**Pre-professional Development Through Student Employment**

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SOAN 371: Foundations of Social Science Research – Quantitative Methods

St. Olaf College

**Executive Summary**

In the fall of 2021, the Sociology/Anthropology 371 students conducted research on student work-study at St Olaf College. We sent an anonymous online survey to 2,249 student workers and received 557 responses, a 24.8% response rate.

Prior studies have found that college student campus employment is related to skill development and job satisfaction, pre-professional training, impacts on stress and academics, and the topic of our team’s research, pre-professional development skills.

Our research focuses on three main questions:

1. *What pre-professional development skills are students gaining through their work-study employment?*
2. *In what ways are supervisors helping students gain professional development skills?*
3. *How does St Olaf’s GROW program help prepare students for future employment?*

The most important results of our research are:

1. Students who have participated in the GROW program reported higher rates of skill gain and preparedness for post-graduate goals. Of the students who have participated in GROW, 42.6% reported that it prepared them for real-world employment to a *great extent.*
2. Many students reported low supervisor support for their professional development, as measured in our supervisor and development index. 40.2% of respondents reported that their supervisors never have individual meetings about professional development with them.
3. Students in jobs related to student services tend to have higher gains in NACE skills, whereas food service student workers tend to have the lowest NACE skill gains.

Based on our research results, we offer three recommendations to enhance the pre-professional training of student workers at St. Olaf College:

1. Invest in training supervisors to increase their support for students’ professional development.

* Train supervisors to hold more individual meetings with students, hold more career-oriented meetings between student workers and the Piper Center, and disseminate specific information on transferable skills to student workers.

1. Expand GROW in student employment.

* Implement GROW in more job areas so more students benefit from the program.

1. Provide students working in food service with more opportunities to gain skills.

* Implement a resume-building workshop for food service students, and provide new and creative job tasks that increase their skills.

**Background and Literature**

*Introduction of Federal Work-Study*

The main goal of college is to better prepare students to be in a workplace environment and give them the skills necessary to succeed. Students can gain different ways of learning as well as work experience through a well-rounded college experience. A student’s job is both a way to earn money and also an opportunity to gain experience and skills. Colleges strive to help students gain professional development skills that they can use in their future careers and other aspects of life. Although work-study jobs can provide students with pre-professional experiences, there are many ways that jobs can make it difficult for students to gain skills. These opportunities and difficulties depend in part on a student’s specific job, which can vary and change due to many different factors. Being prepared for the workplace is important, and work-study jobs can help prepare students for successful future careers.

Federal Work-Study (FWS), a financial aid program created in 1964 as a part of the Equal Opportunity Act, was created to make higher education more accessible for people in low-income communities. The FWS program aims to create a ‘bridge’ between students’ education and the real world, in which supervisors help students gain knowledge about work in a real-life situations. The FWS program is key to funding many student jobs on college campuses. It has “...provided institutions with funds to subsidize up to 75 percent of eligible students’ wages (with institutions funding the remainder), encouraging them to employ students in part-time, educationally-relevant jobs that assist students’ trajectories in the economy after graduation” (Scott-Clayton). Real-life experiences in a job setting enable students to gain crucial pre-professional development skills which help position them for their future careers.

The scholarly literature surrounding the Federal Work-Study (FWS) program has generally focused on a wide variety of topics within FWS. In recent years, professional development in an FWS position has been studied by researchers such as Alberto De Anda (2018), Akos et al. (2020), Flinkman and Wilson (2020), Salazar (2019), Hansen and Hoag (2018), and Baxa (2017). According to Akos et al., this area of study lacks substantial research.

However, the impact and effectiveness of FWS have changed over time. Although the program helps students prepare for their future careers, it only covers “16 percent of today’s average public tuition and fees,” instead of the previous 90% that was covered in the 1970s (Scott-Clayton and Yang 2017). This is primarily due to college tuition skyrocketing especially since the amount of money a student receives varies greatly with whether a student goes to a public or a private school. As Scott-Clayton and Yang (2017) note, “a *high-income* student at a private four-year college is more likely to receive FWS than a *low-income* student at a public four-year college,” due to many factors including how much FWS money a college receives for work-study. Nonetheless, the FWS program helps students afford academic experiences, provides access to jobs, and promotes the development of professional skills in students' academics, potentially positioning them for success in the workplace.

*Transferable Skills Within a College Setting*

Professional development refers to specific transferable skills. One list of skills is, The National Association of Colleges and Employers (NACE) NACE Competencies. As Akos et al. (2020) explain, the NACE Competencies are skills that students may develop through work-study, including professionalism and work ethic, critical thinking and problem-solving, oral communication, written communication, teamwork and collaboration, leadership, digital technology, career management, and the ability to promote equity and inclusion. Akos et al. studied the NACE Competencies through a questionnaire with both forced-choice and open-ended questions in which students reported “competency development gains” (Akos et al. 2020).

Understanding the acquisition of transferable skills benefits from a system for measuring these skills in research. The NACE Competencies provide an easy foundation for this, as they include desirable skills and areas for student improvement. Because liberal arts schools tend to focus on well-rounded education as a whole instead of on specific career-related skills, it may be especially important for them to articulate and promote career-related transferable skills. Clear standards for skills such as the NACE Competencies are crucial for tracking students’ skill development and providing broad pre-professional development. The eight NACE Competencies were created based on research with over 36,000 student employees. The NACE Competencies are said to comprise "the attainment and demonstration of requisite competencies that broadly prepare college graduates for a successful transition into the workplace" (Akos et al. 2020). These competencies focus on non-academic skills that are not usually learned in a classroom setting.

*Measurement of Professional Development Skills*

Taking a different approach, Flinkman and Wilson (2020) created a program through the University of Missouri-Kansas City called PRO Roos (Professional Readiness Opportunities for Roos; Roos is the name of the university’s mascot) to encourage work-study students to develop their transferable skills as well as to train supervisors to measure professional development and provide feedback for students. PRO Roos utilizes a multi-step training and supervisor mentoring program to help work-study students reflect on and further develop their professional skills.

To create this program, the University of Missouri-Kanas City’s team of student success personnel, financial aid directors, etc. identified three areas of focus for their Learning Management System: (1) creating a campus-wide, high-quality customer service culture, (2) nurturing the development of students’ professional skills, and (3) training and supporting supervisors in mentoring students. PRO Roos was created to foster student skills such as customer service, professionalism, communication, collaboration, project management, and leadership. To reach the goals of each student gaining these skills, the program identified three levels of progressive professional skills: customer service foundations, stewardship, and leadership. These levels were designed broadly enough to be reached through any federal student work (FWS) program.

Related to the PRO Roos program, a 2017 study at the University of Hawaii at Manoa (UHM) found that leadership is the most commonly learned skill through FWS programs at their university and the most valuable career skill identified by their alumni (Flinkman and Wilson 2020). Other work skills gained through FWS at UHM included ‘soft’ skills such as developing confidence, communication skills, learning the value of teamwork and maintaining relationships, and complex thinking. UHM fosters these skill gains through monthly one-on-one interviews between supervisors and FWS employees. The University of Missouri-Kansas City and the University of Hawaii at Manoa both focus heavily on leadership goals when building students’ professional skills while still focusing on many other ‘soft’ skills, such as oral and written communication, through the help of supervisors.

Work supervisors often have a mentoring role in students’ FWS jobs, and they are often tasked with promoting and measuring professional development (Salazar 2019). The frequency of contact between student and supervisor puts the supervisor in an important position to provide feedback and to assign professionally relevant work to students. Supervisors who are intentional about working with students on their professional development often do this through individual meetings (Salazar 2019). Hansen and Hoag (2018) emphasize the importance of supervisors in promoting and measuring professional development through Iowa GROW (Guided Reflection on Work). In this work-study program created by the University of Iowa, supervisors have frequent individual conversations with their employees to assess their professional and academic development through their work-study positions. Through programs like Iowa GROW, supervisors are encouraged to help students gain more skills through their work-study job. This is similar to PRO Roos in terms of the goal of helping students understand the pre-professional development skills they’re gaining from their FWS job. St. Olaf College is currently (2021) piloting a program based on Iowa Grow.

*The Role of Supervisors in Professional Development*

Professional development grows not only from a person's job tasks, but also through a person's experiences with their supervisors. Studies have found that if a student has a supportive and communicative relationship with their supervisor, the job is more likely to serve as a High Impact Practice (HIP), meaning students are able to take full advantage of what they could gain from the experience. In “*The Skills You’re Developing, They Don’t Go Away,”* Amanda Salazar (2019) identifies two different ‘subcultures’ in FWS jobs. One subculture, in which students have a strong connection with their supervisors, is uplifting and encouraging for students. The other subculture, however, was invalidating to student employees partly because they had little to no connection with their supervisors. Supervisors that support students create HIP jobs where students have the ability to thrive and are able to gain professional development skills.

Two programs that have encouraged and supported these supervisor/student interactions are the aforementioned Iowa GROW and PRO Roos. Iowa GROW works to create more communication between supervisors themselves and the students they work with, promoting High Impact Practices that students can learn from. Iowa GROW’s supervisors help students meaningfully bridge the gap between FWS skills and future employment, creating an environment for students to thrive. PRO Roos also involves work-study students working directly with their supervisors to gain skills. The program created a whole infrastructure within the University of Iowa to support its FWS employees. PRO Roos consists of an academic calendar to guide and measure students’ progress and help from supervisors to support each students’ unique learning process of these skills in their FWS program. This program improves communication between students and their supervisors by requiring meetings and check-ins for students to talk with their supervisors about pre-professional development skills. This helps students understand the importance of these skills in their overall academic career. As noted earlier, communication between supervisors and students can be crucial in helping students gain professional development skills. Both Iowa GROW and PRO Roos programs help supervisors create better situations for one-on-one interactions with students.

*Contributions to Knowledge*

The programs and studies discussed above all center around using guidance from supervisors to foster students’ transferable skills through federal work-study (FWS) programs. Researchers have found that professional skills are better developed and learned when a supervisor supports and mentors this preparation. Establishing a system to support students’ professional development is crucial, whether through one-on-one interviews, monthly check-ins, or clearly set goals. Iowa GROW and PRO Roos are just two examples among many that demonstrate and measure this process. FWS programs are often overlooked as potential sources of professional development, but institutions that put effort into developing supervisor/student relationships focused on skill can help student workers gain useful career skills through their campus jobs.

Our research examines how St. Olaf College students gain skills through their work-study jobs. Furthermore, we explore how supervisor and student relationships at St. Olaf promote student skill gains through work-study. We also assess the effectiveness of the GROW pilot program in order to see if it should be implemented in other aspects of student employment.

**Research Methods**

*Research Methods and Data Collection*

We conducted an online survey sent to students at St. Olaf College who were employed by the college at the time of the survey. This survey was part of our SOAN 371: Foundations of Social Science Research: Quantitative Methods class. The survey was sent out on November 9th, 2021, and closed on the 17th of November. The survey was designed to understand student employment on campus. Prior to creating the online survey, research teams within our class conducted focus groups to help determine what concepts to use and what questions to ask. After the focus groups, each research team prepared survey questions and combined these questions into the final survey. In order to be accessible and convenient to as many students as possible, we used St. Olaf’s Feedback Form Creator software, an online service unique to the college that enables respondents to complete their surveys anywhere at any time. Responses were recorded anonymously. We provided an incentive for participants with a drawing to win one of twenty $20 gift cards. Since the responses were anonymous, those who wished to enter had to email our professor their names. The online survey took an average of 15 minutes to complete. The survey was 50 questions long including a variety of multiple choice and open response questions. The questionnaire covered topics such as supervisor and student relationships and financial aid.

*Variables*

Our study used a mixture of independent and dependent variables ranging from race and gender to professional development skills gained from jobs. We included many subsectors of professional development, including supervisor relationships and whether supervisors created events related to professional development. Many variables are not strictly related to professional development itself but are important and related to professional development as a whole. These include demographic variables and job types.

Our independent variables include race and ethnicity, school year, gender, parent education, international or domestic status, and first-generation/continuing-generation. These variables enable us to compare groups of students in terms of their pre-professional development and other related variables.

Our dependent variables include the different skills that students may gain through their “focus job” (we asked each student to choose a specific job to focus on during the survey and we provided guidelines for doing so). These skills include organization, collaboration, time management, communication, problem solving, and managing conflicts. We also asked about professionalism, work ethics, leadership, teamwork, digital technology, and the ability to promote equity and inclusion.

We also asked about the relationship between students and their supervisors. These questions include items such as “How often does your supervisor host individual meetings about professional development?” and “Does your supervisor encourage you to develop new skills that federal work-study students can use in other jobs?” These variables examine factors such as whether the students’ supervisor pushes the students to gain more knowledge, which is a measure of the effectiveness of the supervisor/student relationship. This is important because students are more likely to gain more professional development skills when supported by their supervisors.

The last question we asked students was about St. Olaf’s pilot program based on Iowa GROW. GROW, created by the University of Iowa, is a program that works to create a better working environment by helping students get the best and most effective jobs possible. This program is essential because it helps students work and connect with others during their work-study jobs. One question asked about whether students participated in the GROW program and, if so, the extent to which it has helped them gain various skills and insights

*Sample and Sampling*

To create a representative sample for our survey, we used the target population of students employed by St. Olaf College during the fall semester of 2021. The size of the population is 2,249 students. We used an email alias of these students. Through email, we requested that students employed by St. Olaf College take our survey. Out of this group, 557 students responded, creating a response rate of 24.8%.

Of these respondents, 91% - 98% answered the demographic questions. A total of 492 respondents reported their gender identity with 69.5% identifying as female, 23.2% male, and 7.3% nonbinary. Compared to the student body, females are over-represented in our survey. Of the 542 respondents who reported their class year, 17.7% were first years, 25.9% sophomores, 30.0% juniors, 26.3% seniors, and 0.1% other. In our sample (which is similar to the student body statistics), juniors are slightly over-represented while first-year students are slightly under-represented. When asked if they were an international or domestic student, 10.9% of the 539 respondents said they are international students while 89.1% said they are domestic students. Out of the 502 respondents for our question on first-generation or continuing-generation status, 19.5% of respondents identify as first-generation students while 80.5% identify as continuing-generation. Among those who answered about generation, 19.8% are first-generation students and 80.2% are continuing-generation students. In terms of GPA, 38.1% of 540 respondents reported a GPA of 3.75-4.00, 30.0% reported 3.50-3.74, 15.0% reported 3.25-3.49, 10.5% reported 3.00-3.24, and 6.4% reported 2.99 or under.

When asked about their race and ethnicity, 501 students responded. Of these respondents, 11% identified as Asian, 3.3% as Black, 8.2% as Latinx, 5.8% as Multi-Racial, and 72.1% as White. If we were to group these categories into the White and BIPOC binary, our sample is 27.9% BIPOC and 72.1% white while the student body is 32.9% BIPOC and 67.1% white. However, this is a problematic practice because grouping all non-white people into the category “BIPOC” is a way of othering and establishing “White” as the default. We only used this binary for bivariate analysis when using the greater number of categories resulted in invalid statistical tests.

We also asked about the student’s parent or guardian with the highest education, which we used as a surrogate for social class. Out of the 537 respondents, 50.5% reported that their parent or guardian had a graduate, medical, or professional degree, 29.6% a 4-year college degree, 4.1% a 2-year college degree, 6.1% some college but no degree, 5.6% a high school diploma or GED, and 4.1% less than a high school diploma or GED.

*Ethics*

Although our anonymous online survey was generally low-risk compared to other research methods, our biggest concern was providing a safe space for participants to share their experiences in their St. Olaf jobs. To prepare for our research, each research student had to successfully complete the Collaborative Institutional Training Initiative (CITI) program on research ethics. The ethical practices for our survey included providing informed consent and privacy.

To ensure informed consent for responses, we disclosed in the email invitation that the survey would ask about students’ experiences with St. Olaf jobs. We also stated the purpose of our study, to understand and improve student federal work-study (FWS) positions at St. Olaf College. At the beginning of the survey, we wrote, “Starting this survey means that you consent to participate in the study.” This provided an explicit, voluntary authorization of information.

To protect privacy, we kept the survey results anonymous and ensured that our respondents’ identities were never linked to the data they shared.

**Research Results and Discussion**

Our survey provided illuminating data on the professional development of students employed by St. Olaf College. We used both univariate and bivariate analysis to investigate professional development and related factors, including skill gains, mentoring from supervisors, and the GROW program. Our bivariate analysis focuses partly on issues of equity and inclusion regarding professional development, and our results identify problems that need to be addressed.

**UNIVARIATE DATA ANALYSIS**

***Research Question 1:*** *What pre-professional development skills are students gaining through employment?*

We began our survey by asking students about the skills they have gained through their focus job. The term ‘focus job’ was created due to the possibility of students having or previously had more than one work-study job. We provided guidelines for respondents who had more than one work-study job to choose one to focus on while answering the survey questions. Respondents rated their gains for eight different skills on a Likert scale ranging from to a great extent to not at all. We asked about the NACE Competencies, including written communication, oral communication, problem-solving, professionalism, leadership, teamwork, digital technology, and equity and inclusion. Table 1 shows these results.

**Table 1. NACE Skills Items and Gains from Work-Study Focus Jobs**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NACE Skill Item** | **To a great extent** | **To a large extent** | **To a moderate extent** | **To a small extent** | **Not**  **at all** |
| Oral Communication | 34.3% | 27.2% | 18.8% | 14.6% | 5.2% |
| Written Communication | 23.5% | 15.6% | 20.8% | 20.6% | 19.5% |
| Problem Solving | 31.9% | 29.4% | 22.9% | 10.7% | 5.2% |
| Professionalism | 27.7% | 27.7% | 26.4% | 13.6% | 4.6% |
| Leadership | 28.8% | 26.9% | 21.2% | 15.6% | 7.5% |
| Teamwork | 26.3% | 23.3% | 24.2% | 17.3% | 8.8% |
| Digital Technology | 19.8% | 20.7% | 22.1% | 18.0% | 19.4% |
| Equity and Inclusion | 19.0% | 18.0% | 26.7% | 21.9% | 14.4% |

\*Note: For univariate frequency values for each item, please view Appendix A.

As Table 1 indicates, many students reported gaining these skills. However, certain NACE skills have higher reported percentages than others. We asked all survey respondents to answer our questions about NACE skill gains. A total of 80.3% of students reported gaining oral communication skills to a moderate, large, or great extent (summing the percentages for each of those response categories). Problem-solving (84.2%) and professionalism (81.8%) were also common skills gained to at least a moderate extent. However, 40.1% of students gained written communication skills through their student employment to a small extent or not at all. It is important to note that not every work-study job involves all of these skills, so we expected to have low rates of certain skills. For example, in jobs such as food service, it may be difficult to gain written communication because most communication happens verbally.

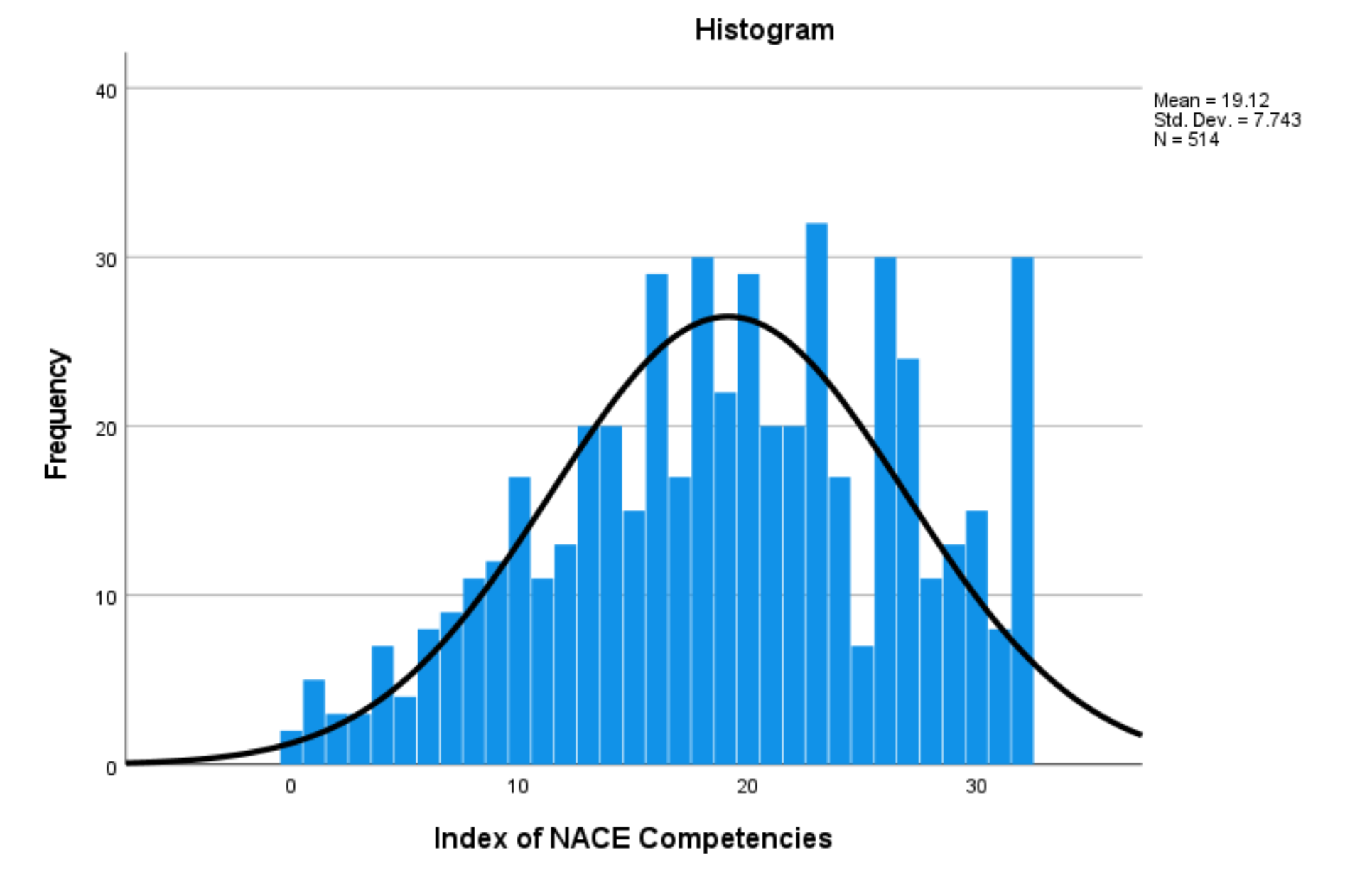
Our results on transferable skills bring to light how St. Olaf College could improve campus work-study positions. In the article *Federal Work-Study Student Perceptions of Career Readiness,* Akos et al. (2020) note that liberal arts schools in particular need to make clear connections between skills and the “well-rounded” education they provide, as some transferable skills may not be acquired in regular class settings and on-campus employment opportunities. As our survey responses from St. Olaf’s liberal arts students confirm, there is a need for increased attention to transferrable skills. Although it might be difficult for some jobs to use some types of transferable skills, we hope that attention to transferable skills will be broadened so that students have the most well-rounded work experience possible. We recommend that supervisors, where reasonable and depending on the specific job, implement a wide variety of skill-gaining opportunities to support students’ professional development. Comments from one of our survey respondents highlight this idea:

*“...While my job hasn't taught me much of those skills, I've learned them through other leadership positions at Olaf, such as being the president of a language house, being really involved in the departments, etc., … my answers in that regard don't quite accurately reflect what my job teaches. Additionally, I think that my experiences with working in the German department and through CAAS with the German department have been really helpful, and given me a concrete idea of what I'm headed into for post-undergrad, and post-graduate school.”*

As we addressed previously, students may gain different skills depending on their specific job(s) and job type(s). While St. Olaf’s classes and student organizations (in addition to student employment) provide students with opportunities to gain transferable skills, these opportunities may not be evenly distributed. Students should be given the opportunity to gain a large variety of skills regardless of whether or not they have a leadership position on a class team or in a student organization. We recommend that supervisors explicitly identify NACE Competencies in jobs, include a wider range of NACE Competencies in student positions, and that Human Resources help supervisors give greater support to their student employees. This includes listing NACE skills that will be learned on the job website and promoting student/supervisor meetings about students. goals and the skills they are gaining. Furthermore, the college can model its entire work-study program on Iowa GROW, PRO Roos, and its own pilot program, which will provide an infrastructure to promote skill gains for all student workers.

We combine the results shown in Table 1 into an index of NACE skills, in which we scored the responses to the Table 1 items and summed the scores from each respondents. The distribution of these scores is shown below in Figure 1.

**Figure 1. NACE Skills Index (Aggregated; gains from students’ focus jobs)**



As Figure 1 shows, the index scores range from 0-32, with 32 being instances where students gained all of the NACE Competencies to a great extent and 0 being instances where students did not gain any NACE Competencies at all. Scores of 10 or less indicate low skill gains overall through their focus job, and scores of 20 and higher indicate high skill gains.

A small percentage of respondents reported no gains or minimal gains on the NACE Competencies, with the histogram above being skewed to the left. Students who range from 0-10 have low skill gain overall. Many of these students may need skill gains to be a bigger part of their student work, and some of them may have reported lower skill gains because they already had these skills before they took their focus job. Nonetheless, it is important that all student workers have the opportunity to gain and improve on pre-professional skills and prepare for careers after graduation.

***Research Question 2:*** *In what ways are supervisors helping students gain professional development skills?*

It is important to understand how students’ supervisors support them in their professional development. Students reported the frequency with which their work supervisors help them through seven specific methods listed in Table 2. For response options, we used a Likert scale ranging from very often to never.

**Table 2. Supervisor Support for Student-Worker Development Items**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Supervisor Support Item** | **Very Often** | **Often** | **Sometimes** | **Seldom** | **Never** |
| Have individual meetings with me about professional development | 5.5% | 7.8% | 19.7% | 22.7% | 40.2% |
| Hold events for student workers with career experts such as the Piper Center | 2.1% | 4.0% | 9.3% | 19.1% | 61.2% |
| Set transferable skill goals for your job position | 10.0% | 16.7% | 18.0% | 15.7% | 34.8% |
| Encourage you to develop new skills that you can use in other jobs | 13.4% | 21.8% | 22.0% | 12.9% | 25.4% |
| Encourage you to do networking through your job | 8.5% | 11.0% | 16.1% | 17.0% | 42.4% |
| Give you projects you can manage and complete | 31.1% | 22.0% | 16.7% | 7.8% | 17.8% |
| Provide support related to your professional interests or goals | 15.9% | 17.8% | 18.0% | 14.4% | 29.0% |

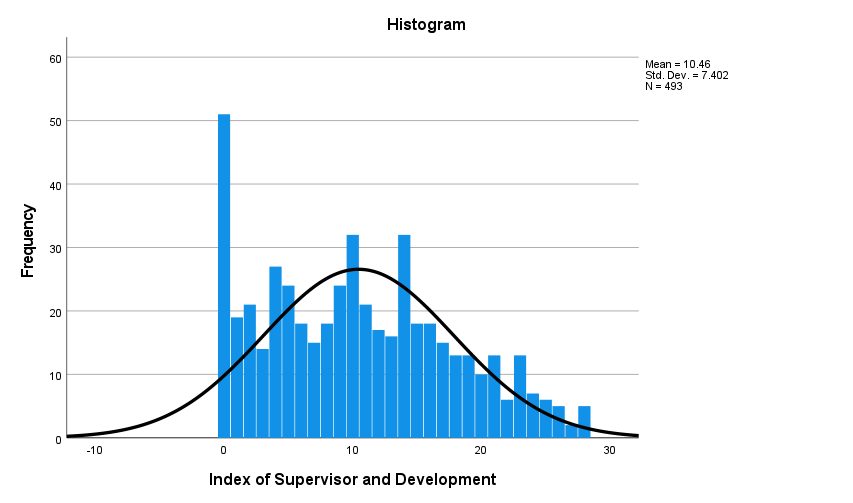
As Table 2 shows, many students reported that their supervisors seldom or never support them in their professional development. Around 40% of students have never had an individual meeting about their professional development with their supervisor in their focus job, 61.2% reported that their supervisor had not held any events with career experts such as the Piper Center, 34.8% of students reported that their supervisors had not set transferable skill goals for the student’s job, and 42.4% reported that their supervisor had not encouraged networking and communication at all.

At the same time, students reported ways in which their supervisors support them. More than one-third of respondents (33.7%) reported that their supervisor in their focus job provided positive support for students' professional interests or goals often or very often (15.9%+17.8%) and 35.2% reported that their supervisor encourage students to gain new skills to use in other jobs often or very often (13.4%+21.8%). More than half of the respondents reported that their supervisors (53.1%) gave them projects to manage and complete (31.1%+ 22%).

While we recognize the positive results, the college could and should improve on the aforementioned negative results. We recommend that supervisors hold individual meetings with students at least once a semester, hold more career-oriented meetings with student workers and the Piper Center, and disseminate specific information about transferable skills to their student employees.

We created an index of supervisor support for professional development by combining students’ scores for each of the items listed in Table 2 and then created a histogram, shown in Figure 2 below.

**Figure 2. Index of Supervisor Support for Student-Worker Development (Aggregated)**

Figure 1 provides a visual depiction of how frequently supervisors support the pre-professional development of their student workers. Scores range from 0-28, with 28 being instances where supervisors supported all of the developmental experiences to a great extent, and 0 being instances where supervisors had never encouraged any of the professional development experiences listed in Table 2, at least not according to student reports. 

According to our data, many supervisors fail to create a work environment that fosters pre-professional development. The frequency of a 0 response is over 50. Furthermore, only a small percentage of students reported high support for pre-professional development from their supervisor. This graph is skewed to the right, showing the large difference between students' experiences regarding professional development while working with their supervisors. From scores 1-15, the histogram shows a frequency of around 25, and then it goes down to zero by 28.

As mentioned previously, St. Olaf College is a liberal arts institution that would benefit from explicit attention to student workers’ growth in a range of transferable skills. A great way to do that is through supervisor mentoring. When there is a supportive and communicative relationship between students and supervisors, the student’s employment is more likely to be a HIP (High Impact Practice) and they are likely to gain more from the experience (Salazar 2019). Open-ended responses to our survey demonstrate students’ recognition that supervisor/student relationships sometimes fall short. For example:

*“My supervisor has made my job significantly more difficult due to poor communication and lack of organizational skills.”*

*“My supervisors are at times not present or helpful.”*

Along with prior research (Salazar 2019), our data indicate that support from supervisors is crucial to a student’s experience and professional development. In order to increase supervisor support at St. Olaf, we recommend that the college implement more opportunities, such as learning seminars, to help supervisors find new ways of fostering students’ professional gain from work experiences.

***Research Question 3:*** *How does St. Olaf’s GROW program help prepare students for future employment?*

Our last research question specifically addresses students who have participated in the GROW program with their supervisor. . We asked only students who had participated in GROW at St. Olaf to answer the related survey question. Table 3 shows the extent to which students who have done GROW gained pre-professional skills and insights.

**Table 3. GROW Helps Items**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **GROW Helps Items** | **To a great extent** | **To a large extent** | **To a moderate extent** | **To a small extent** | **Not at all** |
| See connections between my job and my studies | 37.9% | 20.6% | 20.6% | 10.3% | 8.8% |
| Prepare for real-world employment | 42.6% | 25.0% | 17.6% | 5.9% | 8.8% |
| Improve writing and oral communication skills | 45.6% | 13.2% | 16.2% | 13.2% | 11.8% |
| Use critical thinking skills for problem-solving | 44.1% | 23.5% | 16.2% | 10.3% | 5.9% |
| Develop time management skills | 39.7% | 25.0% | 20.6% | 7.4% | 7.4% |
| Develop conflict management skills | 40.3% | 25.4% | 17.9% | 11.9% | 4.5% |
| Gain multicultural competence | 32.4% | 17.6% | 20.6% | 17.6% | 11.8% |
| Learn about career options | 35.3% | 19.1% | 14.7% | 14.7% | 16.2% |

As shown in Table 3, many students find that GROW has helped them develop these skills and insights to at least a large extent. For example, 67.7% (42.6% + 25.0%) of these students reported that their focus job has prepared them for real-world employment to a great or large extent and 58.8% reported that their writing and oral communication skills have improved to a great or large extent. GROW seems to have a large, positive impact on students who take part in it.

Based on these results, we can confidently say that St. Olaf’s GROW program indeed connects the gains in transferable skills from student employment positions and students’ preparation for their post-graduate options. St. Olaf’s GROW program is still in its testing stages, but we suggest that GROW be implemented fully into all work-study positions at the college. As the GROW program is designed to thoroughly train supervisors, an additional benefit from its full implementation into all St. Olaf student employment positions would be to solve concerns that appeared in the responses to our Research Question 2 regarding supervisor/student relationships. This further implementation of the GROW program would not only greatly help with student workers’ pre-professional preparation but would also provide them with a better working environment.

**BIVARIATE DATA ANALYSIS**

***Research Question 1:*** *Do different demographics such as gender, race/ethnicity, international/domestic, and first-/continuing-generation affect the extent to whichw St. Olaf student workers gain pre-professional development skills through their jobs?*

We tested student gains in NACE Competencies against demographics including binarized gender, binarized race and ethnicity, international or domestic status, and first-generation/continuing-generation. However, we must acknowledge that the practice of binarizing gender and race and ethnicity is problematic as it contributes to the gender binary and the “otherness” of nonwhite people. We used the binarized categories only in order to run valid statistical tests. Table 4 shows a comparison of the means for different student groups and wheter the results were statistically significant (p<.05).

**Table 4. Binarized Demographics and NACE Competencies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Demographic and group** | **Group 1 Mean Index Score** | **Group 2 Mean Index Score** | **Mann-Whitney U test score** | **p-value** |
| Gender (binarized)  1= female, 2= male | 18.97 | 19.77 | 18276.000 | .317 |
| Race/ethnicity (binarized)  1= BIPOC, 2= White | 20.21 | 18.82 | 19815.000 | .077 |
| International/Domestic  1= international, 2= domestic | 20.84 | 18.90 | 11236.500 | .103 |
| First-/Continuing-generation  1=first generation, 2= continuing | 20.62 | 18.82 | 16949.000 | .027 |

We used a Mann-Whitney U test to compare the mean scores of the NACE Competencies between students of different genders (male, female), racial and ethnic groups (BIPOC, white), international and domestic students, and first-generation and continuing-generation students. When testing gender, we found no significant difference between the two groups (p>.05.) The mean score for males was not significantly different (m=19.77, sd=7.713) than the mean score for females (m=18.97, sd=7.798). In addition, we found no significant difference testing across race and ethnicity (U= 19815, p=.077). The analyses revealed that neither gender nor race and ethnicity impacted students’ NACE skill gains. We also found no significant difference between international students and domestic students in terms of NACE skill gain (U= 11236.500, p>.05). International students had a mean score of 20.84 and domestic students had a mean score of 18.90.

However, we did find a statistically significant difference between first-generation and continuing-generation students (U= 16949.0, p<.05). The mean score of first-generation students was 20.62. The mean score of continuing-generation students is 18.82. Therefore, students who are first-generation are likely to have greater gains in NACE skills than students who are continuing-generation.

***Research Question 2:*** *Does the class year of St. Olaf students impact their gains in NACE Competencies?*

We calculated a Spearman's Rho correlation coefficient for the relationship between the NACE Skills Index and Year in School and found a weak positive correlation (r=.202, p<.001), indicating a significant linear relationship between the two variables. Students in higher class years (freshman being the lowest and seniors being the highest) are more likely to have higher skill gains. From these results, we conclude that student workers who have more years of college are more likely to gain important NACE skills. This is to be expected, as students in higher years have had more time to increase these skills.

***Research Question 3:*** *Is parent education (social class) related to gains in NACE competencies?*

Parents' level of education is an indicator of socio-economic status and is important to our research because it can impact factors such as the intent of college attendance and familiarity with the college application process and benefits. We calculated a Spearman’s rho correlation coefficient for the relationship between the NACE Skill Index and parent education level and found a weak positive correlation (r=-1.05, p<.019), indicating a significant linear relationship between the two variables. Student-workers whose parents have a higher level of education are slightly likely to have higher NACE Competencies. Our data indicate that parents' education level does influence the NACE Skills Index which is important for understanding the situation of first-generation student workers.

***Research Question 4:*** *Does a student's job category relate to their gains in NACE competencies?*

The job category variable includes six different categories of jobs: Education, Student Services, Special Skills, Administrative, Food Services, and Miscellaneous. When we tested this relationship, we excluded jobs in the miscellaneous category, given that only six students noted that they work jobs in that category. The highest number of respondents work in Administration jobs (42.3%), and the lowest number work in Food Services jobs (9.8%).

Students working in Student Services reported the highest average scores on the NACE Competencies Index while students working in Food Services reported the lowest scores, as determined by a Kruskal-Wallis H-test (H(4)=61.716; p<.001). This test showed statistically significant differences in means across job categories. Students working in Student Services reported the highest average scores on the NACE Competencies Index while students working in Food Services reported the lowest scores.

**Table 5. Job category x NACE Competencies (8 items)**

|  |  |  |
| --- | --- | --- |
| **Job Category** | **Mean NACE Competencies**  **8-item Index Score** | **s.d.** |
| Educational | 19.13 | 6.779 |
| Student Services | 24.31 | 6.046 |
| Special Skills | 17.68 | 7.339 |
| Administrative | 18.24 | 7.947 |
| Food Services | 14.47 | 7.289 |

This table shows the distinct differences in skill gains across the different categories of jobs. From these results, we conclude that students who are working in Food Service jobs tend to gain less in terms of NACE Competency skills. Furthermore, students Special Skills, Administrative jobs, and Educational jobs tend to gain a similar levels of skills, while workers in Student Services tend to make larger skill gains. The 10-point difference between Student Services and Food Services suggests that students in Food Services need more opportunities to gain skills. Furthermore, the college should ensure that students do not get stuck in a situation where they only work at a food service job, due to the associated low skill gains.

***Research Question 5:*** *Is supervisors’ creation of professional development events related to students’ level of gains in NACE competencies?*

The NACE Competencies can also be affected by how supervisors support the students they work with. One way that supervisors can promote professional development is through creating professional development events specifically for their student employees.

We calculated a Spearman’s Rho correlation coefficient for the relationship between the creation of professional development events and gains in NACE skills and found a weak positive correlation (r=.353, p=<.001), indicating a significant linear relationship between the two variables. Because students whose supervisors create professional development events report having higher NACE category scores; we recommend that St. Olaf consider implementing more professional development events within work-study programs.

***Research Question 6:*** *Does student job category impact supervisor support for student workers’ professional development?*

To test this relationship, we used a Kruskal Wallis H-Test, first excluding the miscellaneous category of jobs. We found a statistically significant relationship (H=54.874,p<.001). This result shows differences in means across job categories, with the means of the five areas being widely dispersed. Students working in Student Services reported the highest average scores on the index *by far* (m=15.66) while students working in Food Services reported the lowest average scores (m=5.86), followed by students in Administrative jobs (m=8.65).

**Table 6. Job category x Mean Supervisor Support for Pre-Professional Development Index (6 Items)**

|  |  |  |
| --- | --- | --- |
| **Job Category** | **Mean Supervisor Support for Pre-Professional Development Index (6 Skills) Score** | **s.d.** |
| Educational | 11.22 | 6.983 |
| Student Services | 15.66 | 6.875 |
| Special Skills | 11.05 | 6.366 |
| Administrative | 8.65 | 6.824 |
| Food Services | 5.86 | 6.649 |

As Table 6 shows, students who work in Administrative and Food Service jobs tend to experience lower supervisor support for their pre-professional development. We recommend that St. Olaf encourage Food Service supervisors to increase their support of the professional development of students employees. This would include giving Food Services student workers more leadership roles and more responsibility if wanted, as well as giving them a variety of skill-gaining tasks. Furthermore, supervisors should guide students on what specific skills they are gaining through Food Service. For example, supervisors can meet with student workers one-on-one to discuss the skills they are gaining. Supervisor training could help with all of these changes.

***Research Question 7: Do*** *students who participate in GROW gain more in terms of NACE Competencies?*

As noted before in our discussion of the results for Univariate Research Question 3, GROW is helpful for the students that have access to it. However, this was in terms of GROW’s particular list of skills and goals. Comparing the mean scores of GROW participants and non-participants on the index of NACE skills can give us another perspective on the benefits of GROW.

We conducted a Mann-Whitney U-Test to compare the mean NACE Competencies scores of students who have and have not participated in GROW and found a significant relationship (U=7114.50, p<.05). The mean score for those who participated in GROW was 24.55 while the mean score for non-participants was 18.30. This shows that students who participated in the GROW program tend to gain more pre-professional development skills. Similar to our suggestion regarding Univariate Research Question 3, we suggest that GROW be further tested in other positions or implemented fully across student employment positions to increase students’ NACE Competencies and other pre-professional skills.

***Research Question 8: Do*** *who have done GROW experience greater supervisor support related to their professional interests or goals?*

Our final question is whether there is a relationship between participation in the GROW program and supervisor support for student workers' professional interests and goals. In other words, are supervisors likely to put in more effort into supporting their student workers when they are part of the GROW program.

We calculated a chi-square, Cramer’s V test of independence comparing students who did and did not participate in the GROW program in terms of whether their supervisor provides support related to their professional interests and goals. We found a statistically significant difference (Cramer’s V=.328, p<.001). Students who participated in GROW program were more likely to have supervisors who support their professional interests. This again stresses the importance of supervisor-to-student support, similar to our discussion in Univariate Research Question 2. As stated earlier, this support can lead to increased professional development.

**Conclusion**

Our research focused on student gains on the NACE Competencies, supervisor support for students’ professional development, and the impact of the GROW program. Our results indicate that job category has a strong influence on professional development among student workers. While we found no statistically significant relationship between overall skill gains and gender and race and ethnicity), skill gains were related to other variables such as school year, socioeconomic status, first-generation versus continuing-generation, and job category. The most important results from our research include:

* Students who have participated in the GROW program reported higher rates of skill gains and preparedness for post-graduate goals.
* Students tended to report low supervisor support toward their professional development as measured by our Supervisor and Development Index. More than four in ten (40.2%) respondents reported that their supervisors had never held individual meetings with them about professional development.
* Students in student services jobs tend to have higher gains in NACE skills, whereas food service student workers tend to have the lowest NACE skill gains.

There are many strengths and limitations that are important to keep in mind when considering our study. One strength is our survey response rate of 24.8% which is above the recommended rate for a population of 2,249. In addition, because of the specific nature of our survey, we are able to provide specific recommendations for improving the student employment experience at St. Olaf College. Another strength of our study is that we asked students to pick a specific “focus” job to consider while completing the survey. This allowed us to get specific information about one job instead of multiple jobs that students may have held. While it would have been interesting to learn about the trajectory of student employment through multiple jobs, this was beyond the scope of our study.

It is important to note the limitations of our research including our positionality. Our team consists of three white students with varying experiences relating to student employment. The choices we made in terms of creating survey questions, analyzing the data, and providing recommendations were influenced by our own experiences and biases, although they were also shaped by our review of prior literature and the comments from students in our pre-survey focus group. In addition, the semester-long time frame of our research prevented us from going as in-depth as we would have liked.

Our analysis indicates that St. Olaf could do much to improve student workers’ skill gains and their relationships with their supervisors, and that students could benefit from wide implementation of the GROW program. Skill-gaining opportunities should be expanded to help students gain more professional development experience through their job. Supervisor support for professional development is imperative, and supervisors should find innovative ways for students to gain more professional skills and experience from their work-study job. The GROW program should be fully implemented across all St. Olaf student employment since the program is beneficial for students at St. Olaf. Overall, implementing these changes will help students to have more productive work experiences that improve their professional development.

**Recommendations**

Based on our research results, we offer the following recommendations to enhance the pre-professional training of student workers at St. Olaf College:

1. Invest in training supervisors to increase their support for students’ professional development.

* Train supervisors to hold more individual meetings with students, hold more career-oriented meetings between student workers and the Piper Center, and disseminate specific information on transferable skills to student workers.

1. Expand GROW in student employment.

* Implement GROW in more job areas so more students benefit from the program.

1. Provide students working in food service with more opportunities to gain skills.

* Implement a resume-building workshop for food service students, and provide new and creative job tasks that increase their skills.

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**Appendix A: Additional Research Results**

**Table A. NACE Skills Univariate Frequencies**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NACE Skill Item** | **To a great extent** | **To a large extent** | **To a moderate extent** | **To a small extent** | **Not at all** |
| **Oral Communication** | **34.3%**  181/557 | **27.2%**  145/557 | **18.8%**  102/557 | **14.6%**  76/557 | **5.2%**  28/557 |
| **Written Communication** | **23.5%**  124/557 | **15.6%**  85/557 | **20.8%**  112/557 | **20.6%** 110/557 | **19.5%**  103/557 |
| **Problem Solving** | **31.9%**  169/557 | **29.4%**  157/557 | **22.9%**  123/557 | **10.7%**  57/557 | **5.2%**  28/557 |
| **Professionalism** | **27.7%**  146/557 | **27.7%**  148/557 | **26.4%**  142/557 | **13.6%**  71/557 | **4.6%**  27/557 |
| **Leadership** | **28.8%**  152/557 | **26.9%**  142/557 | **21.2%**  113/557 | **15.6%**  83/557 | **7.5%**  41/557 |
| **Teamwork** | **26.3%**  138/557 | **23.3%**  123/557 | **24.2%**  131/557 | **17.3%**  91/557 | **8.8%**  48/557 |
| **Digital Technology** | **19.8%**  104/557 | **20.7%**  109/557 | **22.1%**  120/557 | **18.0%**  94/557 | **19.4%**  105/557 |
| **Equity and Inclusion** | **19.0%**  100/557 | **18.0%**  95/557 | **26.7%**  144/557 | **21.9%**  116/557 | **14.4%**  77/557 |

**Table B. Supervisor and Support for Student-Worker Development Items**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Supervisor Support Item** | **Very Often** | **Often** | **Sometimes** | **Seldom** | **Never** |
| Have individual meetings with me about professional development | **5.5%**  29/557 | **7.8%**  41/557 | **19.7%**  107/557 | **22.7%**  123/557 | **40.2%**  214/557 |
| Hold events for student workers with career experts such as the Piper Center | **2.1%**  11/557 | **4.0%**  21/557 | **9.3%**  52/557 | **19.1%**  104/557 | **61.2%**  325/557 |
| Set transferable skill goals for your job position | **10.0%**  54/557 | **16.7%**  88/557 | **18.0%**  100/557 | **15.7%**  84/557 | **34.8%**  185/557 |
| Encourage you to develop new skills that you can use in other jobs | **13.4%**  73/557 | **21.8%**  116/557 | **22.0%**  120/557 | **12.9%**  68/557 | **25.4%**  135/557 |
| Encourage you to do networking through your job | **8.5%**  45/557 | **11.0%**  59/557 | **16.1%**  89/557 | **17.0%**  90/557 | **42.4%**  227/557 |
| Give you projects you can manage and complete | **31.1%**  168/557 | **22.0%**  116/557 | **16.7%**  92/557 | **7.8%**  41/557 | **17.8%**  94/557 |
| Provide support related to your professional interests or goals | **15.9%**  88/557 | **17.8%**  94/557 | **18.0%**  98/557 | **14.4%**  76/557 | **29.0%**  154/557 |

**Appendix B: Your survey questions and response categories**

Questions about NACE Categories (Index): To what extent has your St. Olaf "focus job" helped you gain these skills?

**Skills:**

* Oral Communication
* Written Communication
* Problem Solving
* Professionalism
* Leadership
* Teamwork
* Digital Technology
* Equity and Inclusion

**Possible Responses:**

* To a great extent
* To a large extent
* To a moderate extent
* To a small extent
* Not at all

Skill importance matrix: Please indicate your level of agreement or disagreement with the statements below.

**Questions:**

* It is important to me to gain some or all of the skills listed above before I graduate from St. Olaf.
* The skills I have gained through my jobs (including my St. Olaf "focus job") help me in my academic work.

**Possible Responses:**

* Strongly Agree
* Somewhat Agree
* Neutral
* Somewhat Disagree
* Strongly Disagree

Supervisor & development: How often does your supervisor at your "focus job" do these things?

**Questions:**

* Have individual meetings with me about professional development
* Hold events for student workers with career experts such as the Piper Center
* Set transferable skill goals for your job position
* Encourage you to develop new skills that you can use in other jobs
* Encourage you to do networking through your job
* Give you projects you can manage and complete
* Provide support related to your professional interests or goals

**Possible Responses:**

* Very often
* Often
* Sometimes
* Seldom
* Never

GROW helps matrix: To what extent has GROW helped you with these things?

**Questions:**

* See connections between my job and my studies
* Prepare for real-world employment
* Improve writing and oral communication skills
* Use critical thinking skills for problem-solving
* Develop time management skills
* Develop conflict management skills
* Gain multicultural competence
* Learn about career options

**Possible Responses:**

* To a great extent
* To a large extent
* To a moderate extent
* To a small extent
* Not at all