Chapter 1: VAMPIRE

*The Power of Collaboration in Science: Paving the Way for Groundbreaking Discoveries and Solutions*

Collaboration is vital for solving complex scientific problems and furthering various political, economic, and social agendas, including democracy, sustainable development, and cultural integration. Collaboration can extend the scope of research projects and foster innovation by providing additional expertise (Sonnenwald 2007). Disis and Slattery (2010) point out that multidisciplinary research teams possess a robust knowledge base and extended networks and are more prone to dynamic, connective thinking, leading to radical innovations. Collaboration also increases scientific reliability and success probability by involving multiple perspectives in verifying results (Sonnenwald 2007). This perspective aligns with the idea that to effectively tackle society's 'wicked problems' and achieve the United Nations' SDGs, academia must promote and support scientific collaboration (Rittel and Webber 1973). Scientific collaboration is defined as a behavior among scientists that involves sharing meaning and completing tasks toward a common, overarching goal, taking place within a social context (Sonnenwald 2007). This rationale also underpins the promotion of collaboration at the university, as it not only advances research quality but also enhances a scientist’s credibility within the scientific community, in line with BSU’s blueprint goal 4, fostering a thriving community (Boise State University 2024).

Hart (2000) underscores the value of collaboration in enhancing the quality of academic work. In their study on collaborative publications by university librarians, Hart found that collaborative efforts often result in higher quality outputs than single-authored works (2000). This phenomenon is attributed to the diverse expertise, mentoring, and intellectual benefits brought together through collaborative efforts, indicating that multi-authored works tend to undergo more rigorous quality control (Hart 2000).

Intradisciplinary collaboration, or unidisciplinary (Okraku et al. 2017) or simply disciplinary, is a form of scientific cooperation where participants from the same field contribute and generate knowledge within their specific domain, as noted by Sonnenwald (2007). Moody (2004) describes research specialties within these collaborations as central clusters of scientists instrumental in generating innovative concepts and ideas. Dalton, Wolff, and Bekker (2021) further define a scientific discipline as a distinct field characterized by unique discourses and practices, akin to a specific language code. This 'language', encompassing methodologies, terminologies, and theoretical frameworks, remains largely exclusive to the discipline, providing its practitioners with a framework for focused scientific progress (Dalton, Wolff, and Bekker 2021).

Interdisciplinary collaborations play a crucial role in addressing global challenges by merging diverse expertise and perspectives, thus enabling a more comprehensive understanding of complex issues. Jana LaRosa, the Assistant Vice President for the DRED at BSU, emphasizes the importance of integrating disciplines (J. LaRosa, personal communication, September 25, 2023). She notes that while disciplinary work is valuable for its incremental contributions to specific fields, interdisciplinary work is essential for tackling broader, society-driven questions that single disciplines cannot address alone. This perspective aligns with the growing trend among federal agencies to prioritize interdisciplinary research in funding decisions (cite this). LaRosa highlights that researchers at BSU must excel in team-based approaches to capitalize on funding opportunities that demand interdisciplinary efforts. She points out the need for authentic collaboration between STEM and social sciences, moving away from superficial integrations towards genuinely co-created and co-developed research questions that synergize both domains. This shift marks a departure from traditional practices where social science elements were often added as afterthoughts to STEM projects; instead, it calls for an equal and integrated partnership from the outset of research initiatives.

Thematic Analysis

Thematic analysis is a complementary technique that sorts concepts and categories (Jonsen and Jehn 2009). It is often used to offset research biases in data interpretation, integrating qualitative and quantitative methods (Jonsen and Jehn 2009). Coding levels are a data reduction process (Jonsen and Jehn 2009). NVIVO facilitates data reduction and coding procedures (Jonsen and Jehn 2009). Concepts are at a higher level (Jonsen and Jehn 2009). Categories are aggregated into fewer second-order concepts (Jonsen and Jehn 2009). Categories stem from the analyst’s insights (Jonsen and Jehn 2009).

Answering the need for a general understanding of interdisciplinary research and how it can be successfully integrated and sustained in academic centers and universities, Glied et al. (2007) employ thematic analysis on extensive notes taken from directors of interdisciplinary research centers focus group working to characterize successful and challenges factors facing their centers and university are facing (Glied et al. 2007). The primary challenges identified include fiscal sustainability, faculty recruitment and retention, and leadership sustainability (Glied et al. 2007). Fiscal sustainability involves continuous external funding, managing indirect costs, and securing resources such as space and administrative support (Glied et al. 2007). Faculty challenges relate to adapting to interdisciplinary environments, satisfying departmental criteria, varying expectations across disciplines, and providing incentives for involvement (Glied et al. 2007). Leadership sustainability encompasses the administrative burden and maintaining continuity despite leadership changes (Glied et al. 2007).

Piqueiras, Stanley, and Laskey (2023) work to uncover and mitigate challenges in team science by employing participant observation, semi-structured interviews, and a focus group method, studying an interdisciplinary team for over six months. They argue that thematic analysis and ethnography can effectively identify and address practical tensions and contextual factors that hinder scientific collaboration (Piqueiras, Stanley, and Laskey 2023). After intensive data collection, the authors used code derived from their literature review and compared the findings across the data sources for validation (Piqueiras, Stanley, and Laskey 2023). The main thematic areas include academic culture, institutional structures, and interpersonal dynamics with disciplinary boundaries, scarcity of time, and trust and accountability nested subthemes in each main theme (Piqueiras, Stanley, and Laskey 2023).

To assist SNAP in answering what collaboration looks like at Boise State University prior to the GCs investments, I seek to describe pre-GCs investment in collaboration and identify barriers to collaborative science in the BSU research culture. Vicken And Many Persons Interview Research Enterprise (VAMPIRE) is a research branch of SNAP tasked with conducting and analyzing informal BSU faculty interviews about collaboration. VAMPIRE asks, “How do faculty define collaboration (thinking beyond proposal application and publication)?” and “What other ways do faculty collaborate?” Using focus groups and semi-structured interviews, faculty responses are analyzed ethnographically. The results of this research are reported in chapter one of this thesis. Using ethnography, I aim to set the groundwork for future longitudinal analysis by examining BSU faculty’s current attitudes towards and activities doing collaborative creative work.

Employing thematic analysis, I probe the structural and cultural facets of the BSU research community. My methodology, integrating focus groups and semi-structured interviews, seeks to build a comprehensive, multi-faceted dataset, enriching my analysis of faculty collaboration dynamics at BSU. The amalgamation of SNA and thematic analysis serves to visualize collaboration trends and identify meaningful research teams marrying quantitative network descriptions with qualitative contextual insights.

Methods:

*Focus Groups*

In 2020, the initial data collection phase commenced with faculty focus groups. These groups, formed through self-selection via a "Funding Blast" emailer, were tasked with discussing research communication and the inherent challenges of collaborative endeavors (J. LaRosa, personal communication, September 25, 2023). Facilitators Jana LaRosa and Nancy Glenn led these discussions, which were later systematically categorized into nine distinct themes using NVIVO's auto-coding feature (J. LaRosa, personal communication, September 25, 2023). Twenty five emergent themes ranged from the identity of collaborators (“faculty”, “students”, “relationships”) to the modalities and motivations of collaboration ("skills,” “opportunities,” "funding”, “professional development”), the frequency of interaction ("team communication"), and the logistical and interpersonal challenges encountered ("Connecting with Others," "Envisioning Collaboration Opportunities," "Funding," and "Time"). I then used the “Roll-up” auto-code process, which uses the emergent themes to reduce the thematic areas further. This resulted in the five themes: “Communication,” “Culture,” “Disciplinary,” “Institution,” and “Teaming Advice.”

These thematic insights are then aligned with the primary codes derived from Piqueiras et al. (2023): Academic Culture, Institutional Structures, and Interpersonal Dynamics, thus offering a refined lens through which to view the faculty's collaborative experiences.

*Semi-Structured Interview*

Semi-structured interviews were conducted via Zoom between November 2022 and January 2023. The SNAP team meticulously developed the interview script, which spanned various collaborative aspects, from subjective feelings of closeness to collaborators to structural barriers and enablers. Five survey interviewees were selected from the Biology, Psychology, and Anthropology departments due to my existing acquaintanceships. These interviews were transcribed and manually analyzed using NVIVO, following a similar thematic classification as the focus groups, thus ensuring a cohesive and comprehensive analysis across both data collection methods.

Analysis:

*Academic Culture*

Academic culture, with its complex web of entrenched norms and subtle resistance to change, plays a critical role in shaping the landscape of collaborative research. Within this culture, various dimensions emerge, reflecting the multifaceted nature of academic work and the challenges it presents. From the recognition of collaborative achievements and the dynamics of faculty support to the pursuit of novel approaches and the omnipresent pressure of time constraints, academic culture is a tapestry of interactions, expectations, and practices. This section delves into these aspects, untangling how academic culture influences, constrains, and catalyzes the collaborative spirit in research endeavors.

Achievements and Acknowledgements

The concept of collaboration in academia, particularly through co-authorship on manuscripts or joint principal investigator roles on grants, is a significant marker of completed creative work and is deeply entrenched in academic culture. This is exemplified in the observation, "To me, it means to be a co-author on a manuscript or a co-PI in a grant," highlighting the formal recognition of shared effort and responsibility in research endeavors. However, a nuanced challenge emerges within this context: the potential overshadowing of collaborative efforts by individual achievements. Faculty narratives, such as "not once did anything ever come from that in terms of publication" and "the outcome is not always as beneficial as we hope," reveal a cultural tension where the value of collaborative endeavors may be undermined if they do not culminate in conventional academic outputs like publications. This tendency to prioritize individual accomplishments over collective efforts poses a critical challenge to collaborative research ethos.

The vulnerability of junior faculty in collaborative projects is particularly noteworthy. They are often more open to engaging in collaborative projects driven by energy and the need to develop diverse research portfolios. However, they face heightened risks, as the sentiment illustrates, "contracts don’t reflect a jr. faculty doing robust research." This statement underscores institutional barriers that can hinder effective collaboration, pointing to a gap in the support structures for early-career researchers. Such barriers impede collaboration and affect the career trajectory and development of junior faculty. In contrast, senior faculty and more experienced researchers are pivotal in shaping the collaborative landscape. As Allison Simler-Williamson's experiences suggest, mentorship from seasoned academics provides invaluable guidance and support to less experienced colleagues, fostering an environment of professional growth and development. This mentorship is a cornerstone of academic culture, facilitating knowledge transfer and nurturing research skills among emerging scholars.

Faculty Support and Departmental Dynamics

The role of departmental leadership and culture in fostering or impeding collaboration emerges as a central theme in academic settings. Faculty anecdotes reveal how shifts in departmental chairmanship can significantly alter the research environment. For instance, one faculty member noted the profound impact of leadership changes on the culture of support and encouragement for research, highlighting the pivotal role of departmental heads in cultivating a conducive atmosphere for collaboration. This underscores the intricate balance between maintaining individual research autonomy and embracing collaborative efforts. Statements like "In the department of psychological science, research, and creative activity are largely autonomous" contrast starkly with reflections on the value of collaborative work, displaying a prevalent culture of individual research efforts in some academic settings.

This theme resonates deeply when considering opportunities for collaboration, particularly in departments where solo endeavors are the norm. It points to the necessity of balancing individual research autonomy with collaborative initiatives. The significance of institutional support in facilitating collaboration is underscored by remarks such as "The department has been supportive with all collaboration" and "They are vital in helping me create space to meet deadlines." Such comments illustrate how variations in leadership and departmental culture can profoundly influence the extent and effectiveness of collaborative efforts among faculty. Departmental policies and practices, as outlined by Okraku et al. (2017), play a formative role in shaping the scientific community's landscape, encompassing aspects like federal programs, funding opportunities, hiring practices, resource allocation, and graduate training.

Interpersonal dynamics within collaborations also reveal interesting patterns. As noted by all interviewees, faculty engage in collaborations not only within their departments but also with external professionals and community partners. These relationships, characterized by mutual respect and shared research interests, vary in closeness and formality. However, challenges arise in interdisciplinary collaborations, particularly in communication across different disciplines. Faculty express concerns about the "Lack of exposure to other disciplines" and the difficulties posed by "No shared language." These issues highlight the necessity for effective communication strategies, such as the ability to "code switch in these environments" and "write for your audience" to bridge disciplinary divides. The need for adaptable communication styles is thus emphasized as a crucial component for successful collaborative work, as it facilitates the integration of diverse perspectives and the smooth flow of ideas.

Embracing Novel Approaches

The process of venturing into new intellectual territories and the challenges of finding common ground across disciplines is a recurring theme in the pursuit of collaboration opportunities. Faculty members describe this journey with statements like, "You are always moving into new intellectual areas gradually," capturing the essence of academic exploration and the gradual shift toward interdisciplinary work. However, this endeavor is not without its challenges, as indicated by the observation, "I do not see many opportunities where the overlap exists." Such comments reflect a keen awareness of the difficulties in identifying and developing interdisciplinary collaborations, highlighting a need for more structured opportunities to foster these connections.

Beyond the box of traditional research, the integration of research with teaching and public engagement emerges as a significant collaborative avenue. Faculty members advocate for a broader conception of academic productivity, as evidenced by sentiments like "Don’t treat research as a single theme - integrate more with teaching" and "Broaden what we think of as research, plus public outreach and engagement." These perspectives underscore the potential for collaborative efforts that extend beyond conventional research boundaries, encompassing teaching and community involvement. This approach is not merely a suggestion but a call to action, challenging the status quo of academic work.

Integrating teaching, research, and service activities is further illuminated by references such as "Collaborate with our classes and artwork" and "Integration of teaching and service is important." These insights reveal a holistic perspective on faculty roles, where the silos of teaching, research, and service are not only interconnected but also mutually reinforcing. This integrative approach is essential in cultivating a more comprehensive and multi-dimensional academic culture that values and promotes a wide range of scholarly activities. It speaks to a dynamic understanding of academia, where the traditional boundaries of research, teaching, and service are reimagined to create a more fluid and interconnected scholarly practice.

Limited Time

In academic culture, the perception of time and its constraints plays a pivotal role in shaping faculty experiences and priorities. This is vividly reflected in numerous observations from faculty, such as "Time is the biggest challenge" and "Don’t have enough workload to focus on research." These comments underscore a pervasive sentiment of time scarcity, which goes beyond mere institutional structures to the very heart of academic culture. It points to an ingrained belief within the academic community that there is always a deficit of time, fueling a sense of constant urgency. This cultural perspective on time highlights the ongoing struggle of faculty members to juggle their diverse roles in teaching, research, and administrative duties. Rather than being solely a product of institutional demands, this tension is deeply embedded in the academic mindset, shaping how faculty perceive and manage their time.

In summary, academic culture is a potent force that shapes the contours of collaborative research in profound ways. It manifests in the quest for achievements and acknowledgments, where the balance between individual and collective successes is delicately negotiated. Faculty support and departmental dynamics further color this landscape, illustrating how leadership styles and departmental ethos can significantly impact collaborative endeavors. Embracing novel research, teaching, and public engagement approaches reflects a growing trend toward interdisciplinary and integrative practices, challenging the traditional confines of academic roles. Meanwhile, the pervasive issue of limited time underlines a cultural norm of constant urgency and the struggle to juggle diverse academic responsibilities.

The next section, "Institutional Structures," highlights that these cultural themes are inextricably linked to the broader institutional context. Here, I will explore how the structures and policies at BSU further influence and shape the practice of collaborative research.

*Institutional Structures*

This section explores the multifaceted role these structures play in facilitating or hindering the collaborative process within academic settings. I delve into the crucial aspects of resources, infrastructures, and policies that shape the terrain of academic collaboration. Emphasis is placed on the pivotal role of administrators, as highlighted by Allison Simler-Williamson, in providing essential support and navigating the complex bureaucracy inherent in academic departments. I will examine the infrastructure support necessary for fostering a collaborative environment, the intricate balance of workload policies that influence faculty’s ability to engage in research, the nuanced mechanisms of funding structures that drive collaborative initiatives, and the vital role of integrating students into the collaborative framework. Each of these components reveals a different facet of how institutional constructs can either support or constrain the collaborative efforts of faculty and students in academia.

Infrastructure Support

Faculty voices echo the sentiment that institutions must develop a deeper understanding and robust support for interdisciplinary research. Phrases such as "University needs to understand what it means for faculty to do interdisciplinary research" and "Make sure the university supports interdisciplinary work" underline the necessity for institutional awareness and explicit support. This perspective points to a gap in current institutional structures – a gap that, if bridged, could significantly enhance the efficacy and productivity of collaborative research endeavors. The emphasis on interdisciplinary work also reveals a broader institutional challenge: adapting and evolving to accommodate and nurture diverse research methodologies and partnerships.

The necessity for physical and strategic infrastructures that promote collaborative research is repeatedly emphasized in faculty discussions. Statements like "creating opportunity and space for the human connection" and calls for a "central repository for seminars" highlight a significant institutional need. These references underscore the critical importance of designing physical and virtual spaces that encourage interaction, idea exchange, and the nurturing of collaborative relationships among faculty members. Such infrastructures are more than mere conveniences; they are essential frameworks supporting collaborative work's complex dynamics.

An additional layer of complexity emerges when considering faculty responsibilities and integrating new initiatives. Comments like "It feels like an extra layer of work to do on top of my work" reflect the tension between existing duties and additional collaborative projects. This sentiment illustrates faculty's ongoing struggle to balance their workload, often exacerbated by institutional expectations. Moreover, the discussion on the need for tenure and promotion policy changes to honor diverse skills demonstrates the structural barriers to interdisciplinary research. These policies often dictate faculty priorities and can inadvertently hinder the pursuit of innovative, collaborative projects.

Incentives, both monetary and in terms of recognition, are cited as crucial motivators for collaborative efforts. Faculty reference the importance of tangible rewards, such as being included in grants or receiving time allocations, to justify their engagement in collaborative projects. These incentives are essential elements that validate and encourage the investment of time and effort in collaborative work. They also serve as recognition of the value and impact of such efforts within the academic community.

Workload Policy

The intersection of faculty workload policies and research collaboration forms a complex and often challenging aspect of institutional structures. Faculty narratives, laden with references like "Conflicted with existing workload policy" and "No way to reimagine the contract - workload," lay bare the direct impact of university workload guidelines on the allocation of time for research and collaborative efforts. These policies, deeply embedded within institutional frameworks, often dictate the distribution of faculty time, significantly influencing their capacity to engage in research activities.

The conundrum of effectively managing and prioritizing time amidst diverse responsibilities is palpably felt in the academic community. Statements such as "figuring out what fits, and it adds one more thing to the plate" and the evocative "Hard rule of 3:3 in the COED -- teaching is getting cranked up!" reflect the intricate juggling act faculty must perform. The “3:3” rule, a stringent requirement of teaching three classes per semester, epitomizes the substantial teaching responsibilities that can overshadow research endeavors. This scenario underscores a key challenge: balancing the demanding roles of teaching, administration, and research.

The impact of workload allocation on faculty's ability to immerse themselves in innovative research and collaboration cannot be overstated. Phrases such as "We don’t account for the time to do team science" and "Need free time to be innovative and work through a problem…" highlight an institutional blind spot regarding the time necessary for collaborative and creative research pursuits. These statements call for a reevaluation of workload policies to accommodate the time-intensive nature of collaborative research. The essential question is whether institutions can adapt their workload structures to foster an environment where research and collaboration are not just encouraged but practically feasible.

The narrative also brings to light the need for structural support mechanisms to facilitate dedicated research time. Suggestions like "Could there be mini-sabbaticals to create time for faculty?" and "Clear guidelines about time off and course buyouts that apply across campus" propose innovative solutions to the time dilemma. These ideas signify the need for institutional initiatives such as sabbaticals or course buyouts, which can provide faculty with the much-needed respite to focus on research. Such measures are not merely conveniences but essential components of a supportive academic environment that recognizes and values the importance of research and collaboration.

Funding Structures

In the landscape of academic research, funding mechanisms like the "Cobrea grant" and the "One-Health initiative" serve as key drivers for interdisciplinary collaboration. These initiatives, often requiring collaborative efforts across various disciplines, illustrate how funding structures can catalyze interdisciplinary research. However, securing funding in such contexts is fraught with challenges, as encapsulated in the struggle of "Finding funding and collaborators who get it" within "small and interdisciplinary spaces." This predicament underscores a critical gap in traditional funding models, which may not adequately accommodate the nuanced needs of interdisciplinary projects. The struggle to find appropriate funding sources and collaborators who appreciate the interdisciplinary nature of the work highlights an urgent need for more adaptable and inclusive funding mechanisms that can embrace the complexity of interdisciplinary research.

The control exerted by university administrators over funding resources is a pivotal theme. Statements like "The administrators also hold the purse" and "They hold the keys to that kind of thing" underscore the significant influence of administrative policies and decisions on research funding. This theme highlights the often underappreciated role of administrative structures in shaping the research agenda, directing the flow of funds, and influencing the course of academic inquiry.

Seed grants emerge as a vital component in the funding landscape, serving as crucial initial support for collaborative and experimental research projects. References to "Scaling opportunities to collaborate - seed grants" underscore the role of these grants in laying the groundwork for more extensive research endeavors. Such funding opportunities are essential, especially for interdisciplinary projects that might not fit neatly into established funding categories. The need for financial structures that support experimental and interdisciplinary research is further echoed in statements like "How to fund faculty research that is mindful of engaging students in the classroom and have cross-disciplinary conversations." These remarks reflect a call for more flexible funding models that can nurture innovative research approaches. The repeated emphasis on the importance of seed grants and funding for pilot studies, as seen in "Under resources - need small pots of money to make space for thought" and "Investment in pilot studies - to develop a track record," highlights the critical role of initial, modest financial support in catalyzing larger, more comprehensive research projects.

Student Collaborators

An essential yet complex facet of academic collaboration is the active involvement of students, particularly undergraduates, in research projects. This dimension of collaboration, as exemplified by the experiences of Cindy McCrea and Matthew Genuchi, underscores the pivotal role of mentorship in enriching students' educational journey. These collaborations offer students invaluable hands-on experience in research, contributing significantly to their learning and professional development.

The mentorship of undergraduates in research projects extends beyond conventional teaching paradigms, offering a dynamic and immersive learning experience. Such mentor-student collaborations serve a dual purpose: they provide students with critical research skills and exposure while simultaneously enriching the research capacity and innovation within the academic community. This interaction is a testament to the symbiotic relationship between teaching and research in academia, where each enriches the other.

Despite the apparent benefits, incorporating students into research collaborations is not without its challenges. Statements like "I want to recruit students for a longer period like graduate students." and references to "graduate student access/barriers/silos" underscore the structural difficulties faced in this endeavor. Training and supervising student researchers often requires significant time and resources, and retaining these students through the completion of projects can be a formidable task. These challenges highlight a broader institutional issue: the need for more streamlined and supportive mechanisms to facilitate the involvement of students in research.

The barriers to effective student integration in research often manifest as departmental silos, restrictive academic policies, and limited resources. These structural obstacles can impede the fluid movement and collaboration of faculty and students across various disciplines. Overcoming these barriers requires a concerted effort to create more flexible and accommodating institutional structures. This includes rethinking departmental boundaries, revising policies to facilitate cross-disciplinary student engagement, and allocating resources to support student involvement in research.

In conclusion, "Institutional Structures" reveals a landscape where collaboration is deeply intertwined with the frameworks and policies of academic institutions. The narratives from faculty members underscore the need for supportive infrastructures that encourage interdisciplinary work, flexible workload policies that accommodate research endeavors, funding mechanisms that cater to diverse and innovative projects, and the seamless integration of students into research collaborations. These structural elements are not just facilitative backdrops but active players in shaping the success and dynamics of collaborative research. The insights gained set the stage for my next focus: "Interpersonal Dynamics." This final primary theme will delve into the human element of collaboration, exploring how personal relationships, communication styles, and individual motivations influence and are influenced by the collaborative process. As I transition to this theme, I carry forward the understanding that academic culture and institutional structures provide the frame upon which interpersonal interactions in academic collaboration are experienced.

*Interpersonal Dynamics*

Grounded in the experiences and insights of faculty members like Allison Simler-Williamson, Cindy McCrea, and Juliette Tinker, my analysis delves into the nuances of trust, respect, role clarity, mutual interests, and the balancing act of managing time demands. These dynamics paint a vivid picture of the interpersonal landscape in academic collaborations, highlighting the importance of understanding and navigating these relationships skillfully. From the initial stages of forming a collaboration based on shared interests and respect to the ongoing management of roles and expectations, these dynamics shape the course and outcome of academic partnerships. The diversity of communication styles, the evolution of relationships over time, and the challenges of aligning individual and collective goals are all integral to understanding the interpersonal fabric of academic collaboration.  
Trust and Respect

Trust and mutual respect shape collaborative relationships within academia. The process of selecting collaborators is often deliberate and strategic, guided by shared research interests and a recognition of excellence in specific areas. This is reflected in the experiences of Cindy McCrea and Shelly Volsche, who underscore the importance of aligning with colleagues and students who possess exceptional skills or knowledge that complement their research endeavors. This selective approach aims to forge productive and synergistic teams, emphasizing the significance of intellectual compatibility and expertise in the collaborative process.

However, establishing and maintaining trust and reliability in these relationships are not without challenges. Statements such as "you have to trust that the person is going to do what they say they are going to do" highlight the inherent uncertainty and risk in collaborative ventures. The ability to rely on a collaborator's commitment and follow-through becomes a critical factor in determining the success and viability of joint projects. Concerns about integrating collaboration within one's research program further compound these challenges, pointing to the delicate balance of trust needed to navigate these partnerships.

The emphasis on trust is complemented by the necessity of collegiality and respect in successful collaborations. The sentiment "If they have the right expertise but are awful as a person, then I won't try to collaborate with them" encapsulates the importance of respectful and professional interpersonal interactions. This underscores that expertise alone is insufficient; the quality of interpersonal dynamics plays a crucial role in the sustainability of collaborations.

Collaborative relationships, as they unfold over time, often exhibit a dynamic evolution. Allison Simler-Williamson's description of her collaborative journey, transitioning from mentorship to more balanced partnerships, exemplifies the fluid nature of these relationships. This evolution is reflective of the developmental trajectory in academic careers, where roles and contributions adapt as projects progress and individuals gain experience and insight.

The essence of collaboration in academia is also characterized by a blend of professional courtesy and reciprocal benefit. Juliette Tinker’s interactions with collaborators like Mark McGuire and Rich Beard illustrate a dynamic where professional respect is intertwined with mutual benefit. These relationships are anchored in shared interests and expertise, often culminating in co-authorship on papers and joint grant applications. The notion of reciprocity is central to these dynamics, as evidenced in the exchange of resources, expertise, and recognition, enriching the collaborative experience. Tinker’s collaboration with the University of Idaho's dairy farm is a prime example, where access to specialized resources and expertise was pivotal. Such inter-institutional collaborations underscore the necessity of diverse skills and resources for advancing research, emphasizing the collective strength derived from varied expertise. Interpersonal dynamics in academic collaborations are not limited to active research roles but also encompass supportive functions. Tinker's reference to Denny Stevens, primarily involved in providing letters of support, illuminates a collaborative role centered around professional endorsement rather than direct research engagement. These supportive roles are integral to the academic ecosystem, where peer validation can significantly influence the trajectory of research initiatives and grant applications.

Role Clarity, Expectations, and Autonomy

The interplay of role clarity, expectations, and autonomy emerges as a pivotal theme in interpersonal dynamics. The diversity in modes and frequency of communication among collaborators is a key aspect of academic collaborations. The experiences of Tinker and Genuchi illustrate a spectrum of communication styles, ranging from frequent emails and phone calls to more sporadic face-to-face interactions at conferences. Such variations reflect the flexibility inherent in academic partnerships, where communication strategies are often tailored to suit the project's needs and the geographical distances between collaborators. This flexibility in communication is crucial in maintaining the fluidity and continuity of collaborative work, allowing for timely exchanges of ideas and feedback despite physical separations.

Academic collaborations manifest in formal and informal arrangements, each with distinct dynamics and implications. As seen in mentor-mentee relationships exemplified by Cindy McCrea, formal collaborations are characterized by well-defined roles and responsibilities. These structured interactions are essential for clarity and efficiency, particularly in guiding and nurturing the development of students in research settings. On the other hand, informal collaborations, such as the collegial interactions described by Allison Simler-Williamson, involve less structured engagements like tracking each other's work and exchanging feedback. These informal exchanges, while less regimented, play a vital role in creating a supportive and intellectually stimulating environment. Formal and informal collaborations contribute significantly to the richness and diversity of academic research culture, offering varying degrees of structure and flexibility.

A recurring challenge in academic collaborations is balancing individual autonomy with collective efforts. This balance is often fraught with complexities, as illustrated in references discussing work distribution and setting expectations. The delicate interplay between maintaining independence in research pursuits and engaging in cooperative efforts is a nuanced aspect of academic collaborations. Conflicts may arise from unclear roles and expectations, potentially leading to inefficiencies and strained relationships. To navigate this landscape, collaborators must establish clear communication channels, agree upon roles, and set realistic expectations from the outset.

The essence of collaboration in academia often lies in the joint execution of research activities. Statements like "developing research protocols, collecting data, analyzing data, and writing that up" and "participating in all components of the research process" highlight the collaborative nature of the research journey. In these shared endeavors, individuals bring their unique expertise and perspectives, collaborating across various project stages – from conceptualization to dissemination. This theme is integral to academic culture, underscoring the collective effort and interdisciplinary approach that characterize much of academic research. The involvement of diverse talents and skills in these activities enriches the research output and fosters a sense of shared purpose and achievement among collaborators.

Mutual Interests

The genesis of many academic collaborations often lies in the convergence of shared research interests and goals. Juliette Tinker’s collaboration with Mark McGuire is a case in point, where mutual interests in dairy research and the availability of unique resources at the University of Idaho served as the foundation for their partnership. These shared interests go beyond mere professional convenience; they are pivotal in advancing specialized research areas, especially where specific expertise or resources are scarce. Such collaborations not only fulfill immediate research needs but also contribute significantly to the broader field of study by pooling together specialized skills and resources.

The selection of collaborators often hinges on the unique skills and expertise they bring to the table, complementing those of the lead researcher. The focus group discussions highlight the strategic composition of research teams, emphasizing the value of diverse skill sets. Statements about the need for individuals with methodological knowledge or different skills illustrate the importance of creating multidisciplinary teams. As Allison Simler-Williamson notes, such collaborations are often "greater than the sum of the parts," signifying the enhanced value derived from integrating varied perspectives and knowledge bases. This diversity not only broadens the scope of research possibilities but also deepens the intellectual richness of the project, enabling a more comprehensive exploration of research questions.

Time Demands

The inherent nature of collaborative work often entails more significant time investments compared to solitary endeavors. Faculty reflections, such as "Time - group work takes more time" and "Just adding another meeting to our schedule is just daunting," underscore this reality. Such statements highlight the additional time and effort required for group coordination, discussions, and consensus-building, which are integral to collaborative projects but can also intensify the workload. This aspect is crucial in understanding the interpersonal dynamics of academic collaborations, where the efficiency and effectiveness of teamwork hinge on the ability to manage these increased time demands effectively.

The juxtaposition of individual autonomy in research with the collective responsibilities of teamwork presents a unique challenge in collaborative environments. Comments like "There is beauty to more independent work, which is that you have your own timelines" encapsulate the freedom and flexibility often associated with solo research endeavors. However, this autonomy can be at odds with the structured timelines and shared accountability that characterize team projects. This tension reflects a significant aspect of interpersonal dynamics within academic collaborations, where individuals must negotiate their independent work preferences with the demands and expectations of the group.

The time demands theme emphasizes the importance of understanding that time constraints and external pressures vary among collaborators. Statements such as "Understanding what other faculty pressures are in different programs" and "People shouldn’t feel guilty about taking time to meet others" highlight the need for empathy and consideration toward colleagues' schedules and commitments. This respect for each other's time and workload is a pivotal aspect of interpersonal dynamics in collaborative work. It involves recognizing and accommodating the diverse responsibilities and constraints that each team member brings to the table, ensuring a collaborative atmosphere that is both productive and respectful of individual circumstances.

In concluding my analysis of academic culture, institutional structures, and interpersonal dynamics, I reflect on how these elements intertwine to shape the landscape of academic collaboration. My exploration of these themes has revealed a complex interplay between cultural norms, structural supports, and the intricacies of human interaction within the academic realm.

The academic culture, emphasizing achievements and faculty support, sets the stage for collaboration, often dictating its pace and direction. Institutional structures, including the pivotal role of infrastructure support, funding, and policies on workload and student involvement, either bolster or hinder collaborative efforts. These structures often serve as the framework within which collaborations must operate, setting the boundaries and providing the necessary resources.

Meanwhile, interpersonal dynamics, characterized by varying degrees of trust, respect, role clarity, and mutual interests, are the lifeblood of collaborative endeavors. My discussions with faculty members like Allison Simler-Williamson, Cindy McCrea, and Juliette Tinker have illuminated the subtleties of these relationships. These dynamics are not merely supporting elements but are crucial in determining the success and longevity of collaborations. As I move from this analytical exploration to the discussion section of my thesis, I aim to delve deeper into how these themes interact and influence each other. I will explore the implications of this interplay for the trajectories of research projects, the outcomes they yield, and the broader understanding of academic collaboration. This transition marks a shift from examining the constituent parts to understanding the whole, considering how academic culture, institutional structures, and interpersonal dynamics collectively shape the landscape of academic research.

*Further Research*

Continuing (repeating) thematic analysis and ethnographic methodology will help SNAP understand the reasons for the network topological changes. It would be beneficial to interview the GCs team leads or even all team members to enhance the interpretations of the analysis of the social networks.