RESEARCH ARTICLE

But do they agree? Examining differences in science faculty and student perceptions of student partnership values

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ABSTRACT

There is growing support for the use of student-faculty partnerships within higher education. Successful partnerships capable of sustainable transformation require the presence of several underlying values held by both faculty and students. The purpose of this study was to examine differences in the perceptions of student-faculty partnership values across science faculty, graduate students, and undergraduate students and determine whether these values differ by partnership category. Faculty and students responded to the Student-Staff Partnership Questionnaire (Martens et al., 2019), which included five scales aimed to assess values for successful student partnerships: reciprocal respect, influence, autonomy, commitment, and partnership. Our findings suggest that faculty perceive themselves as aligning with the values of reciprocal respect, influence, autonomy, and partnership to a higher degree than undergraduate and graduate students perceive faculty as adhering to them. No differences in values were noted across partnership categories. Implications for higher education are discussed.

KEYWORDS

student-faculty partnerships, students as partners, higher education, science

There is growing emphasis within higher education on engaging with students as partners (SaP; Healey et al., 2014; Healey et al., 2016; Matthews et al., 2019) as a means to transform students from the recipient to the producer of knowledge (Neary, 2010). Although partnerships take on various forms depending on context (Bovill, 2019), rooted in these varied practices is often a common set of values (Liang & Matthews, 2021). The Faculty of Science at our institution is interested in exploring ways in which student-faculty partnerships can be formally embedded and encouraged as an effective method of collaboration to support students who have been underrepresented and underserved and to empower students and faculty to reflect on, discuss, and reimagine how they can work together to cultivate cultural shifts (Cook-Sather et al., 2019). To achieve this aim, we sought to investigate current and previous student-faculty interactions that fall within established student-partnership practices (Matthews et al., 2017) by gathering student and faculty self-reported involvement in these activities as well as their perceptions of the presence of SaP values. Understanding how students and faculty are currently working together as well as their perceptions of common SaP values is an important step in helping faculty and students to revision their roles. Given that pedagogical partnerships are context specific (Cook-Sather et al., 2019), this information offers important baseline data to better understand our faculty context and offers a nuanced picture of views and experiences that can help address challenges that can arise when promoting partnerships.

LITERATURE REVIEW

Student partnership is commonly described as "a collaborative, reciprocal process through which all participants have the opportunity to contribute equally, although not necessarily in the same ways, to curricular or pedagogical conceptualization, decision-making, implementation, investigation, or analysis" (Cook-Sather et al., 2014, p. 6–7). It is an approach to working with students that emphasizes equitable contributions by partners informed by individuals' differing expertise (Cook-Sather et al., 2014). Considered a threshold concept (Cook-Sather, 2014), student partnerships have the ability to disrupt power structures (e.g., Dianati & Oberhollenzer, 2020), re-imagine expertise (Matthews, 2017), and promote change within teaching and learning (Marquis et al., 2019). As proposed by Healey et al. (2014, 2016), partnerships can occur in various forms and contexts, including (a) learning, teaching, and assessment; (b) curriculum design and pedagogic consultancy; (c) subject-based research and inquiry; and (d) scholarship of teaching and learning (SoTL). Regardless of the type of partnerships, Matthews (2017) emphasizes that authentic student partnerships should aspire to (a) foster inclusive partnerships, (b) nurture power-sharing relationships through dialogue and reflection, (c) accept partnerships as a process with uncertain outcomes, (d) engage in ethical partnerships, and (e) enact partnerships for transformation.

Several benefits of engaging in partnership have been established for both students and faculty. Mercer-Mapstone et al. (2017) and Matthews et al. (2019) offer two review articles

highlighting both positive and negative outcomes from the literature. Common benefits reported by students include increased engagement/motivation for learning, enhanced relationships and trust with faculty, gains in metacognitive learning, enhanced employability and career development, and material gain (e.g., publications). Similarly, faculty have also identified positive changes in their interactions with students, the development of better teaching materials, and gains in their understanding of the student experience (Matthews et al., 2019; Mercer-Mapstone et al., 2017).

Several core values have been proposed as essential to fostering successful student partnerships and these values have been articulated in different ways (Healey & Healey, 2019). Cook-Sather et al. (2014) offer three key values of respect, reciprocity, and shared responsibility to inform SaP theories and practices. In a similar, yet broad view drawn from partnership and engagement literature, Healey et al.'s model (2014, 2016) of SaP is underpinned by values of authenticity, inclusivity, reciprocity, empowerment, trust, challenge, community, and responsibility (Higher Education Academy, 2014). Aligning SaP practices with these criteria increases the likelihood of transformative learning experiences. Various studies have examined the role of values in successful partnership initiatives and/or explored perceptions of these values. For example, Marie and McGowan (2017) found from their case study of the University College London (UCL) ChangeMakers initiative that partnership values of collective responsibility, honesty, plurality, and trust are critical to the sustainability of the program and students' learning experiences. Similarly, Foran et al.'s (2020) work evaluating factors that influenced a student-as-consultants partnership program found that in addition to Healey et al.'s (2014) eight values, two additional factors—(a) prior experiences and experiences gained through participation in the program and (b) the extensive program structure—contributed to successful partnership work. Smith et al. (2021) found that partnership values are associated with three phases of the partnership process—establishing the partnership, partnership operation and atmosphere, and the partnership outcomes. Furthermore, authenticity, reciprocity, and inclusion were demonstrated as critical antecedents to establishing a successful partnership.

To the best of our knowledge, Martens et al. (2019) offers the first attempt to empirically assess partnership values. In this study, Martens and colleagues examined undergraduate students' opinions of their current and preferred values for successful student partnerships. These students were involved in educational improvement as members of a course design team, an evaluation panel, or a curriculum or educational committee. Students completed the Student-Staff Partnership Questionnaire (SSPQ) designed by Martens and colleagues that included five criteria for successful student partnership work: reciprocal respect, influence, autonomy, commitment, and partnership, rated on a 5-point Likert scale anchored from 1 (strong disagree) to 5 (strongly agree). Students' scores for values for their current activity ranged from 2.76 (influence) to 3.94 (reciprocal respect), whereas students' preferences for values ranged from 3.36 (commitment) to 4.41 (reciprocal respect). A key finding from this study was that for all SaP values, there were significant differences between students' current experiences and their preferences, with their preference-related scores ranking higher. This suggests that students' preferred conditions for engaging in partnership were not sufficiently met. However, this study only included undergraduate students' perceptions on curriculum-related activities, leaving room to expand this research.

Luo et al. (2019) examined opinions on the values and attitudes thought to be important for student-faculty partnerships in teaching and learning among undergraduate students with little SaP familiarity. Their findings illustrated themes of respect, communication, understanding, and responsibility/commitment as important values for collaborative partnership work between students and academics, aligning with several of the values described in seminal SaP research (Cook-Sather et al., 2014; Healey et al., 2014, 2016). Most of the research on student partnership values includes the voices of undergraduate students, or in some cases, only a small number of faculty/staff, leaving a gap in our understanding of the perceptions of other important stakeholders (e.g., faculty, staff, graduate students).

PURPOSE AND CONTRIBUTIONS TO THE LITERATURE

SaP is considered a values-based practice (Matthews et al., 2018), and regardless of there being multiple ways to engage in partnerships, there tends to be common values guiding this method of collaboration (Liang & Matthews, 2021), despite the variability in how these values are presented and described. As the movement of student partnerships extends across institutions, it becomes increasingly important to understand the values that underpin this practice and how these values are perceived by the students and faculty engaged in these relationships. Such knowledge is critical to the initiation and sustainability of authentic partnership work. Furthermore, SaP is also context dependent, and practices require varying levels of time commitments and collaboration, begging the question as to whether values might differ depending on partnership category. Most SaP research is non-empirical (Martens et al., 2019) and primarily focuses on undergraduate students (Mercer-Mapstone et al., 2017). As such, this research sought to examine the following research questions with students and faculty who self-reported their involvement in SaP practices that align with SaP activities:

1. Are there differences in perceptions of student-faculty partnership values across faculty, graduate students, and undergraduate students?
2. Are there differences in the perceptions of student-faculty partnership values by partnership category (Healey et al., 2014)?

METHODS

Research context

This study was led in the Faculty of Science at a mid-sized university in the province of Ontario, Canada. At the time of data collection, our research team consisted of two undergraduate students, a post-doctoral fellow, a faculty member, and the dean, thereby mirroring the SaP model. Data was collected in the Fall of 2020, and there were 2,269 undergraduate and 873 graduate students enrolled in approximately 60 academic programs across eight departments, as well as approximately 120 faculty members. Data from this study was collected as part of a larger examination of student-faculty partnerships in the Faculty of Science.

Participants

Participants consisted of science faculty members, undergraduate students, and graduate students (masters and doctoral). Inclusion criteria required faculty and students to be from the Faculty of Science and to have participated in at least one student-faculty partnership activity. In total, 324 individuals started the survey, but 137 of these potential participants were removed because they had not participated in any student-faculty partnership activity. An additional 58 participants were removed due to not completing the questionnaire. Therefore, data from a total of 129 participants (i.e., 21 faculty, 47 graduate students, and 61 undergraduate students) were used in the final analysis. The majority of faculty participants identified as men (61.9%), from European origins (57.1%), and were part of the Department of Chemistry and Biochemistry (47.6%). With respect to graduate student participants, the majority identified as women (58.6%), from Asian origins (58.6%), enrolled in a program within the Department of Chemistry and Biochemistry (31.9%). 59.6% of graduate students were in enrolled in masters degree and 40.4% were in PhD programs. Undergraduate students most often identified as women (73.8%), from European origins (50.8%), and enrolled in programs within the Department of Integrative Biology (26.2%).

Measures

Participation in student-faculty partnership activities

Participants were asked to identify, from a list, all student-faculty partnership activities they had participated in (the list of activities is available in Table 1). This list was adapted from Matthews et al.'s (2017) Student Involvement Questionnaire (SIQ) which was informed by Healey et al.'s (2014) four-category model of partnership areas. Prior to self-reporting their involvement in these SaP practices, participants were offered a definition of student partnership as a prompt to encourage them to select only activities that were partnership in nature. Subsequently, participants were asked to select their most impactful student-faculty partnership activity and answer the remaining survey questions with that activity in mind. All potential student-faculty partnership activities were classified into four categories of partnership: (a) learning, teaching, and assessment; (b) curriculum design and pedagogic consultancy; (c) subject-based research and inquiry and scholarship of teaching and learning; and (d) other.

Student-Staff Partnership Questionnaire (SSPQ)

Martens et al.'s (2019) Student-Staff Partnership Questionnaire (SSPQ) was used to assess student-faculty partnership values. The SSPQ consists of five scales (26 items total) that assess values for success: reciprocal respect (nine items), influence (three items), autonomy (three items), commitment (five items), and partnership (six items)[1]. For the current survey, the 26-item survey was reduced to 25 items, with the removal of one item from the commitment scale due to this item not being publicly available for use.

For each item, students were asked to provide their level of agreement with each statement on a 5-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Then, a mean score for each subscale (i.e., value) was calculated (out of 5). As per Martens et al. (2019), an average score below 3 suggests an insufficiency for success in the student-faculty partnership.

Conversely, overall or individual subscale scores between 3 and 4 suggest improvement is needed, whereas scores greater than 4 suggest good efficiency for success in student-faculty partnership. The SSPQ has demonstrated appropriate factor structure and acceptable validity and reliability (Martens et al., 2019).

It should be noted that the wording of individual items was altered, where necessary, to reflect our institutional context and depending on whether participants were faculty or students. For example, for reciprocal respect item one, faculty were asked to indicate their level of agreement with "I value the ideas students bring forward in an encounter," whereas for students the statement was adapted to "faculty members value the ideas I bring forward in an encounter." As a second example, for the partnership subscale, students provided their agreement with the statement "faculty members and I are collectively involved in the decision-making process within the student-faculty partnership activity," while the corresponding item for faculty was phrased as "students and I are collectively involved in the decision-making process within the student-faculty partnership activity." The questionnaire and its subscales showed acceptable reliability with Cronbach's alpha (Cronbach, 1951) ranging between .77 and .96.

Procedures

Upon receiving research ethics board clearance, a recruitment email was sent to all faculty, graduate students, and undergraduate students in the Faculty of Science that included the link to an online survey, hosted on Qualtrics. Recruitment flyers were also posted on the faculty's social media sites. Information explaining the study, participants' rights, and how the data would be managed was presented at the onset of the survey in the consent form. After reviewing this information, participants indicated their consent to participate. Once consent was obtained, participants were directed to a series of demographic questions as well as questions related to their experiences working in student-faculty partnership activities. As compensation, participants had the option to enter a draw for one of twenty gift cards to a Canadian coffee chain restaurant (Tim Hortons).

DATA ANALYSIS

Data were analyzed using IBM SPSS version 27. Descriptive statistics (including frequencies and percentages) regarding participants' most impactful student-faculty partnership activities were calculated. Prior to any additional analyses, outcome variables were examined for missing values. Missing value analysis revealed minimal missing data (less than 5%), and Little's Missing Completely at Random (MCAR) test suggested that the missing values were MCAR. Missing data were replaced using an estimation maximization approach.

A one-way analysis of variance (ANOVA) was conducted to determine whether faculty, graduate students, and undergraduate students differed in their perceptions of the overall value of student-faculty partnerships (mean score across all 25-items of the SSPQ) they participated in. Prior to conducting the ANOVA, assumptions relating to outliers, normality, and homogeneity of variance were checked and handled, as needed.

A one-way multivariate analysis of variance (MANOVA) was conducted to determine whether there were significant differences between participants' perceptions of the collective, reciprocal respect, influence, autonomy, commitment, and partnership they perceived within

their most impactful student-faculty partnership based on their role (i.e., faculty, graduate student, and undergraduate student). The role served as the independent variable, while the five subscales of the SSPQ were the dependent variables. Prior to conducting the MANOVA, assumptions related to univariate and multivariate outliers, multivariate normality, multicollinearity, linearity, adequate sample size, homogeneity of variance-covariance matrices, and homogeneity of variances. All assumptions were either met or dealt with as needed.

Finally, a second one-way MANOVA was conducted to determine whether participants differed in their perceptions of the collective, reciprocal respect, influence, autonomy, commitment, and partnership they perceived within their most impactful student-faculty partnership based on the type of student-faculty partnership they took part in. For this analysis, the partnership category served as the independent variable, while the five subscales of the SSPQ were the dependent variables. Again, all assumptions were checked and handled, as needed.

RESULTS

A breakdown of participants' most impactful student-faculty partnership activity is provided in Table 1. Among faculty and undergraduate students, the most frequently selected impactful partnership was collaborating on new or existing research projects (61.9% and 42.6%, respectively). Conversely, graduate students rated their graduate teaching assistantships (38.3%) as their most impactful student-faculty partnership activity, followed by research collaborations (21.3%).

Table 1. Most impactful student-faculty partnership activity

ACTIVITY TYPE	ACTIVITY (STUDENT/FACULTY)	FACULTY	GRADUATE	UNDERGRADUATE
Learning, teaching, and assessment	TA/Supervising or working with a TA	1 (4.8%)	2 (4.3%)	9 (14.8%)
Learning, teaching, and assessment	GA/Supervising or working with a GA	2 (9.5%)	18 (38.3%)	-
Learning, teaching, and assessment	Peer-assisted learning (PAL) leader/Supervising or working with peer-assisted learning (PAL) leader(s)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Learning, teaching, and assessment	Negotiating assessment criteria and choice in assessment topics and questions, deadlines, and grade weightings with a faculty member as part of a class/Negotiating assessment criteria and choice in assessment topics and questions, deadlines, and grade	0 (0.0%)	2 (4.3%)	1 (1.6%)

	weightings with students as part of a class			
Learning, teaching, and assessment	Lab demonstrator/Working with a student lab demonstrator/	0 (0.0%)	0 (0.0%)	0 (0.0%)
Learning, teaching, and assessment	Co-teaching a class with a faculty member/Co-teaching a class with a student	0 (0.0%)	0 (0.0%)	0 (0.0%)
Curriculum design and pedagogic consultancy	Co-designing course materials with a faculty member/Co-designing course materials with students	0 (0.0%)	0 (0.0%)	1 (1.6%)
Curriculum design and pedagogic consultancy	Co-designing assessment tasks with a faculty member/Co-designing assessment tasks with students	0 (0.0%)	0 (0.0%)	0 (0.0%)
Curriculum design and pedagogic consultancy	Developing assessment marking criteria with a faculty member as part of a class/Developing assessment marking criteria with students as part of a class	0 (0.0%)	0 (0.0%)	0 (0.0%)
Curriculum design and pedagogic consultancy	Drafting assessment questions for a faculty member as part of a class/Have students draft assessment questions as part of a class	0 (0.0%)	0 (0.0%)	0 (0.0%)
Curriculum design and pedagogic consultancy	Meeting with faculty member(s) to discuss degree program curricula, teaching, or learning/Meeting with students to discuss degree program curricula, teaching, or learning	0 (0.0%)	0 (0.0%)	0 (0.0%)
Curriculum design and pedagogic consultancy	Providing formal or informal feedback to a faculty member to improve teaching practices/Sought formal or informal feedback from	0 (0.0%)	0 (0.0%)	0 (0.0%)

	students to improve teaching practices			
Curriculum design and pedagogic consultancy	Being a student representative on a university committee/Working with students on a university committee	0 (0.0%)	5 (10.6%)	2 (3.3%)
Subject-based research and inquiry and scholarship of teaching and learning	Collaborating with a faculty member on a new or existing research project/Collaborating with an undergraduate or graduate student on a new or existing research project	13 (61.9%)*	10 (21.3%)	26 (42.6%)
Subject-based research and inquiry and scholarship of teaching and learning	Co-authoring a manuscript with a faculty member/Co-authoring a manuscript with an undergraduate or graduate student	0 (0.0%)	4 (8.5%)	0 (0.0%)
Subject-based research and inquiry and scholarship of teaching and learning	Working on a grant proposal with a faculty member/Working on a grant proposal with a student	1 (4.8%)	1 (2.1%)	1 (1.6%)
Subject-based research and inquiry and scholarship of teaching and learning	Co-presenting with a faculty member at a conference, workshop, seminar, or symposium/Co-presenting with a student at a conference, workshop, seminar, or symposium	0 (0.0%)	1 (2.1%)	1 (1.6%)
Other	Organizing committee member for a research-conference that includes both faculty and student representatives/Organizing committee member for a research-conference that includes both faculty and student representatives	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other	Internship placement with a faculty	0 (0.0%)	2 (4.3%)	4 (6.6%)

	supervisor/Internship placement supervisor			
Other	Service-learning placement with a faculty supervisor/Service-learning placement supervisor	0 (0.0%)	1 (2.1%)	1 (1.6%)
Other	Working with a faculty member to develop and/or deliver community outreach activities/Working with students to develop and/or deliver community outreach activities	1 (4.8%)	1 (2.1%)	5 (8.2%)
Other	Student leader in an organization with direct faculty supervision or guidance/Supervisor or advisor for a student-lead organization	0 (0.0%)	0 (0.0%)	10 (16.4%)
N/A	Prefer not to say	3 (14.3%)	0 (0.0%)	0 (0.0%)

Note: *Collaboration was with graduate students (n = 11) and undergraduate students (n = 2)

Results of a one-way ANOVA suggest that participants' perceptions of the overall value of student-faculty partnerships differed significantly by position (i.e., faculty, graduate student, or undergraduate student), F (2, 126) = 8.307, p = < .001, partial η^2 = .117. Specifically, average scores on the SSPQ increased from undergraduate students (3.74 ± 0.53) to graduate students (3.80 ± 0.68) and to faculty (4.32 ± 0.43). Tukey post hoc analysis suggests that the difference in SSPQ scores between faculty and undergraduate students [0.58, 95% CI (.23 to .93), p < .001] and between faculty and graduate students [0.52, 95% CI (1.6 to .88), p = .002] were significant.

Additionally, when thinking about their most impactful student-faculty partnership, a one-way MANOVA determined that participants' position (i.e., faculty, graduate student, and undergraduate student) influenced the SSPQ subscale scores (i.e., reciprocal respect, influence, autonomy, commitment, and partnership) when combined, F (10, 244) = 4.073, p < .001; Wilks' Λ = .734, partial η^2 = .143. Follow-up univariate ANOVAs (Table 2) showed statistically significant differences between participants in different positions on the reciprocal respect (p < .001), influence (p = .002), autonomy (p = .030), and partnership (p = .012) subscales, but not for commitment (p = .344). Tukey post-hoc tests were conducted for all significant univariate ANOVAs (i.e., all subscales excluding commitment). Faculty reported statistically significantly higher scores with regards to reciprocal respect in their most impactful student-faculty partnerships than both graduate [0.73, 95% CI (0.36 to 1.09), p < .001] and undergraduate students [0.76, 95% CI (0.41 to 1.12), p < .001]. Faculty also reported statistically significantly higher scores for influence in their most impactful student-faculty partnerships than both graduate [0.54, 95% CI (0.37 to 1.05), p = .032] and undergraduate students [0.73, 95% CI (0.25 to 1.22), p = .001]. Conversely, the only statistically significant differences in scores for

autonomy were between faculty and undergraduate students, with faculty scoring higher [0.46, 95% CI (0.05 to 0.86), p = .025]. With regards to partnership, significant differences in scores were again found between faculty and graduate students [0.44, 95% CI (0.01 to 0.89), p = .042] and between faculty and undergraduate students [0.52, 95% CI (0.11 to 0.94), p = .009] where in each case faculty had higher ratings (see Table 2).

Table 2. Means, standard deviation, and one-way multiple analyses of variance in student-faculty partnership values by participant role

MEASURE	FAC. *M*	FAC. *SD*	GRAD. *M*	GRAD. *SD*	UNDER -GRAD. *M*	UNDER -GRAD. *SD*	F (2, 126)	H^2
Reciprocal respect	4.52	0.33	3.79	0.72	3.76	0.53	14.537***	0.187
Influence	4.248	0.177	3.707	0.118	3.514	0.104	6.423*	0.093
Autonomy	4.27	0.149	3.865	0.099	3.814	0.087	3.62*	0.054
Commitment	4.143	0.155	3.889	0.104	3.899	0.091	1.077	0.017
Partnership	4.206	0.152	3.762	0.101	3.682	0.089	4.551*	0.067

Note: Fac = faculty, grad = graduate student, and undergrad = undergraduate student.
*p = < .05, **p = < .001

An additional one-way MANOVA revealed no significant difference in SSPQ subscale scores (i.e., reciprocal respect, influence, autonomy, commitment, and partnership) collectively based on student-faculty partnership type, F (15, 326.15) = 1.203, p = .267, Wilks' Λ = .862, partial η^2 = .048. Descriptive statistics for SSPQ subscales by partnership type can be found in Table 3.

Table 3. Means and standard deviations of student-faculty partnership values by partnership category

PARTNERSHIP CATEGORY	MEASURE	*M*	*SD*
Learning, teaching, and assessment	Reciprocal respect	3.82	.63
Learning, teaching, and assessment	Influence	3.63	.77
Learning, teaching, and assessment	Autonomy	3.72	.62
Learning, teaching, and assessment	Commitment	3.83	.79
Learning, teaching, and assessment	Partnership	3.71	.72
Curriculum design and pedagogic consultancy	Reciprocal respect	3.40	.66
Curriculum design and pedagogic consultancy	Influence	3.36	.73
Curriculum design and pedagogic consultancy	Autonomy	3.48	.38
Curriculum design and pedagogic consultancy	Commitment	3.61	.64
Curriculum design and pedagogic consultancy	Partnership	3.33	.61
Subject-based research and inquiry and scholarship of teaching and learning	Reciprocal respect	4.04	.60
Subject-based research and inquiry and scholarship of teaching and learning	Influence	3.79	.84
Subject-based research and inquiry and scholarship of teaching and learning	Autonomy	4.09	.75
Subject-based research and inquiry	Commitment	4.02	.70

and scholarship of teaching and learning			
Subject-based research and inquiry and scholarship of teaching and learning	Partnership	3.90	.65
Other	Reciprocal respect	3.76	.63
Other	Influence	3.67	.94
Other	Autonomy	3.86	.64
Other	Commitment	3.95	.59
Other	Partnership	3.75	.81

DISCUSSION

This study sought to investigate whether there are differences in the perceptions of student-faculty partnership values across faculty, graduate, and undergraduate students, and whether these values differ by partnership category (Healey et al., 2014). Our results indicate that regardless of the partnership categories participants were involved in, there were no differences in their perceptions of SaP values. This is a promising finding as it suggests that regardless of if individuals are involved in teaching and learning activities, disciplinary research, or curricular work, their activities are grounded in similar perceived SaP values. However, when examining the average scores for each SaP value measured by the SSPQ by partnership category, several subscales fell between 3–4, suggesting there is room for improvement (Table 3). We also discovered that faculty perceive themselves as adhering to the SaP values of reciprocal respect, influence, partnership, and autonomy to a higher degree than both graduate and undergraduate students perceive faculty as adhering to these values (notwithstanding statistically significant differences for autonomy found only between faculty and undergraduates). For faculty, all scores fell above 4, suggesting "good" alignment with core SaP values (based on Marten et al. 's [2019] rating), whereas graduate and undergraduate scores fell between 3 and 4, suggesting improvements are needed. In our study, undergraduate students rated influence lowest, as did the participants in Marten et al.'s (2019) work for the partnership they were currently involved in. As such, a common challenge in partnership work is students feeling as though they can actually influence educational improvements rather than simply be present while decisions are made. This notion is further supported by Chittle et al.'s (2023) work, where an undergraduate student explained that "decisions are more so just made by the faculty members, and students are just there." This suggests that the faculty perception that they are adhering to SaP values is not an actual reflection of the strength and nature of the partnership (see also Houser et al., 2013). Variances between student and staff perceptions on values underpinning partnership have been noted in other SaP research contexts (Ali et al., 2021).

For both graduate and undergraduate students, the greatest discrepancy in scores with faculty was seen for reciprocal respect followed by influence, indicating that, at least to some degree, students are feeling as though they are not fully valued by or experiencing equal contributions from faculty and do not feel that they are able to influence decision-making and

contribute to educational improvements. This is concerning given that partnerships are intended to be reciprocal and reflect equitable efforts (e.g., Cook-Sather et al., 2014); however, it appears students perceive power imbalances present rather than power-sharing relations (Matthews, 2017). In all subscales, except commitment, the difference in mean rating between faculty and students was greater for undergraduate students than graduate students, suggesting that undergraduates perceive faculty as demonstrating these values to a lesser extent than graduate students. This may be attributed to more autonomy given to graduate students or their holding of more senior positions (e.g., lead teaching assistant, undergraduate mentor in a research lab) with greater responsibilities and leadership opportunities (Chittle et al., 2023). It is important to note that both faculty and students responded to the SSPQ based on their experiences within their most impactful partnership activity; however, we cannot be certain (given the self-reported nature of the collected data) that the intention for these activities was to be partnership based, which may help to explain the differences in perceptions of partnership values that we witnessed.

One of the strengths of this study is that it adds to the small body of empirical evidence related to student-faculty partnerships. Through its quantitative approach it explores perceptions of SaP values among students and faculty who have engaged in several types of activities (e.g., research, curriculum, teaching) that can be categorized as SaP practices according to Matthews et al.'s (2017) SIQ. Much of the existing research on SaP values has been theoretical or limited to a narrow scope of partnership activities. As such, this research offers deeper insights into the question of how students and faculty (dis)agree in terms of the presence of SaP values. Such information can be used to launch discussions over how to initiate partnerships as well as how to cultivate a faculty-wide culture that is receptive to SaP. We also believe this research brings to light some of the more challenging aspects of partnership practices. Lastly, this study also offers evidence to support the reliability of the SSPQ in another context.

Implications

There is an abundance of SaP research that supports common issues with partnership work resulting from power imbalances (Matthews et al., 2018; Mercer-Mapstone et al., 2017). However, this study, to the best of our knowledge, is the first of its kind to compare the perceptions of faculty and students regarding the presence of partnership values. Our research relies on self-reported involvement in SaP practices, which may not have always been explicitly framed in a traditional partnership lens that is presented in the SaP literature. Regardless, we believe this study offers important baseline data to better understand our faculty context and offers a nuanced picture of views and experiences which can help address tensions that can arise when promoting partnerships that may be relevant to others. Furthermore, our results can be used to inform student-faculty conversations for co-creating partnership values.

Our findings emphasize the need for partnership activities to be intentional, which occurs where activities are formally framed and communicated to students as partnerships. Ensuring this commitment to partnership is crucial to its sustainability (Marie & McGowan, 2017). As suggested by Smith et al. (2021), ensuring key antecedents of authenticity, reciprocity, and inclusivity are present is critical to removing barriers associated with student partnership. As such, an open dialogue between faculty and students where these values are

discussed from a theoretical perspective along with how these values are demonstrated/adhered to in practice is important in the establishment of any partnership task. As articulated by Foran et al. (2020), partnership activities should explicitly acknowledge the key values for these partnerships but also recognize the value of participants' experiences and encourage face-to-face time among participants to be successful. We also encourage frequent check-ins between students and faculty that offer honest conversations on the status of the partnership task and challenges in order to encourage power-sharing and reflexivity. Doing so requires a safe working environment.

Within our context, we intend to use our findings to launch discussions of how faculty and students can collaborate as partners which will also necessitate the development of various supports and resources. Prior research suggests that some undergraduate students perceive imaginary power imbalances or power differentials as "internally ingrained" (Chittle et al., 2023) as the academy has taught them to respect prestige and those in positions of power. These feelings stem from tradition rather than faculty members interacting with students in such a way that emphasizes these dynamics (Chittle et al., 2023). Nonetheless, there is still the responsibility of faculty members who want to work in partnership to break these traditional hierarchical structures that higher education has been built upon. Moreover, SaP initiatives have only recently gained momentum, so it is possible that established faculty may not have experienced this type of collaboration in their own academic training, and, as such, their work with students mimics the hierarchical structure that is common in higher education. With this in mind, we encourage formalized training of the SaP model during faculty onboarding (e.g., new faculty orientations, workshops, etc.) to raise awareness and illustrate an alternative way for students and faculty to work together. There are also a plethora of SaP activities, and these vary in terms of intensity and time commitment required. Noting this as part of any centralized training and promotion is important as some activities may appeal to faculty members who are new to the SaP approach but are interested in trying this form of collaboration with students. Furthermore, including SaP information and resources as part of faculty or departmental training may help offset the concerns of faculty who are uncertain of how to initiate partnership relationships and begin to mediate existing institutional and cultural structures that are resistant to partnerships by normalizing SaP as an effective means of engaging with students (Matthews et al., 2018).

Limitations and future directions

This study included only the perceptions of students and faculty in one Faculty of Science at a single post-secondary institution, and, therefore, results may not be generalizable to other institutions. This study includes participants' self-reported involvement in SaP activities, and there lies the possibility that not all activities identified by participants were explicitly framed in a partnership lens. While several attempts were made to recruit faculty and students to complete the online survey, our sample size was limited to 129 participants. While this sample size provided sufficient power for data analysis, we recommend this work be expanded to include other faculties and institutions to enhance the generalizability of the results. The SSPQ includes several important values for successful partnership endeavours; however, it does not include the full range of values proposed in the literature (Higher Education Academy, 2014; Healey et al., 2014, 2016). Future research would benefit from

exploring differences in faculty and student perceptions of other SaP values (e.g., empowerment, trust, challenge, community). A small number of participants identified experiential learning practices (e.g., service learning, internship) as impactful, demonstrating the need to further understand how authentic partnerships can be cultivated with industry members. Because participants self-enrolled in the study, there is the possibility for selection bias or social desirability responding. In this vein, it is also possible that we received responses primarily from participants who have more positive experiences in partnership activities. This study quantifies participants' perceptions of partnership values and so there would be merit in following-up this research with interviews and/or focus groups to better understand the discrepancies that were noted between faculty and students, as it appears faculty perceive themselves as adhering to the partnership values to a greater extent than student perceive them. Lastly, there would be value in replicating this study with activities that are framed as partnerships from their onset.

CONCLUSIONS

This study adds to the limited empirical literature on student partnerships by examining differences in perceptions of partnership values between faculty, graduate students, and undergraduate students as well as by the category of partnership. Strengths of this research include the faculty-wide approach, which allowed us to capture a range of SaP activities, rather than single initiatives or case studies, as well as the inclusion of graduate students—a sample that has been less studied in SaP research. A key finding from this work is that faculty perceive themselves as aligning with several partnership values at a higher degree than students perceive faculty as doing so, suggesting there is an important disconnect worthy of future investigation in order to ensure students have opportunities for authentic partnerships capable of transformation.

This research received clearance from our institutional research ethics board.

NOTES

1. Influence and autonomy subscales were derived from Spreitzer's (1995) Psychological Empowerment Scale. Additionally, Meyer et al.'s (1993) Affective Commitment Scale was used to measure commitment, with the remaining two scales (i.e., reciprocal respect and partnership) developed by Martens et al. (2019).

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