities reinforce the importance of FIELD- or discipline-specific mentor relationships, which are linked to higher levels of psychosocial support and relationship satisfaction (Pedersen et al., 2022). Finally, studies have revealed the critical role of EMPATHY in mentoring relationships for building trust and leading to more meaningful mentoring experiences (Deane et al., 2022).

Similarities in career and academic mentoring clearly exist. Mentoring in both environments often suffers from power imbalances, lack of sufficient mentor training, and gender and racial inequities (Thomas, 2001). By considering academic mentoring within a framework designed for career mentoring, there is an opportunity to address these challenges. Furthermore, it

would benefit academic mentoring to consider its impact on student satisfaction in much the same way mentoring in the workplace is studied for its impact on job satisfaction (Allen et al., 2004). Recognizing transferable practices between mentoring in career and academia may provide additional opportunities to synthesize mentoring techniques that would develop agility in learning (Bridgstock, 2011). Students will gain skills from the academic mentoring experience they can bring with them into their future career, thereby supporting a seamless transition into the workforce.

Literature Review

The benefit of mentoring in career and academic settings is well-established, with similar outcomes impacting career development and student success. In the workplace, mentors act as sounding boards, advocates, and role models for their mentees, helping the mentees take ownership of their career goals, building confidence and helping them navigate professional challenges (Allen et al., 2004). Once a strategy for individual development, mentoring in the workplace has become an embedded systemic practice shown to improve employee satisfaction and performance, which is linked to customer satisfaction and organizational success. As such, mentor programs have become an important lever in the workplace for talent acquisition and retention (Allen et al., 2004). Despite these benefits, many professionals struggle to find and sustain effective mentoring relationships. Formal programs often fall short due to time constraints, lack of training, or poor fit (Allen et al., 2017). As a response, research has shifted toward developmental networks, where multiple mentors offer specialized guidance across roles and contexts (Baugh & Scandura, 1999). This approach diversifies input but also strengthens social capital, the resources and access embedded in one's professional network (Burt, 1992). Developmental networks also align with current theories that emphasize trust, mutual respect, and differentiated support in mentor interactions and underscore the need for mentoring that is self-directed, experiential, and relevant to the needs of the mentee (Knowles, 1980).

In academia, mentoring relationships positively impact student retention, achievement, sense of belonging, and self-efficacy (Crisp & Cruz, 2009). Mentoring in academia follows both formal and informal structures, each offering unique benefits to mentees. Formal mentoring is characterized by deliberate mentor-mentee pairings and follows a predefined framework for interaction. In contrast, informal mentoring arises organically as a self-selected support system (Carmel & Paul, 2015; McKinsey, 2016). Recent studies highlight the value of these less structured, relationship-driven approaches to mentoring, showing that they can still be thoughtful and intentional constructs (Carmel & Paul, 2015). Mentoring in academia can take many forms, including traditional

(hierarchical) mentoring, team mentoring (one mentee with multiple mentors), group mentoring (one mentor with multiple mentees), and peer mentoring. In addition, each of these relationship types benefits from reciprocity in mentoring, where mentors and mentees exhibit shared growth and learning (Allen et al., 1997).

In their 2021 paper, Forrest et al. describe an academic model for mentoring that seeks to blend each of these mentoring approaches, providing students with a web of support to maximize student success. In this model, multiple mentors and multiple mentees form a broad foundational support structure in an integrated form of team, group, and peer mentoring, giving students multiple points of contact for the mentoring relationship. The mentoring web model facilitates mentor/mentee relationships in the form of faculty/student, student/student, and faculty/faculty and is an effective model for mentoring mathematics students with specific positive outcomes for female math students (Forrest et al., 2021). In addition, the mentoring web naturally supports reciprocal mentoring, as it promotes equality in relationship structure and provides opportunity for open and authentic communication.

Model

Students in academia face similar challenges to employees entering a new workplace: feelings of imposter syndrome, lack of understanding of climate and culture, and difficulty in finding and maintaining mentoring relationships (Langford & Clance, 1993). We propose here the conceptual framework of the INFUSE mentoring model, reimagined in a way that adapts successful strategies for mentoring in a career setting into one that serves the same purpose as a mentoring web model of higher education. This research works under the assumption that students, like professionals, have potential mentors within their own network that they can recognize, and harness based on characteristics that support their individual needs (Aron, 2024).

We present the emerging model as an acronym-based framework that outlines its core components. For clarification, we offer three important points related to this model. First, the order of the letters in the acronym, spelling the compelling mnemonic INFUSE, are not intended to be listed by importance or order of acquisition. Second, the categories presented here represent characteristics of the mentoring relationship, not individual mentors; a single mentor might serve in multiple roles described in INFUSE. Finally, adapting this model from a career to an academic setting includes changing the meaning of specific letters in the acronym while maintaining crucial relation types within the holistic mentoring web. We illustrate these points in the acronym INFUSE in the upcoming descriptions, as follows:

I: A mentor from the mentee's institution

In this modified framework, INSTITUTION in higher education provides insight into where mentoring relationships develop in academia, as the institution is a student's natural "universe." In comparison to the original INFUSE model, INSTITUTION is conceptually similar to FIRM. Mentors from a mentee's institution can directly address many of the challenges that mentees face in navigating the climate and culture of a university and understanding both the written and unwritten curriculum. Connecting this category to the mentoring web is seamless, as the web model has been piloted exclusively with mentors from a mentee's institution.

N: A mentor who is physically nearby or easily accessible

The benefits of having an accessible mentor are well-documented in academic research. One of the primary intents of the mentoring web is to increase points of formal as well as spontaneous contact for web participants and, by extension, to support more frequent mentor interactions; studies highlight that frequent and meaningful interactions between mentors and mentees significantly enhance the quality of the relationship and mentee satisfaction (Pedersen et al., 2022). Notably, NEARBY is one of only two categories in the model, along with EMPATHY, that a mentor can intentionally cultivate and develop over time.

F: A mentor from the mentee's field or major

In adapting the INFUSE model for academic mentoring, we replace FIRM with a student's FIELD or major. In comparison to the original INFUSE model, FIELD is conceptually similar to INDUSTRY. In this sense, students may be guided by mentors associated with their given discipline who are not associated with their institution, just as an employee might be guided by somebody in their industry but who works for a different firm. Like INSTITUTION, there is a natural mechanism for finding and maintaining a mentoring relationship based on field of study, offering both support for academic achievement and providing opportunity for professional networking. Mentor availability from within a student's FIELD is essential for the success of the mentoring web, which is most effective when students are presented with multiple options for mentor interactions.

U: A mentor with the same unique life experiences

In translating the category UNREPRESENTED to academia, we choose to describe this category with the more nuanced depiction of having a mentor from the same UNIQUE life experiences. This may include formal, demographically defined similarities like race, ethnicity, gender, religion, and sexual orientation, but may also include underrepresented populations specific to academia like first-generation college students, non-

traditional students, working students, students with children, etc. Advancing the INFUSE model to allow for this broader definition of unrepresented pairings provides deeper connectivity to academia. As with the original INFUSE model, mentors from the same unique life experience can serve as role models for their mentees, an unwritten promise of mentoring, and can help mentees navigate a landscape specific to their unique needs. Such a mentor can also help promote a sense of identity and help counteract feelings of isolation (Deanna et al., 2022). While the web model of mentoring does not directly address this category of INFUSE, it does create the availability for multiple mentors and multiple mentees as a "shopping cart" of choices for mentoring relationships, thus giving mentees the opportunity to gravitate toward those mentors whose life experiences resonate with their own.

S: A mentor in a similar role or peer group

Effective mentoring hinges on mutual understanding and trust, and while this can be achieved in hierarchical relationships, it is more naturally developed when the stakeholders in the relationship are on a more equal footing (Murrell & Onosu, 2023). A mentor in a SIMILAR position or peer group can offer the insight that comes from shared experience, providing practical guidance that mentees can directly apply to the challenges they are facing. Reciprocity in mentoring, a characteristic of mentoring that is firmly supported by current research, is also more naturally achieved between peers. The mentoring web model contributes significantly to this category as it provides a forum for regular mentor/mentor and mentee/mentee interaction in its structure, thereby supporting a peer-based mentoring model.

E: A mentor that demonstrates empathy and support

EMPATHY is a necessary and important characteristic across all mentoring experiences, whether they are career- or academic-based. Empathy builds trust and creates a supportive environment where mentees feel seen and valued. A mentor can project empathy by being an active listener, creating a safe, judgement-free space, and offering consistent support during times of success and setbacks. While empathy is often thought of as an inherent characteristic in an individual, studies have shown that empathy can be taught through practice and reflection (Deane et al., 2022). As a category, EMPATHY, like NEARBY, is not static as mentors can grow and develop this trait over time. EMPATHY enhances communication and empowers students to navigate personal obstacles with greater confidence. The web model was inspired by an empathetic approach to mentoring, providing students with options for mentor interactions.

The INFUSE framework aligns naturally with the mentoring web model of academia. The web

construct, as illustrated by the INFUSE framework, is deliberately student-centered and offers a “shopping cart” approach where mentees can find and sustain those relationships that are most supportive. By categorizing the traits of an impactful mentor, it offers a practical checklist for developing and sustaining successful mentoring experiences. Data collected from student surveys further substantiate the appeal and attractiveness of this approach.

Results

An analysis was conducted to explore the relationship between the mentoring types described in the INFUSE model and student satisfaction in academic settings. The dataset included 131 student responses from surveys at two institutions: a midsize public university in the Northeast and a small private university in the Midwest. An independent-samples t-test revealed no significant difference in institutional satisfaction between the two groups, $t(129) = 0.74$, $p = .461$.

Students were surveyed and asked whether they had experienced each of the six INFUSE mentoring types (YES/NO), and their satisfaction with their institution was measured on a 5-point Likert scale from “Extremely dissatisfied” (1) to “Extremely satisfied” (5). Note here that in the spirit of the modified INFUSE framework, the focus was on the types of mentoring relationships, not the number of individual mentors. One mentor might conceivably represent more than one type of relationship (e.g., NEAR and in the same FIELD). Four of the six mentoring types showed significant, positive correlations with satisfaction:

- Empathetic/supportive mentors (E): $r = .45$, $p < .001$
- Institutionally affiliated mentors (I): $r = .39$, $p < .001$
- Easily accessible mentors (N): $r = .38$, $p < .001$
- Mentors in one’s field or major (F): $r = .24$, $p < .012$

Students who reported more types of mentoring relationships also reported higher satisfaction ($r = .52$, $p < .001$). The sum of all six types correlated with satisfaction ($r = .43$, $p < .001$).

A one-way ANOVA assessed satisfaction by number of mentor types. Results showed a significant effect: $F(4, 84) = p < .001$. Key differences in satisfaction scores emerged between

- 0 vs. 4 mentors: $+0.63$ ($p = .018$)
- 0 vs. 6 mentors: $+0.94$ ($p < .001$)
- 1 vs. 6 mentors: $+1.23$ ($p = .004$)

These results underscore the value of a diverse mentoring network, encompassing the INFUSE dimensions, in supporting greater student institutional satisfaction.

Additional analysis looked at the different combinations of the six mentoring relationship types to determine which network subsets generated higher satisfaction scores. Notably, combinations that include a mentor who offers empathy (E), is from the same institution (I), and

is easily accessible (N) have the strongest positive associations with high institutional satisfaction.

Survey data further elucidates the value that students place on each of the characteristics named in the INFUSE framework. When asked about the individual usefulness of the six categories as traits for a potential mentor, respondents indicated that having a mentor who embodied those characteristics would be either extremely helpful or somewhat helpful with a frequency of 80% or more in each category and a frequency of 93% or more in four of the six categories. This strong consensus highlights the effectiveness of the INFUSE approach.

Discussion

These results reinforce the idea that a network of mentoring relationships plays a critical role in institutional satisfaction. This analysis expands earlier findings that discuss the benefit of having multiple and varied types of mentors and mentoring relationships. Notably, a network that includes mentors who offer empathetic support, are in the same institution, and are easily accessible seems to be particularly important to student satisfaction. This finding, along with the significant gap in satisfaction between students experiencing few or no INFUSE mentor relationships and those with four or more, should prompt institutions to establish mentoring programs that offer mentoring pathways in keeping with the INFUSE framework.

Conclusion

This paper demonstrates the value of synthesizing mentoring frameworks across career and academic settings. By adapting the career-based INFUSE model to higher education and aligning it with the mentoring web model, we introduce a comprehensive, student-centered approach to mentoring that is reinforced by supporting data. Our research, based on preliminary data, suggests that student satisfaction is closely tied to a richer variety of mentoring experiences, with highest satisfaction reported with the trifecta of mentors who offer empathy, are from the same institution, and are easily accessible, physically or virtually. This work further supports the growing body of literature emphasizing the importance of mentoring networks. The INFUSE model offers a practical tool for institutional design or evaluation of mentor programs and promotes intentionality in mentor selection on the part of the student. In this way, academic mentoring roles can evolve to better address the needs of the whole person, supporting students in the present but also equipping them with the skills to thrive in their future careers.

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