A cross-national, cross-sectional study of women's retention and advancement in Information Technology (IT) and Engineering careers – Germany Report

By: Drs. Lyn Hoang, Jennifer Dengate, Tracey Peter, Annemieke Farenhorst, Minna Salminen-Karlsson, and Andrea Wolffram

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Finally, thanks to all who participated. We deeply appreciate your honesty and for taking the time to complete the survey.

Key Findings

- Survey respondents mostly identify as woman (vs. trans or non-binary), between the ages of 30 and 39 years old, are married/cohabiting, and heterosexual.
- Most respondents work within engineering compared to computer sciences or information technology (CSIT) (70% vs. 30%). The majority work in the academic sector (82.6%), and in a research-focused position. Due to the low number of respondents in the non-academic sector, we were unable to conduct some cross-sector comparisons.
- Overall, engineering respondents have greater perceptions of work autonomy, however, CSIT respondents perceive more meaningfulness in their work. Respondents in the non-academic sector perceive more meaningfulness in their work, whereas academic respondents indicate more work autonomy.
- Nearly two-in-three of respondents indicate plans to change jobs in the next two years. There appears to be greater retention in the academic sector compared to non-academic participants. Primary reasons for turnover intention are job-related due to not having a permanent position (e.g., limited term position/contract ending), and other job-related factors such as dissatisfaction with salary or hostile climate. A lack of opportunities for promotion, advancement, and/or career growth also contribute to turnover intention.
- Supportive workplaces, effective leadership/management, and meaningful work are highlighted as factors supporting job retention.
- Overall, CSIT respondents perceived their workplaces as less gender equitable than engineering respondents. In addition, respondents working in the non-academic sector report less gender equity within the workplace than academic respondents.
- Engineering respondents also have more positive perceptions regarding their management's commitment to gender equity compared to CSIT respondent. Non-academic respondents also displayed more cynicism toward their organizations' commitments for gender equity.
- One-half of respondents indicate that they are personally impacted by gender-stereotyping within the workplace. CSIT respondents indicate more gender stereotyping in the workplace compared to engineering respondents. Non-academic respondents are more likely to agree that male colleagues/coworkers have a problem viewing women as equals.
- Respondents have mostly positive perceptions about workplace support and inclusion - however exclusion remains a problem affecting many respondents. Overall, engineering respondents report greater workplace support and inclusion compared to CSIT respondents. Respondents who indicate experiencing workplace exclusion or lack of support were less satisfied by their careers and experience more workplace alienation.
- Over three-quarters of respondents indicate that they have experienced at least one incident of exclusion, discrimination, and/or harassment in the workplace. More engineering respondents have indicated experiencing hostility or other negative experiences compared to CSIT respondents. Non-academic respondents also indicate experiencing more hostility and or negative experiences compared to academic respondents.
- Formal reporting is low for all respondents, however, non-academic respondents were more likely to formally report all types of hostility and/or negative incidents compared to academic respondents. Of respondents who formally reported incidents of exclusion, discrimination,

and/or harassment, there is a high level of dissatisfaction in the outcomes of reporting. Those who do not report, indicate the lack of anonymity as preventing them from reporting.

- Sexual harassment and/or sexual microaggressions also occur in workplaces, especially in the non-academic sector. Many respondents who have experienced sexual harassment and microaggressions also report intentions to change jobs within the next two years.
- Overall, respondents indicate that their workplace culture may not be conducive to women's success. The academic sector is more encouraging of women to raise concerns about gender biases compared to the non-academic sector. However, more academic respondents indicated that when they do raise concerns about gender issues, they are seen as 'whiners.'
- Respondents who experience interferences in their work-life balance are more emotionally exhausted. Workplaces that support work-life balance may lower experiences of workplace alienation.
- Internal and external networks remain heavily gendered. In addition, many respondents do not have access to good mentors - or mentors willing to use their influence to help their careers - at their current workplaces.
- Respondents largely perceive gender biases and gender inequality within STEM careers. Non-academic respondents perceive the most barriers to women in STEM.
- Respondents believe that there should be increases to government benefits and subsidies, especially regarding older adult-related care subsidies.

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Sample Size and Description

A total of 363 individuals from 14 federal states in Germany responded to the cross-national, cross-sectional study of women's retention and advancement in information technology and engineering careers survey (see Table 1).[1]

Table 1: Respondent distribution across Regions in Germany

REGION	PERCENT
WESTERN GERMANY:	
North Regions (Bremen, Hamburg, Niedersachsen, Schleswig-Holstein)	21.7%
South Regions (Baden-Württember, Bayern, Rheinland-Pfalz, Saarland)	42.3%
West Regions (Hessen, Nordrhein-Westfalen)	20.9%
East Regions (Berlin)	7.2%
EASTERN GERMANY:	
Brandenburg, Sachsen, Sachsen-Anhalt	8%
Mecklenburg-Vorpommern, Thuringen	0%
TOTAL	100%

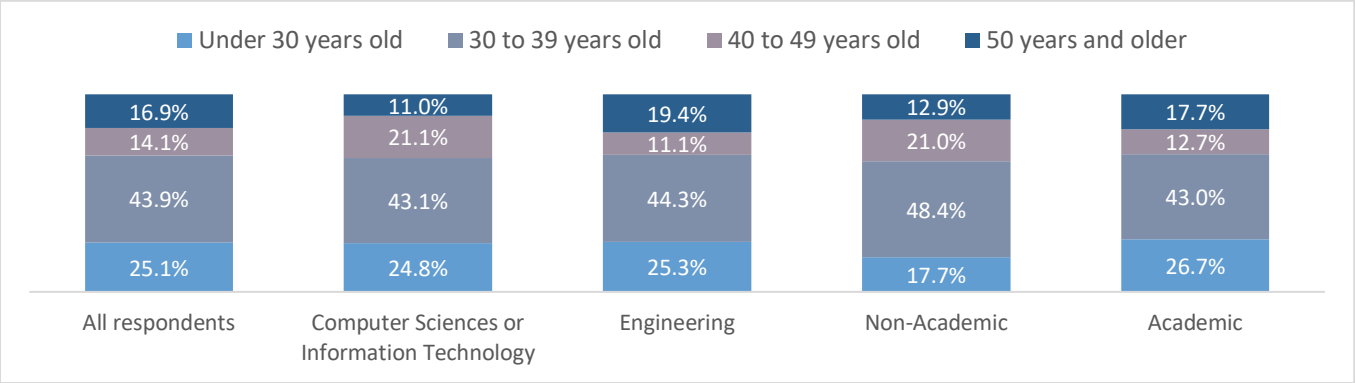
Nearly all respondents identify as woman, and 1% identify as non-binary or gender diverse. Most respondents are between the ages of 30 to 39 years old (43.9%) (see Figure 1). Most speak German as their first language (84.3%). Overall, 81.8% of respondents were born in Germany, the remaining were born elsewhere. The vast majority of respondents identify as white (90.6%) and the remaining report a racialized identity. As well, most report heterosexual sexual identities (89.4%). Only 10.6% report minoritized sexual identities. Nearly one-quarter of respondents indicate having at least one disability or chronic health condition (23.8%).

This survey was administered to respondents employed in engineering and information and communications technology (EICT). Almost all respondents reported currently working for pay (98.6%). The majority of respondents work in the academic sector (82.6%), followed by private sector (15.7%), and public sector (1.7%). Due to the small number of respondents in the public sector, we combined private sector with public sector to generate a non-academic sector (17.4%). Herein we use the term 'work area' when comparing engineering respondents to computer sciences or information technology (CSIT) respondents, and the term 'sector' when comparing respondents working in academia to those working in the non-academic area.

Overall, there are more engineering respondents than those working in CSIT (70% vs. 30%). There is an equal proportion of CSIT and engineering respondents working in the academic sector (82.6% vs. 82.7%) and the non-academic sector (17.4% vs. 17.3%).

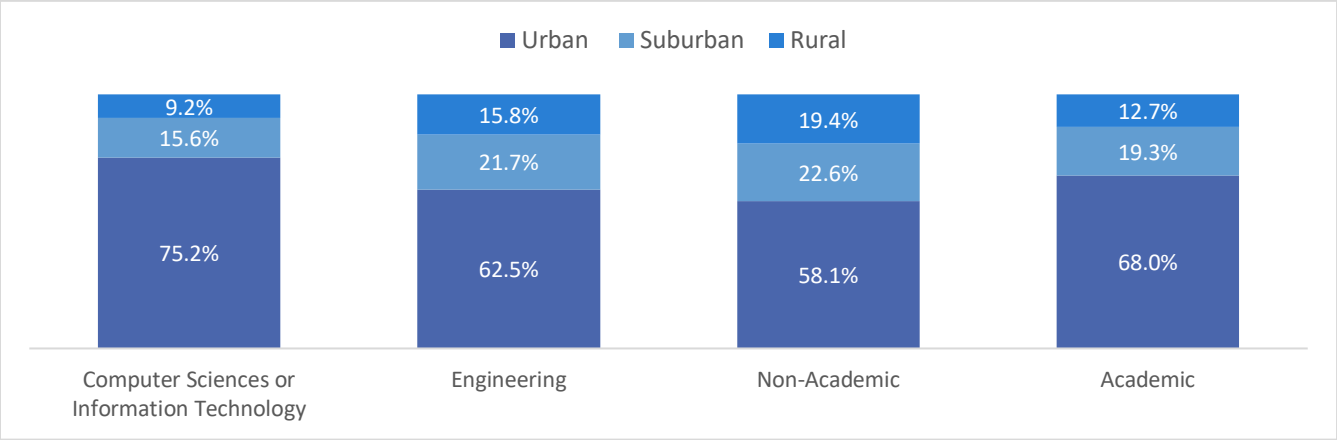
[1] Totals exceed 100% due to rounding.

Figure 1: Age Distribution of Respondents



Respondents indicated living in urban areas (66.3%), suburban areas (19.9%), and rural areas near a city/suburb (12.4%) or remote rural area (1.4%). Figure 2 depicts the geographic breakdown of respondents by work area and sector.

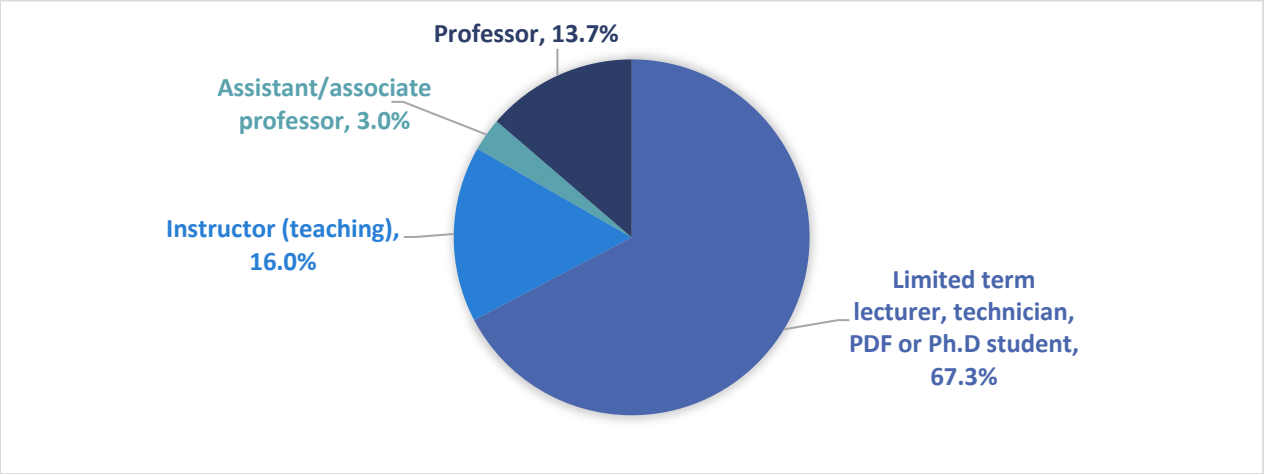
Figure 2: Geographic Breakdown by Work Area and Sector



Of respondents employed in the academic sector, most are in a research-focused position (80%), followed by teaching-focused (14.6%), and those in a tech or other staff position (5.4%). Figure 3 depicts the rank of academic respondents.[2] Overall, 22.9% of all survey respondents indicate being in a leadership position. Of respondents in these leadership positions, 44.3% of non-academic respondents indicate holding a management position, and 18.5% of academic respondents indicate holding an administrative position.

[2] n=300

Figure 3: Rank (Academic Respondents Only



In terms of education, most survey respondents reported a master's level education (50.7%), followed by doctorate (34.4%), and bachelor's degree or less (14.9%). There are no notable differences in the level of education of respondents by work area. However, across sectors – a greater proportion of respondents working in academia have master's degrees (52.3%) or doctorate degrees (35%) compared to respondents working in the non-academic sector (42.9% and 31.7%, respectively).

Most respondents indicated a personal annual income (before taxes) between 40,000 to 69,999 Euro (60.5%). Overall, more respondents working in CSIT report being the primary income earner in their household compared to engineering respondents (57.4% vs. 47.6%). Similarly, more respondents working in academia are the primary income earner compared to non-academic respondents (51.5% vs. 46.4%).

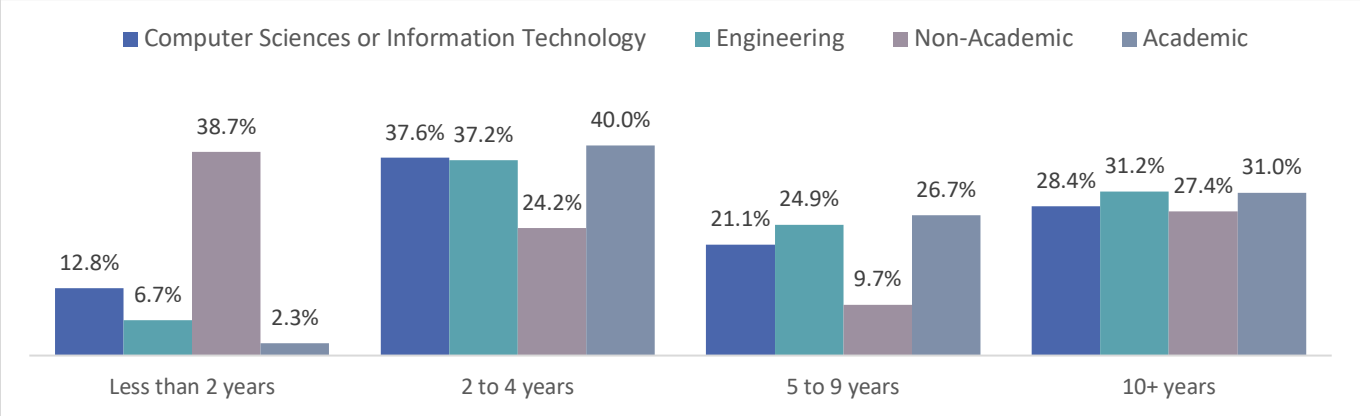
When examining family dynamics, nearly three-quarters of respondents are in a cohabiting relationship with a partner or spouse (71.5%), an additional 11.8% are in a relationship but not cohabiting, and the remaining 16.6% are not in a relationship. There were no notable differences in family dynamics of respondents between work areas. However, across sectors, more respondents working in the non-academic sector indicated cohabiting with a partner or spouse compared to academic respondents (82.3% vs. 69.3%).

A total of 39% of respondents indicated being a parent or guardian of a child or children. Of the respondents with children, most have two children (49.6%), followed by one child (35.3%), then three or more children (15.1%). More engineering respondents reported having children compared to CSIT respondents (37.1% vs. 43%). Across sectors, more academic respondents reported having children compared to non-academic respondents (40.2% vs. 32.3%). Overall, 75.7% of respondents with children report their child(ren) being under 16 years old. Nearly one-quarter of respondents currently have child(ren) under 2 years of age (22.1%).

Employment History and Tenure

All respondents reported on their length of time employed in an EICT field. One-half of respondents indicated being in their mid-career (5 to 20 years) (50.8%), while a third (32.8%) reported being early in their career (i.e., less than 5 years). One-in-five respondents are in their late career working over 20 years in EICT (20.8%). Respondents also reported diverse lengths of time at their current position (see Figure 4).

Figure 4: Length of Time at Current Position



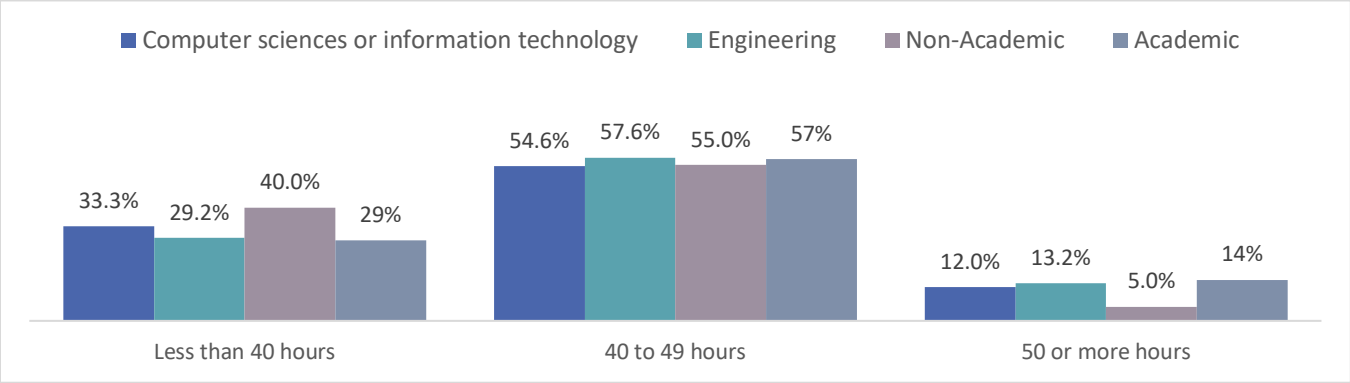
In terms of job stability, most respondents indicate they do not have tenure, continuing appointments, or a full-time permanent position (61%). There are no notable differences between engineering respondents (39.3%) and CSIT respondents (38.5%) regarding job stability. However, across sectors, a larger proportion of non-academic respondents have continuing appointments or full-time permanent positions compared to academic respondents (82% vs. 30%). This is a difference of 50 percentage points.

Working Hours

Respondents report their weekly hours engaging in paid work at their current employment. Most respondents work between 40 and 49 hours per week (56.7%). Nearly one-third work fewer than 40 hours per week (30.4%), and the remaining respondents reported working 50 or more hours per week (12.9%).

As illustrated in Figure 5, there are differences in working hours across work areas and sectors. Most notably, 14% of academic respondents report working more than 50 hours per week. By comparison, only 5% of non-academic respondents report such working hours. Between work areas, respondents working in CSIT report slightly longer working hours per week than engineering respondents.

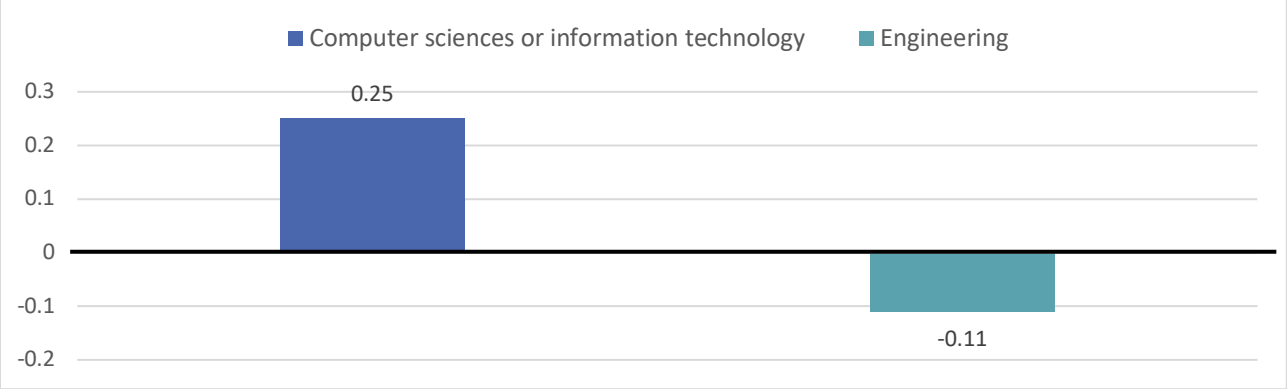
Figure 5: Working Hours of Respondents



Workplace Flexibility and Flexible Working Arrangements

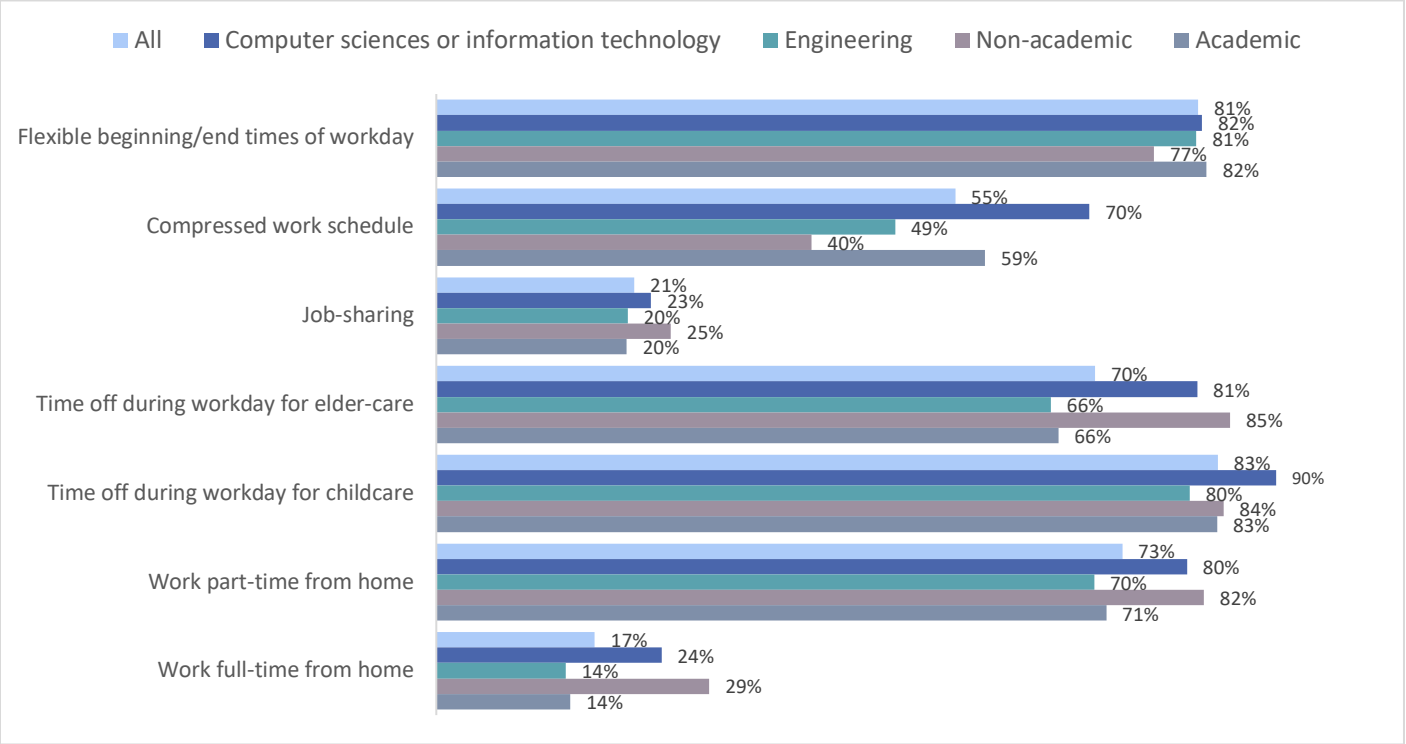
Respondents were asked about the flexible work arrangements available to them (pre-COVID-19 and during the COVID-19 pandemic). An index was computed to analyze overall workplace flexibility. As such, negative scores represent below average options for workplace flexibility, and positive scores represent above average options for workplace flexibility. As shown in Figure 6, respondents working in CSIT (M = .25, SD = .97) recorded a positive score on the Index, while those working in engineering (M = -.11, SD = .96) recorded a negative score.

Figure 6: Workplace Flexibility Options Index



To explore this further, we examine the types of different flexible work arrangements offered by employers. As shown in Figure 7, CSIT respondents are more likely to report access to a variety of flexible work arrangements compared to engineering respondents. More academic respondents also report having flexible start and end times, and working a compressed schedule. However, non-academic respondents are more likely to have the flexibility to take time off during the day for elder-care, and have options to work from home either part-time or full-time.

Figure 7: Workplace Flexibility Options Offered by Employers



We find that when flexibility arrangements are available by their employers, respondents report using them. For example, most respondents indicate using flexible arrangements offered by employers at least two times (84.6%) during their employment.

We also asked respondents who indicate that these flexible work arrangements are not offered by their current employer if they would utilize these arrangements if they were made available to them. Overall, many respondents indicated that they would use flexible work start and end times (92%), compressed schedules (87.5%), work part-time from home (100%), work full-time from home (70.6%), take time off during the workday for childcare (68.8%), or for elder care (52.2%). Between work areas, more respondents working in CSIT indicated a willingness to use compressed schedules than engineering respondents (95% vs. 86%), take time off during workday for childcare (75% vs. 67%), and work full-time from home (81.4% vs. 67.2%). Notably, more engineering respondents (61%) indicated they would use the option to take time off during workday for elder care compared to CSIT respondents (20%). Across sectors, respondents working in a non-academic environment indicated more willingness to utilize flexible work start and end times compared to academic respondents (100% vs. 90%), take time off for eldercare (67% vs. 50%) and/or childcare (100% vs. 61.5%). However, academic respondents (71%) were slightly more likely to indicate a willingness to use the option to work full-time from home compared to non-academic respondents (68%).

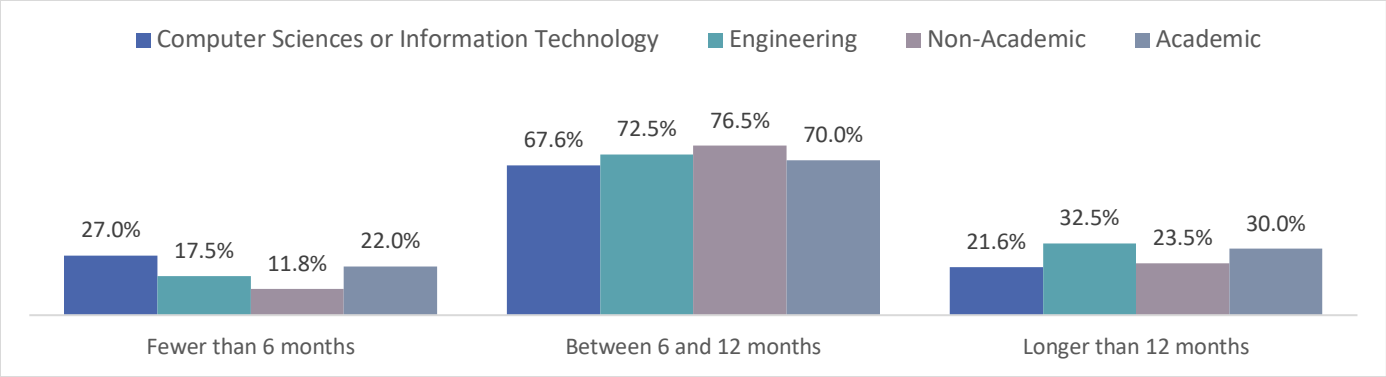
When exploring turnover intention along with flexibility arrangements, we find that respondents who indicated intention to change jobs in the next two years are more likely to also indicate that their current workplaces lack flexible work arrangements. For example, 63.7% of respondents who indicated job turnover intention report no informal or semi-formal flexible arrangements available for them. Similarly, 73.1% of respondents who indicated job turnover intention report no formal forms of workplace flexibility arrangements.

Parental Leave, Childcare, and Other Workplace Leave of Absences

Nearly two-thirds of survey respondents indicated having taken a leave from work at some point in their career for non-sabbatical/non-research purposes (61.9%). When examining reasons, one-in-three respondents have taken parental leave (33.6%). Other reasons for taking a leave of absence include short-term leave (5.3%), disability-based leave (5%), caregiving leave (2.2%), and long-term leave (1.9%).

A closer examination shows 91.5% of CSIT respondents with child(ren) have taken parental leave compared to 88.2% of engineering respondents with child(ren). Across sectors, more respondents working in a non-academic environment have taken parental leave compared to respondents working in the academic sector (88.3% vs. 95%). Figure 8 depicts the length of maternity/parental leave taken by respondents across work areas and sectors.[3] In addition, we asked respondents about whether the other parent took maternity/parental leave. Of respondents with child(ren),[4] 38.1% report that the other parent did not take any parental leave with any child. The remaining 61.9% indicated the other parent took parental leave for at least one child. Overall, respondents in the non-academic sector were more likely to report the other parent having taken parental leave compared to academic respondents (70% vs. 60%).

Figure 8: Length of Maternity/Parental Leave Across Work Area and Sector



[3] Totals exceed 100% to account for multiple parental/maternity leaves taken by respondents.
[4] n=130

We asked respondents with child(ren) about childcare. Overall, 15.2% have a spouse/partner providing childcare, 10.9% have family/friends providing childcare, 22.5% use before/after school programs, 44.2% utilize daycare, and 8% use other childcare services.

Adult Caregiver Experience

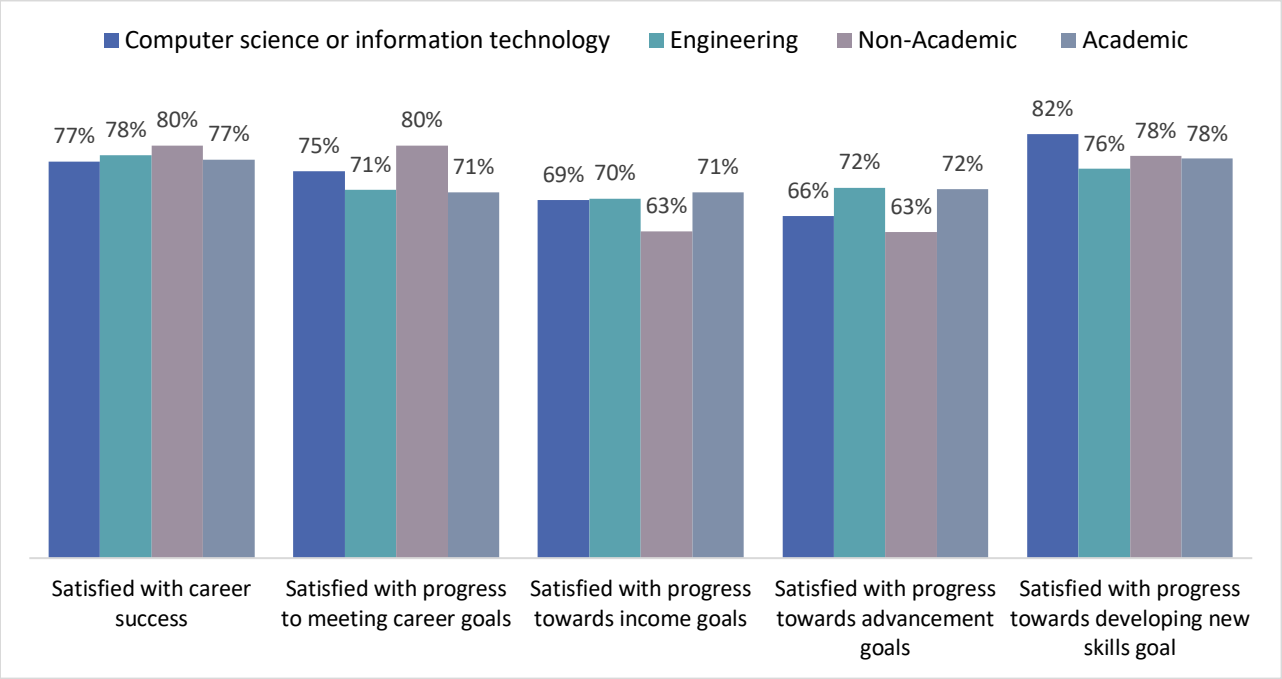
Respondents were asked about their role as a caregiver/guardian for an adult(s). Overall, 9% of survey respondents reported that they are currently or formerly a caregiver of an adult (e.g., elderly parent). The majority of these respondents work in engineering (62.5%) compared to CSIT (37.5%). Across sectors, considerably more academic respondents' report being a current or former caregiver/guardian of an adult (84.4%) compared to non-academic respondents (15.6%).

Perceptions on Career Trajectory, Advancement, and Career Satisfaction

Overall, 54.8% of survey respondents report being on track (average advancement) compared to 31.7% who report being behind a typical promotion/advancement track, and 13.5% perceive themselves to be ahead. Between work areas, more engineering respondents report feeling on track (56.4%) or ahead of track (14.8%) compared to CSIT respondents (51% and 10.6%, respectively). By comparison, more CSIT respondents indicate feeling behind track (38.5%) compared to engineering respondents (28.8%). Across sectors, more than one-half of academic respondents indicate feeling on track (57%) or ahead of track (11.2%) compared to non-academic respondents (44.3% and 24.6%, respectively). Similar percentages of academic and non-academic respondents indicate feeling behind track (31.8% vs 31.1%).

To further investigate, respondents were asked a series of questions to measure career satisfaction. As illustrated in Figure 9, engineering respondents were more likely to report feeling satisfied with their progress towards advancement/promotion goals compared to CSIT respondents. However, more CSIT respondents were satisfied with their progress toward meeting career goals, and developing new skill goals compared to engineering respondents.
Across sectors, academic respondents report greater satisfaction with their progress toward their income goals and/or advancement goals. However, non-academic respondents were more likely to be satisfied with their overall career success and meeting their career goals.

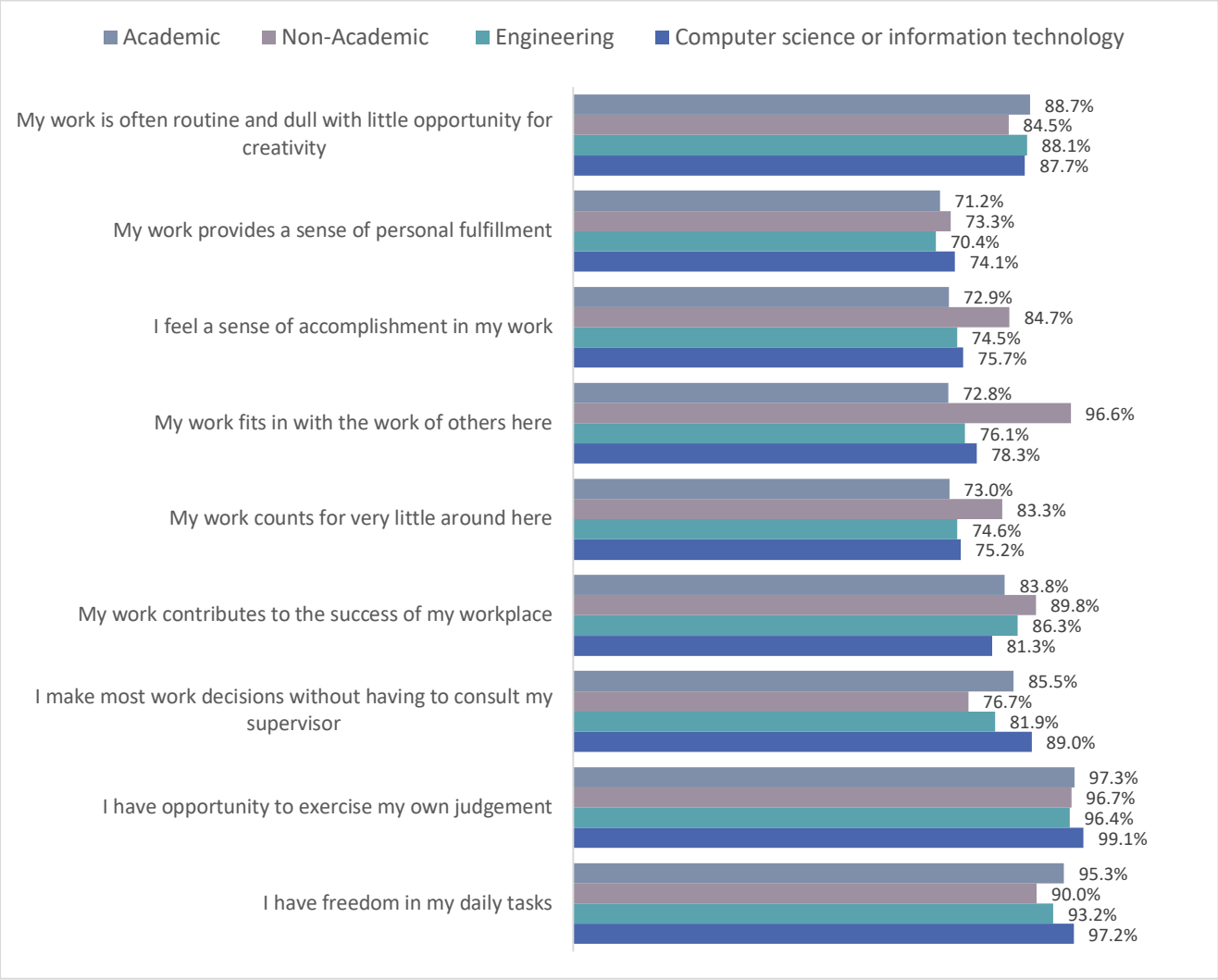
Figure 9: Perceptions on Career Satisfaction



Work Autonomy and Meaningful Work

Respondents were asked a series of questions about their perception of work autonomy (e.g., "I have a good deal of freedom to perform my daily task…"), and meaningfulness (e.g., "I feel a sense of accomplishment in the type of work I do..."). As shown in Figure 10, perceptions of work autonomy are higher among respondents working in engineering compared to CSIT. However, perceptions of meaningful work are higher among CSIT respondents. Across sectors, there is an overall greater perception of work autonomy among academic respondents compared to non-academic respondents, but a greater sense of meaningful work in non-academic respondents.

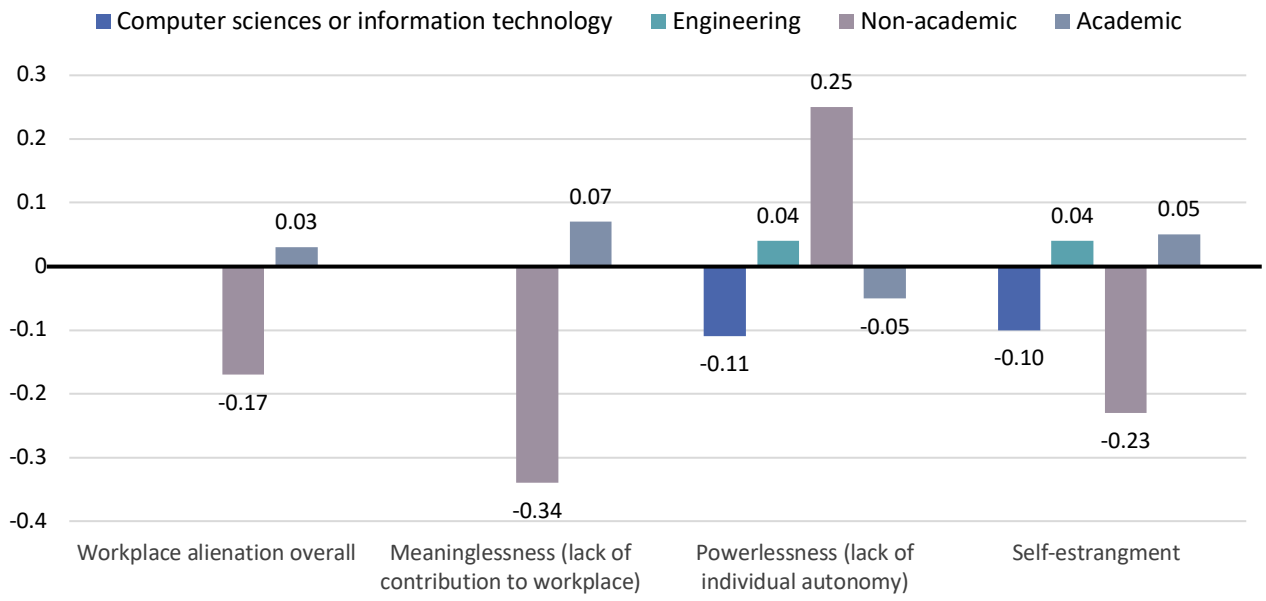
Figure 10: Perceptions of Work Autonomy



Workplace Alienation

Respondents were asked a series of questions about workplace alienation. Measures included feelings of meaninglessness (lack of contribution to the workplace), powerlessness (lack of individual autonomy), and self-estrangement (lack of connection to others, society and humanity; first defined by Karl Marx – German: Entfremdung). A Workplace Alienation Index was calculated with negative scores representing below-average workplace alienation and positive scores indicating above average workplace alienation. As illustrated in Figure 11, CSIT respondents recorded negative scores for powerlessness (M = -.11, SD = .85) and self-estrangement (M = -.10, SD = .94). Respondents working in non-academic sectors also recorded below average workplace alienation (M = -.17, SD = 1.07), meaninglessness (M = -.34, SD = .84), and self-estrangement (M = -.23, SD = 1.06). Respondents working in the academic sector record above average experiences of powerlessness (M = 0.04, SD = 1.04).

Figure 11: Workplace Alienation Index



Future Job Attrition

Respondents were asked if they plan to change jobs in the next two years (not including retirement). Overall, 60.9% of survey respondents plan to change jobs. A closer look reveals that those working in the academic sector indicate more turnover intention than those working in non-academic areas (62.3% vs. 54.3%). There were no notable differences between turnover intention of CSIT and engineering respondents (60.2% vs. 61.2%).

Respondents who indicated they were planning to change jobs in the next two years were asked a series of follow-up questions to enhance understanding regarding their motivations for a job change. Of these respondents (n=201), 57.2% reported only one reason for considering a job change. The remaining 42.8% reported two or more reasons. Overall, the most reported reason is temporary/limited term or contract position ending (67.7%). Other motivations for job-change include job-related (e.g., dissatisfaction with salary or few promotion opportunities or hostile climate) (44.3%), personal reasons (e.g., no longer interested in work and want a change) (32.8%), family-related reasons (e.g., relocating for spouse/partner's job or to be closer to elderly parents, or to provide childcare) (14.4%), and education-related reasons such as returning back to school for new/higher degree or certification (3.5%).[5] A closer look reveals that respondents in the non-academic sector are more likely to indicate job-related reasons as being a factor in their turnover intention compared to academic respondents (77.4% vs. 38.2%). By contrast, academic

[5] Note: Totals exceed 100% to account for respondents who listed multiple reasons for job-change.

respondents (78.8%) are more likely to indicate intention to change jobs because of their position ending compared to non-academic respondents (6.5%).

An excerpt of open-ended comments reveals many respondents intend to leave their position due to their current job contract (or limited term position/Ph.D.) ending. These comments express frustration, and highlight a lack of permanent positions within science in the academic sector: [6]

> *Academic situation at universities has few long-term possibilities - (Akademische Situation an Universitäten hat wenig langfristige Möglichkeiten).* (Academic).
>
> *I want time for children, family, friends, health and financial security through a permanent position – (Ich moechte Zeit fuer Kinder, Familie, Freunde, Gesundheit und finanzielle Sicherheit durch eine unbefristete Stelle).* (Academic).
>
> *In science, unfortunately, there are almost only temporary positions. This offers a great deal of uncertainty. In addition, my work is not valued, so I would like to generate more added value. I am doing the doctorate for me personally, not because of the work. – (In der Wissenschaft gibt es leider nahezu nur befristete Stellen Dieses bietet eine große Unsicherheit. Zudem wird meine Arbeit nicht wertgeschätzt, sodass ich gerne einen größeren Mehrwert generieren würde. Die Promotion mache ich für mich persönlich, nicht wegen der Arbeit).* (Academic).
>
> *My contract is ending and I don't see a future in university/research. A temporary position is simply too insecure if you want to have children or take out a loan. Furthermore, you have to change your place of residence and earn less money during that time. – (Mein Vertrag endet und ich sehe keine Zukunft in der Universität/Forschung. Eine befristete Stelle ist einfach zu unsicher, wenn man Kinder haben möchte oder einen Kredit aufnehmen. Weiterhin muss man seinen Lebensort wechseln und verdient in der Zeit weniger Geld).* (Academic).

Comments also suggest that a lack opportunities for promotion, advancement, and/or career growth contribute to turnover intention:

> *Lack of opportunities for advancement, dissatisfaction with conditions/restrictions of public service – (Fehlende Aufstiegsmöglichkeiten, Unzufriedenheit mit den Bedingungen/Einschränkungen des öffentlichen Dienstes).* (Non-academic).
>
> *The opportunities for advancement, both in terms of position and salary, are not really there. My boss sometimes has very outdated views that I don't want to continue to support. There is very little time left to write my doctorate - (Die Aufstiegschancen sowohl von der Position, als auch von dem Gehalt sind nicht wirklich vorhanden. Mein*

[6] Comments have been translated into English. Original comment in German is included in parentheses. Comments without parentheses were originally written in English by the respondent.

Chef hat teilweise sehr veraltete Ansichtsweisen, die ich nicht weiter unterstützen möchte. Es bleibt sehr wenig Zeit dafür, meine Promotion zu schreiben). (Academic).

There are no opportunities for growth. The institute where I work has not had a professor for more than 5 years, so there is no opportunity to do a PhD. The university bureaucracy and politics have a great influence on the funding of research projects. The focus is on money and not on science. – (Es gibt keine Wachstumsmöglichkeiten. Das Institut, an dem ich arbeite, hat seit mehr als 5 Jahren keinen Professor mehr, und deshalb gibt es keine Möglichkeit, zu promovieren. Die Universitätsbürokratie und die Politik haben großen Einfluss auf die Finanzierung von Forschungsprojekten. Der Fokus liegt auf dem Geld und nicht auf der Wissenschaft.) (Academic).

Other respondents point toward gendered differences and/or the mistreatment of women in the workplace – including inequitable (or poor) salaries, lack of appreciation, lack of women in the workplace as motivations for leaving their current jobs:

90 percent men in the workplace. I can't do it any longer. - (90 Prozent Männer am Arbeitsplatz. Kann ich nicht mehr). (Academic).

Absolutely toxic environment and hardly any opportunities for women to stay and advance – (Absolut toxisches Umfeld und kaum Bleibe- und Aufstiegsmöglichkeiten für Frauen). (Academic).

Lower pay than male colleagues in comparable positions – (Schlechtere Bezahlung als männliche Kollegen in vergleichbarer Position). (Academic).

The working atmosphere is not good, work accomplished is not valued. Years of experience are not worth anything. In my department, women's performance is not recognized. Women are overlooked/ignored during restructuring – (Das Arbeitsklima ist nicht gut, die geleistete Arbeit wird nicht wertgeschätzt. Jahrelange Erfahrung ist nichts wert. In der Abteilung wird die Leistung von Frauen nicht anerkannt. Frauen werden bei Umstrukturierungen übergangen). (Non-Academic).

As a woman in a technical profession, you are systematically discriminated against and not promoted by superiors and the HR department – (Man wird von Vorgesetzten und der Personalabteilung als Frau in einem technischen Beruf systematisch diskriminiert und nicht befördert). (Non-Academic).

The company I am currently working at is undergoing an acquisition. Depending on the new owner, their strategy and culture, I might have to look for other opportunities elsewhere. That may be the case if their culture is not supportive of women in leadership, if my boss changes and I don't get along with my new boss, or if I feel like I can't develop my skill set any further within the company. Additionally, I feel like I might currently be underpaid compared to male co-workers, so I'll start looking around soon to get a feeling

if I can get more pay in a similar position at another company. If that's the case, I'm willing to change jobs again. (Non-academic).[7]

Comments also indicate job-related factors (e.g., workload, working hours, and working conditions) and organizational failings as impacting decisions to change jobs. Many comments also indicate a desire to switch sectors.

> *1) The contract was set for 5 years from the start. There are far too few postdoc positions, so I won't be able to stay there. 2) Also, you earn a lot more in industry. 3) I don't enjoy the work anymore because it's absolutely meaningless and I miss teamwork. But that is the point of university research. Analyzing things whose application and purpose are (still) unknown. – (1.) Vertrag war von Anfang an auf 5 Jahre festgelegt. Postdoc stellen gibt es viel zu wenige deshalb werde ich dort nicht bleiben können. 2.) Außerdem verdient man in der Industrie viel mehr. 3.) Die Arbeit macht mir keinen Spaß mehr, da sie absolut bedeutungslos ist und ich Teamarbeit vermisse. Aber das ist der Sinn von universitärer Forschung. Dinge analysieren, deren Anwendung und Zweck (noch) unbekannt sind). –* (Academic).

> *Working conditions in academia (fixed-term, no time tracking, rather short-term planning, few perspectives), I want to do something "new" and go into industry, get paid. – (Arbeitsbedingungen in der Wissenschaft (Befristung, keine Zeiterfassung, eher kurzfristige Planung, wenig Perspektiven), ich möchte was "Neues" machen und in die Industrie gehen, Bezahlung).* (Academic).

> *The current management style is increasingly leading to frustration. I can hardly realize my personal requirements for a structured, relatively predictable workday. The necessary flexibility in the current climate is increasingly and more and more putting me out of step. Things that I should do and keep time free for, have to be done in my free time, because my working hours and my work schedule are not respected and constantly new appointments about new topics and new tasks are added. I have some side tasks that I think are important, good for the social fabric of the institute, and good for engaging the student body with the institute and improving the public relations of the institute. I now enjoy the side tasks more than my research tasks. Teaching is pushed to the side far too much here, so I can hardly manage that to my satisfaction either. The frustration is high, the appreciation seems to be low for my work content. Constructive criticism and suggestions for improvement are laughed at and not implemented - even if a majority of the scientific staff would like to see this. – (Der derzeitige Führungsstil führt immer mehr zu Frustrationen. Meine persönlichen Anforderungen an einen strukturierten, relativ planbaren Arbeitsalltag kann ich kaum realisieren. Die nötige Flexibilität im jetzigen Klima bringt mich zunehmend und immer mehr aus dem Tritt. Dinge, die ich tun müsste und mir Zeit freihalte, müssen in der Freizeit gemacht werden, da meine Arbeitszeit und meine Arbeitszeitplanung nicht respektiert wird und konstant neue Termine über neue Themen und neue Aufgaben dazukommen. Ich habe einige Nebenaufgaben, die ich für wichtig halte, die dem sozialen Gefüge des Instituts gut tun und die Studierendenschaft gut in das Institut einbinden und die Öffentlichkeitsarbeit des Institutes verbessern. Die*

[7] This comment was written in English by the respondent.

Nebenaufgaben machen mir mittlerweile mehr Spaß als meine Forschungsaufgaben. Lehre wird hier viel zu sehr zur Seite geschoben, sodass ich auch das kaum zu meiner Zufriedenheit gestalten kann. Die Frustration ist hoch, die Wertschätzung scheint mir gering zu sein für meine Arbeitsinhalte. Konstruktive Kritik und Verbesserungsvorschläge werden belächelt und nicht umgesetzt - auch wenn eine Mehrheit des wissenschaftlichen Personals dies gerne sehen würde). (Academic).

Expectations for results and work hours are insanely high along with forced unhealthy competition amongst coworkers. Work related stress is worsening my chronic health condition and I feel like I do not have time to rest or be away from work. This also affects my productivity and motivation to do research. (Academic).[8]

Salary, internal processes, the company is backward in many ways, and there is also no effort to become more modern. - (Gehalt, interne Abläufe, das Unternehmen ist in Teilen rückständig und es gibt auch kein Bestreben, moderner zu warden). (Non-academic).

Open-ended comments also shed light onto job retention and, in several cases, supportive workplaces (e.g., leadership/management or flexible working hours), work autonomy, and/or opportunities to engage in meaningful work are highlighted as reasons for why respondents are staying at their current job.

"Just started" civil service and a really meaningful job with comparatively much creative freedom currently. Overwhelmingly pleasant colleagues. – ("gerade erst angefangen" Verbeamtung und eine wirklich sinnstiftende Arbeit mit vergleichsweise viel Gestaltungsspielraum aktuell. Überwigend angenehme Kollegen). (Non-academic).

Working atmosphere, relatively free organization of working hours, little routine work, many design possibilities, opportunity to always learn something new. – (Arbeitsklima, relativ freie Arbeitszeitgestaltung, wenig Routinearbeit, viele Gestaltungsmöglichkeiten, Möglichkeit, immer wieder Neues zu lernen). (Academic).

Great boss, freedom to bring in new ideas, appreciation, great team, always varied challenges. – (Toller Chef, Freiheit neue Ideen einzubringen, Wertschätzung, tolles Team, immer abwechslungsreiche Herausforderungen). (Academic).

I find my work fulfilling, and even though it can be exhausting at times, I enjoy it immensely. The colleagues are very nice and I really enjoy going to work overall. – (Ich finde meine Arbeit erfüllend, und wenn es auch manchmal anstrengend sein kann, mache ich sie wahnsinnig gerne. Die Kollegen sind sehr nett und ich gehe insgesamt wirklich gerne zur Arbeit). (Academic).

The personal environment, colleagues, tasks and the freedom to work in a way that fits my private life. I don't have to bend. The work is always exciting and offers enough new

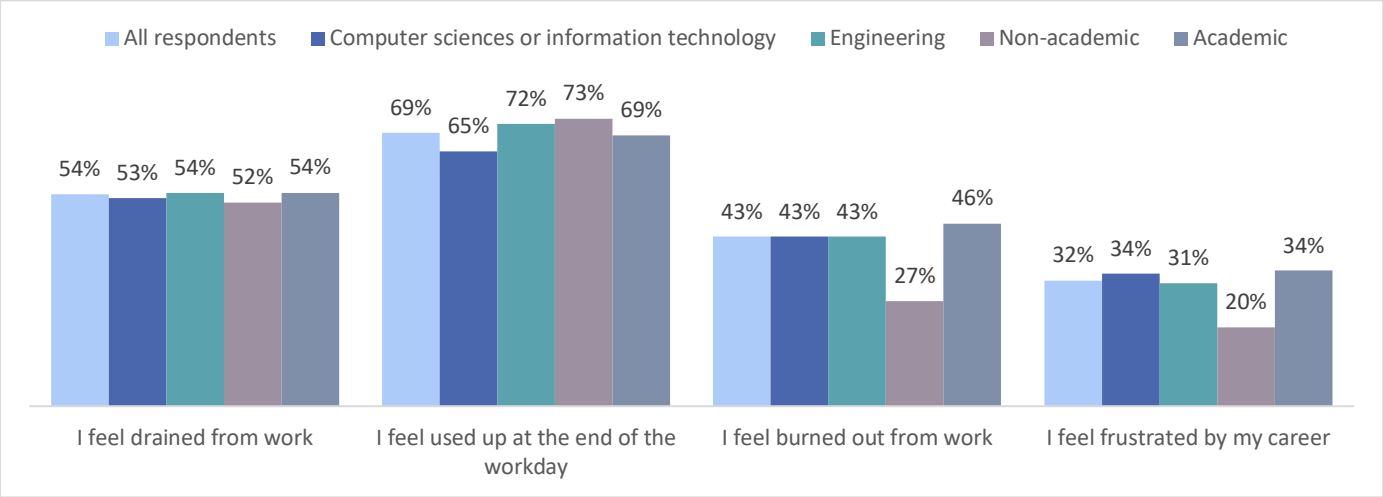
[8] Comment written in English by respondent.

things and no boredom. – (Das persönliche Umfeld, Kollegen, Aufgaben und die Freiheit so zu arbeiten, dass es zu meinen Privatleben passt. Ich muss mich nicht verbiegen. Die Arbeit ist immer spannend und bietet genug Neues und keine Langeweile). (Non-academic).

Work-related Emotional Exhaustion

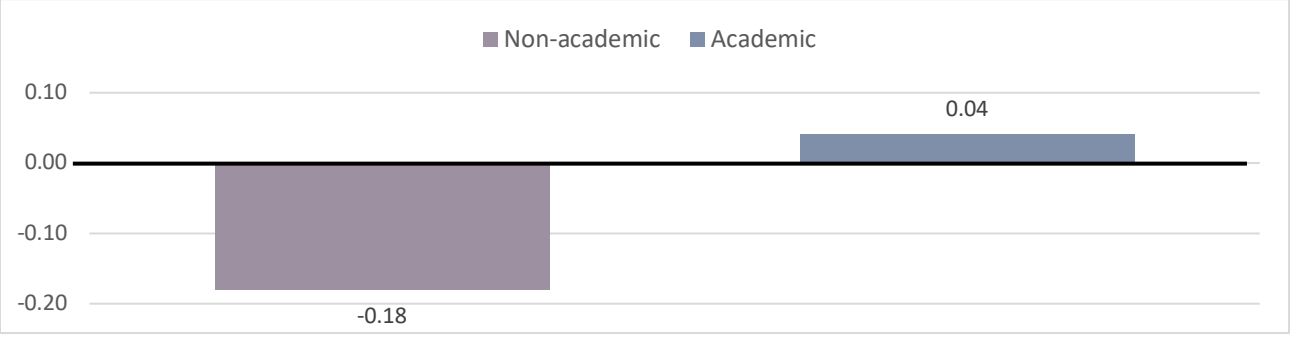
Four individual items were used to measure emotional exhaustion. Overall, most respondents *agree* that they experience emotional exhaustion. As shown in Figure 12, more respondents indicate "feeling drained from work" (54%) or "used up at the end of the day" (69%). A closer examination reveals some large differences across sectors. For example, more academic respondents indicate they feel "burned out from work" (46% vs. 27%) and/or "frustrated by their careers" (34% vs. 20%) compared to non-academic respondents.

Figure 12: Emotional Exhaustion by Work Type and Sector



An Index reflecting overall emotional exhaustion comparing work sectors was computed. As illustrated in *Figure 13*, non-academic respondents recorded below average emotional exhaustion (M = -.17, SD = .85), while academic respondents recorded above average emotional exhaustion (M = .04, SD = 1.02).

Figure 13: Overall Emotional Exhaustion Index



Emotional Labour Experiences with Colleagues or Co-workers

Respondents were asked a series of questions about their experiences with colleagues or co-workers. Results indicate that respondents engage in emotional labour with colleague(s)/co-worker(s). For example, 54.2% of respondents have been in a situation where colleagues/co-workers have cried in their presence; 85.8% have had colleagues/co-workers talk about extreme stress/distress or long-term mental health problems; and 13.2% have experienced a colleague or co-worker disclose suicidality, substance abuse, domestic/dating violence and/or sexual harassment or abuse.[9] In terms of frequency, more than one-half of respondents indicate two or more colleague-centered emotional labour experiences (52.3%). There are no notable differences in emotional labour with colleagues or co-workers across work areas or sectors.

Below are excerpts from comments sharing specific experiences of colleague/co-worker-centered emotional labour:

> *Many of the psychological stresses that colleagues have do not always come from work alone, but often from home/family – (Viele der Psychischen Belastungen, die Kollegen haben, kommen nicht immer nur durch die Arbeit, sondern oft aus dem Elternhaus/Familie).* (Non-academic).

> *Colleagues often talk to me about, for example, their father's progressive dementia, their mother's severe illnesses, broken relationships - this also leads to tears from time to time. Extreme stress is a constant topic; because of this and the resulting depression, one colleague did not finish his doctorate and switched to business. – (Kollegen sprechen mit mir oft über z.B. die fortschreitende Demenz des Vaters, starke Erkrankungen der Mutter, zerbrochene Beziehungen - das führt auch hin und wieder mal zu Tränen. Extremer Stress ist ein Dauerthema, ein Kollege hat aus diesem Grund und der daraus resultierenden Depresseion auch seine Promotion ohne Abschluss beendet und ist in die Wirtschaft gewechselt).* (Academic).

> *…But as a woman working in engineering in a production environment, I have heard my fair share of stories about sexual harassment. And one or two people talking about feeling they might be drinking too much (not necessarily alcoholic, but feeling like it slowly got out of hand).*[10] (Non-academic).

We examined job turnover intention with colleague-centered emotional labour and find that 62.7% of respondents who indicate planning to change jobs in the next two years also reported at least one emotional labour experience with their colleagues or co-workers.

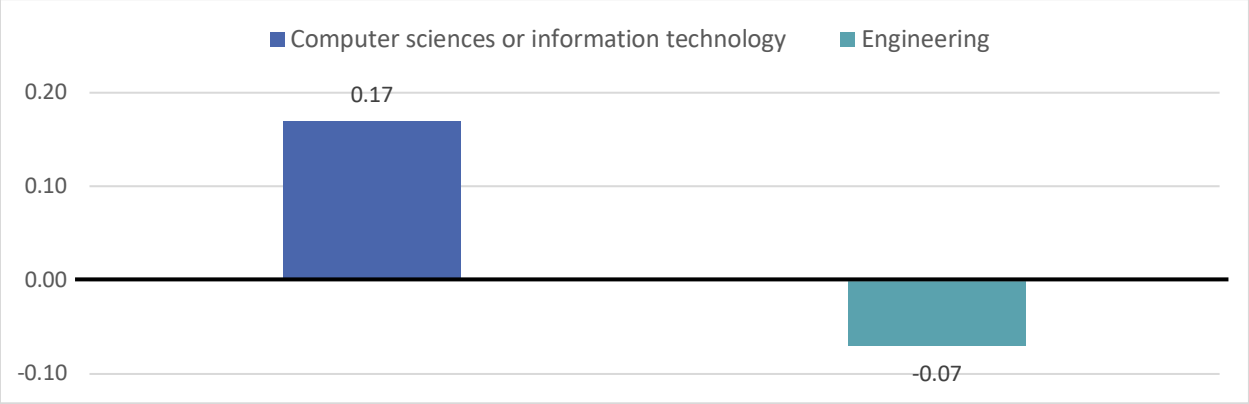
[9] Note: Totals exceed 100% to account for respondents with multiple experiences of emotional labour.
[10] Comment written in English by respondent.

Student-related Emotional Labour (Academic Respondents Only)

Academic respondents also experience emotional labour with students. Nearly one-half of academic respondents report that in the past five years students have cried in their presence (46.7%). More concerningly, over three-quarters of academic respondents report that students have disclosed extreme stress/distress or mental health problems (77.5%), with more than one-third of these respondents indicating that this occurs more often than not, with at least three or more individual incidents (35.8%). In addition, 17.7% of academic respondents report experiencing students disclose suicidality, substance abuse, domestic/dating violence, and/or sexual harassment or assault (self or others).

As illustrated in *Figure 14*, when examining emotional labour with students, CSIT respondents recorded higher scores (M = .17. SD = .97) than engineering respondents working in the academic sector (M = -.07, SD = 1.00). This indicates that CSIT respondents have above average experiences with student-centered emotional labour compared to engineering respondents.

Figure 14: Emotional Labour with Students Index



Below are narratives from respondents about their experiences of student-centered emotional labour. Several respondents indicated that foreign students often require emotional support due to external pressures:

> *Foreign students have a comparatively higher pressure to perform (obligation to provide proof of performance to parents and the foreigners authority). Therefore, in the case of normal failure (e.g., module not passed), they have a higher personal and financial pressure than other fellow students. – (Ausländische Studierende haben einen vergleichsweise erhöhteren Leistungsdruck (Leistungsnachweispflicht gegenüber den Eltern und der Ausländnerbehörde). Daher haben sie bei normalem Versagen (z.B. Modul nicht bestanden) einen höheren persönlichen und finanziellen Druck als andere Kommiliton*innen).*

I work a lot with Indian students and they often have family constraints and money problems. In this context, I sometimes hear about psychological/mental problems. I respond to this by providing them with time support (requests to extend processing time) and encouragement. – (Ich arbeite viel mit indischen Studierenden und diese haben oft familiäre Zwänge und Geldprobleme. In diesem Zusammenhang höre ich manchmal von psychischen Problemen. Ich reagiere darauf, indem ich sie zeitlich unterstütze (Anträge zur Verlängerung der Bearbeitungszeit) und sie ermutige).

During [COVID-19 pandemic] students from other countries often had extreme experiences (e.g. one master's student lost 6 people in her circle of family and friends in India, others fear for their family in Iran). – (Während Corona gab es bei Studierenden aus anderen Ländern oft extreme Erlebnisse (z.B. dass bei einer Masterandin 6 Personen aus der Familie und dem Freundeskreis in Indien verstorben sind, andere fürchten um ihre Familie im Iran).

Other comments indicate a rise in emotional labour with students following the COVID-19 pandemic.

The pressure especially through [COVID-19 pandemic] is very high among students and the isolation and working alone at home resulted in many papers not being completed due to mental health issues. – (Der Druck vor allem durch Corona ist bei Studenten sehr hoch und die Vereinsamung und das Arbeiten alleine Zuhause hat dazu geführt, dass viele Arbeiten aufgrund von psychischen Problemen nicht abgeschlossen warden).

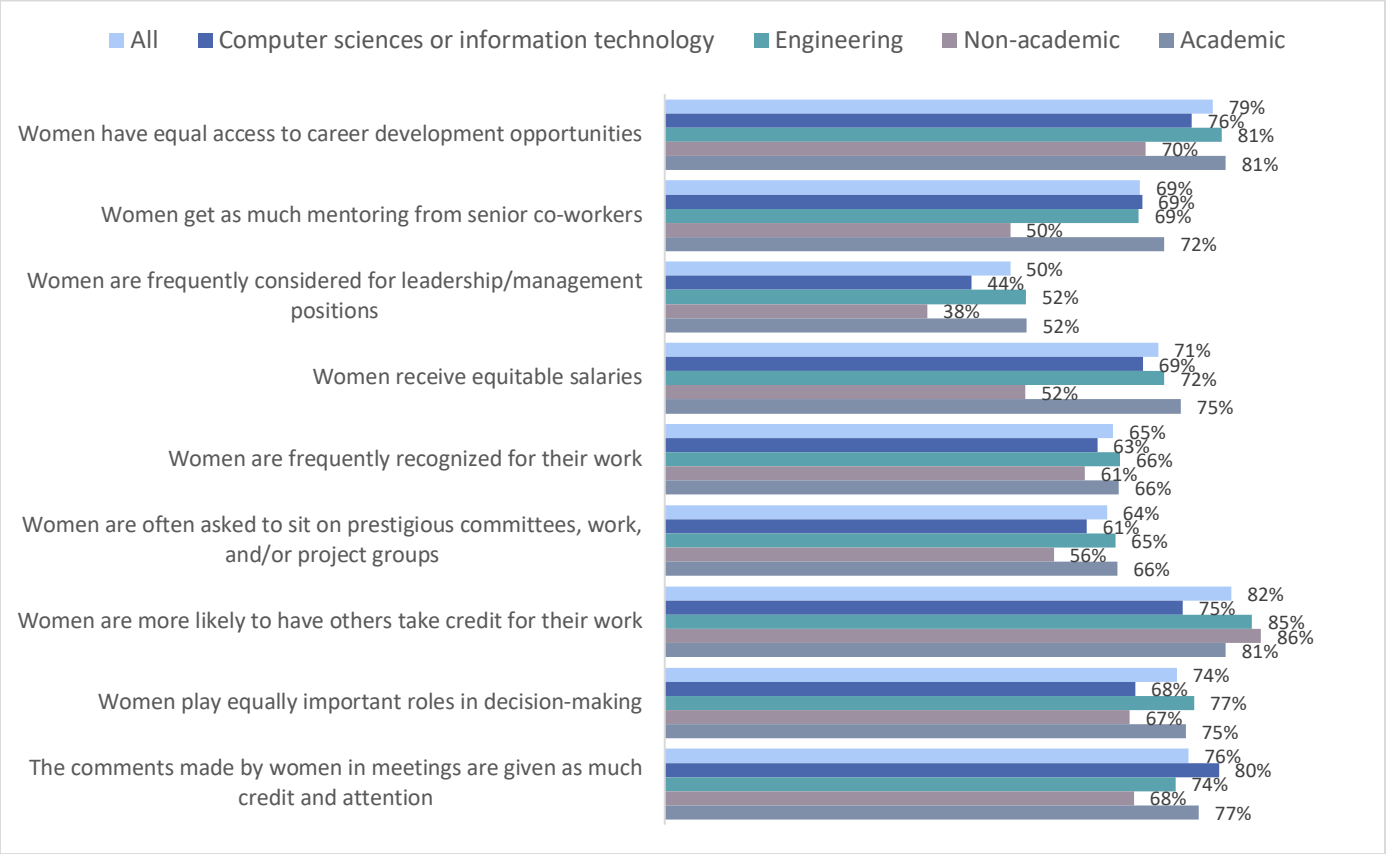
The pandemic was very hard on them; self-isolation for a long time; distancing from peers and work (often also family when they are from abroad)[11]

Gender Equity within Workplaces

Respondents were asked a series of questions about their perceptions of gender equity within their workplaces (Figure 15). Overall, most respondents *agree* that within their workplaces women: have equal access to career development opportunities (79%); have their comments given as much credit and attention in meetings as men (76%); play equally important roles in decision making (74%); receive equitable salaries (71%); are frequently recognized for their work (65%); and are often asked to sit on prestigious committees, work and/or project groups (64%). However, most respondents also agree that women are more likely to have others take credit for their work than men (82%).

[11] Comment written in English by respondent.

Figure 15: Perceptions on Gender Equity within Workplaces



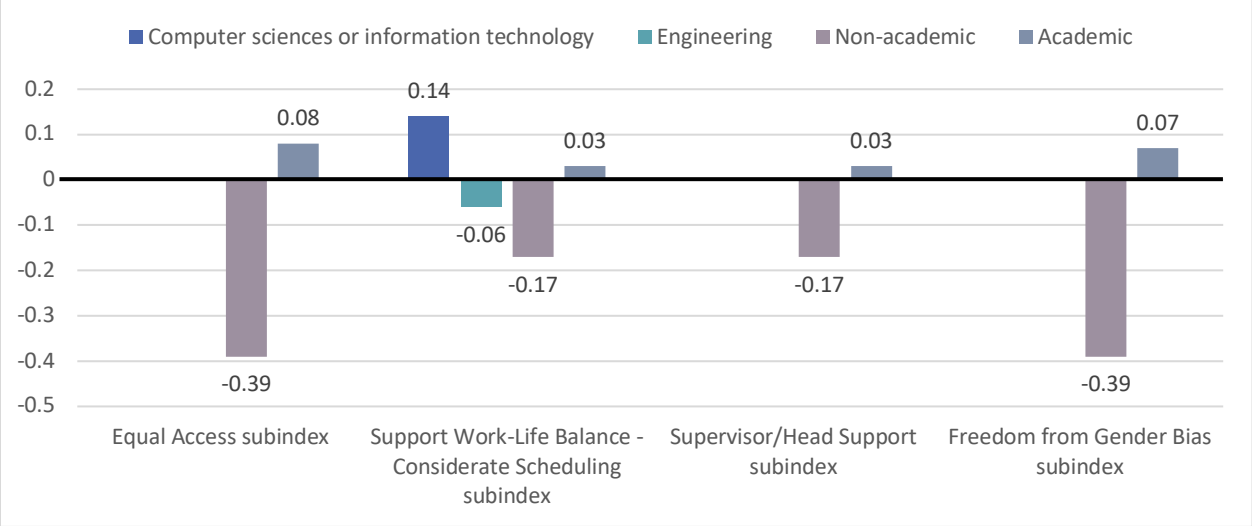
A closer examination reveals that CSIT respondents perceive their workplaces as less gender equitable than engineering respondents. For example, a lower proportion of CSIT respondents agree that women have equal access to career development opportunities, compared to engineering by 5 percentage points; are frequently considered for leadership/management positions by 8 percentage points; or are recognized for their work by 3 percentage points. By contrast, more engineering respondents indicate that women are more likely to have others take credit for their work than CSIT respondents (85% vs. 75%).

There are notable differences in perceptions of gender equity between sectors. Respondents working in the non-academic sector report less gender equity overall than academic respondents. They are less likely to agree to nearly all gender equity statements than academic respondents including: women have equal access to career development opportunities by 11 percentage points; get as much mentoring from senior co-workers by 22 percentage points; are frequently considered for leadership/management positions by 14 percentage points; receive equitable salaries by 23 percentage points; are recognized for their work by 5 percentage points; asked to sit on prestigious committees or project groups by 10 percentage points; play equally important roles in decision making by 7 percentage points; or have their comments given as much credit

and attention as men by 9 percentage points. Moreover, non-academic respondents are also more likely to agree that women have others take credit for their work.

We computed a Workplace Culture Conducive to Women's Success (CCWAS) Index with four sub-indices. Results show that non-academic respondents scored low on each sub-index. For example, non-academic respondents scored low on the Equal Access sub-index (M = -.39, SD = .89) which indicates below average perception of their workplaces offering equal access for women. They also scored low on the Freedom from Gender Bias sub-index (M = -.39, SD = .94). This indicates that non-academic respondents experience below average perceptions of their workplaces being free from gender bias. By contrast, academic respondents scored positively on all sub-indices which suggests above average perceptions of their workplaces offering equal access for women; considerate scheduling to support work-life balance; support from supervisor/head; and/or freedom from gender bias in the workplace (Figure 16).

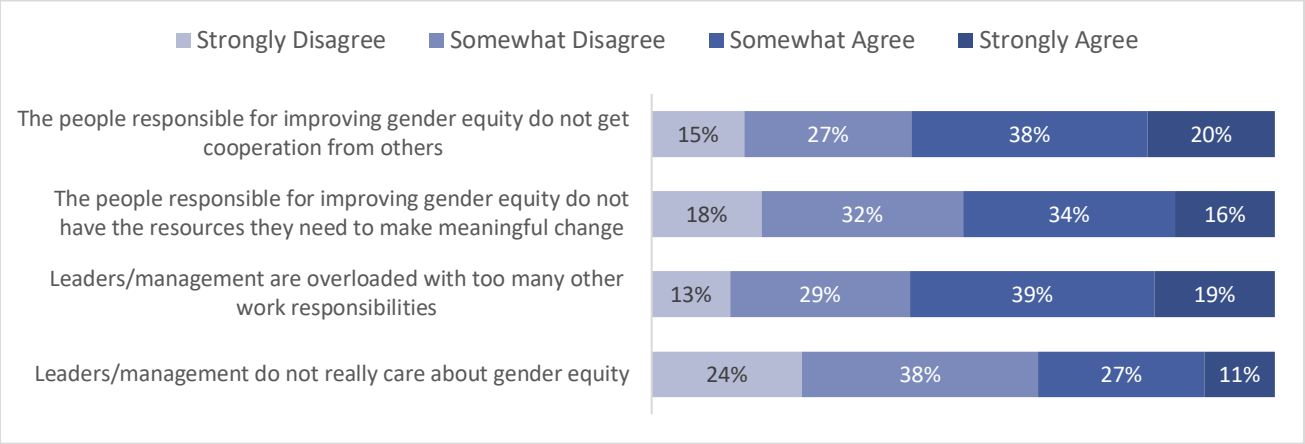
Figure 16: Workplace Culture Conducive to Women's Success (CCWAS) Index



Perceptions on Management/Leadership's Gender Equity Commitments

Respondents were asked a series of questions about their workplaces' commitment to promoting gender equity. As shown in Figure 17, while more than one-half of respondents perceive that their leaders or management care about gender equality within the workplace, more respondents *agree* (strongly or somewhat) that their leadership or management responsible for gender equity do not get the cooperation they need from others; have the resources they need to make meaningful change; and/or are too overloaded with other work responsibilities.

Figure 17: Perception of Leaders/Managements' Commitments to Gender Equity



A closer look reveals that engineering respondents have more positive perceptions regarding their leaders/management's commitment to gender equity. For example, more CSIT respondents *agree* that their leaders/management responsible for promoting gender equity are overloaded with too many other work responsibilities (62.7%); and/or do not have the resources they need to make meaningful change (51.9%); and/or do not get the cooperation they need from others to support gender equity (60%), compared to engineering respondents (56.7%, 49.2%, and 57.7%, respectively).

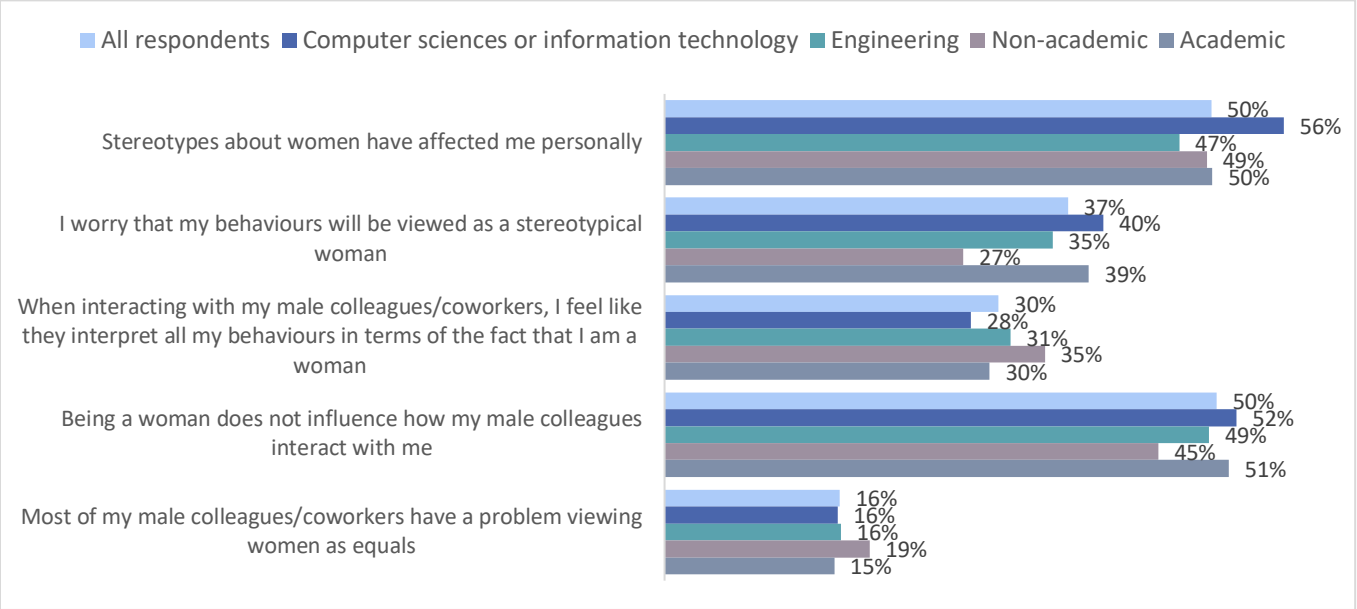
Across work sectors, non-academic respondents displayed more cynicism toward their organizations' commitments to gender equity. For example, more non-academic respondents *agree* that their leaders/management do not care about gender equity compared to academic respondents (50.9% vs. 35.3%). However, academic respondents were more likely to *agree* that their leaders/management in charge of promoting gender equity do not have the resources they need to make meaningful changes (51.4%), and/or do not get the cooperation they need from others (58.9%) compared to non-academic respondents (42.9% and 55.6%, respectively).

We also examined respondents' perceptions of their managements' commitment to gender equity with both career satisfaction and workplace alienation as individual outcome measures, respectively. We find that respondents who display more cynicism by *agreeing* to the statement "leaders/management do not really care about gender equity" recorded a negative score on the Career Satisfaction Index (M = -.19, SD = .95), and a positive score on the Workplace Alienation Index (M = .17, SD = .96). In other words, respondents who are more cynical have below average levels of career satisfaction and above average workplace alienation compared to respondents who *disagree* to this statement.

Gender Stereotyping in Workplaces

Survey results reveal that respondents have experienced some form of gender stereotyping in the workplace. As illustrated in Figure 18, one-half of respondents agree that stereotypes about women have personally affected them. Moreover, more than one-third of respondents also indicate that they worry their behaviours will be "gender stereotyped" by their colleagues/co-workers (37%). In addition, one-in-six respondents also indicate that most of their male colleagues/coworkers have a problem viewing women as equals. As shown, there are also some differences in perception of gender stereotyping across work areas. Overall, CSIT respondents indicate more gender stereotyping in the workplace compared to engineering respondents. Across sectors, academic respondents are more likely to worry that their behaviours will be viewed as stereotypically woman compared to non-academic respondents (39% vs. 27%). However, more non-academic respondents indicate that most of their male colleagues/coworkers have a problem viewing women as equals.

Figure 18: Perceptions on Gender Stereotyping in the Workplace

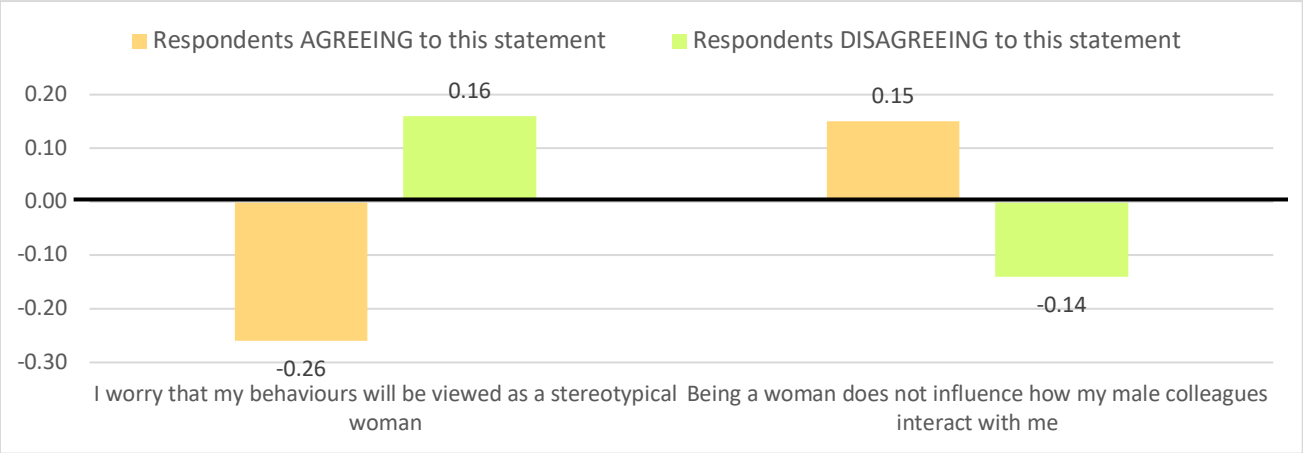


To examine experiences of gender stereotyping along with career satisfaction, an index was computed. Positive scores on the Index indicate above average levels of career satisfaction, and negative scores on the Index indicate below average levels. As illustrated in Figure 19, respondents who *agree* with the statement "I worry that my behaviours will be viewed as a stereotypical woman" scored low on the Career Satisfaction Index (M = -.26, SD = .91), compared to those who *disagree* with the statement (M = .16, SD = .99). This negative score indicates less career satisfaction than respondents who had a positive score.

Similarly, respondents who *agree* to the statement "being a woman does not influence how my male colleagues interact with me" scored high on the Index (M = .15, SD = .93). This positive

score indicates above average career satisfaction especially compared to respondents who *disagree* to this statement of gender support.

Figure 19: Index of Career Satisfaction by Personal Experiences of Gender Stereotyping



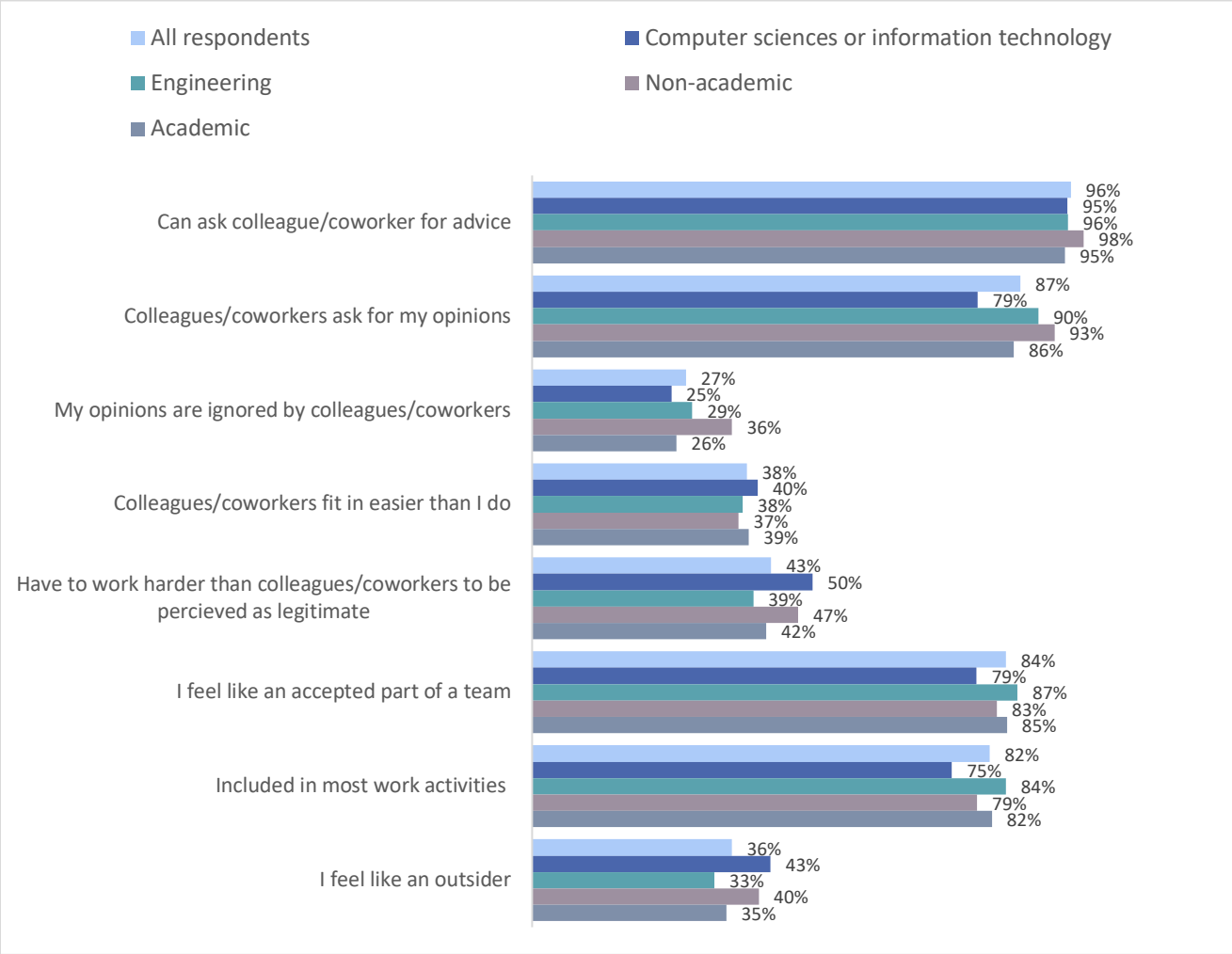
We also examined experiences of gender stereotyping along with workplace alienation. Similarly, we find that respondents who *agree* to statements of gender stereotyping such as "I worry that my behaviours will be viewed as stereotypical woman" scored high on the Index (M = .26, SD = 1.02) suggesting above average workplace alienation. By contrast, respondents who *disagree* to this statement scored low (M = -.17, SD = .94).

Perceptions on Workplace Support and Inclusion

Overall, respondents have mostly positive perceptions about workplace support and inclusion (Figure 20). However, many respondents indicate that they also have had their opinions ignored by colleagues/co-workers (27%), that they view their colleagues/co-workers as having an easier time "fitting in" (38%), that they believe they have to work harder than others to be perceived as "legitimate" (43%), and that they sometimes feel like an outsider (36%).

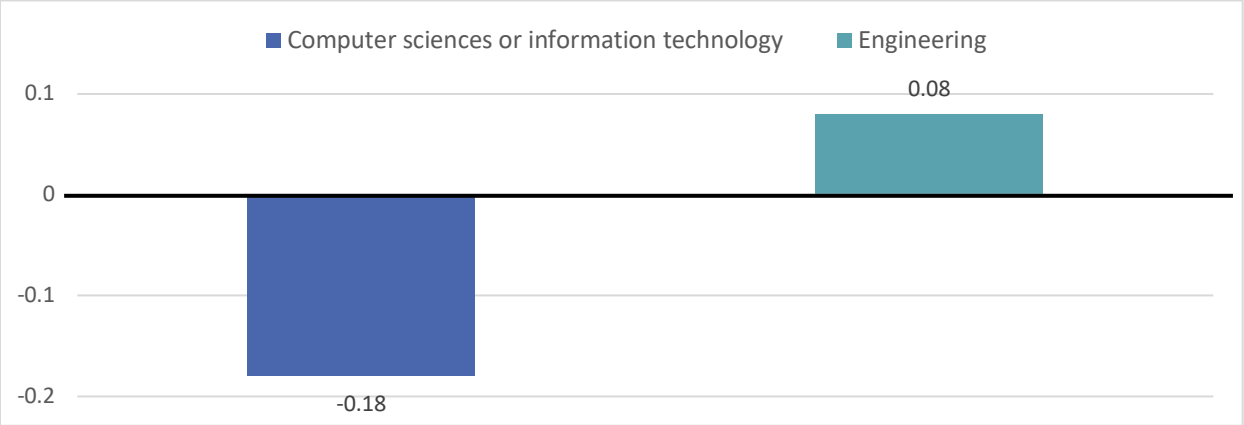
A closer look shows that between work areas, engineering respondents report greater support and inclusion compared to CSIT respondents. For example, more CSIT respondents (43%) report feeling like an outsider compared to engineering respondents (33%). By contrast, engineering respondents are more likely to agree that colleagues and coworkers ask for their opinions (90%), feel like an accepted member of the team (87%), and are included in most work activities (84%) compared to CSIT respondents (79%, 79%, and 75%, respectively).

Figure 20: Personal Experiences of Workplace Support and Inclusion by Work Area and Sector



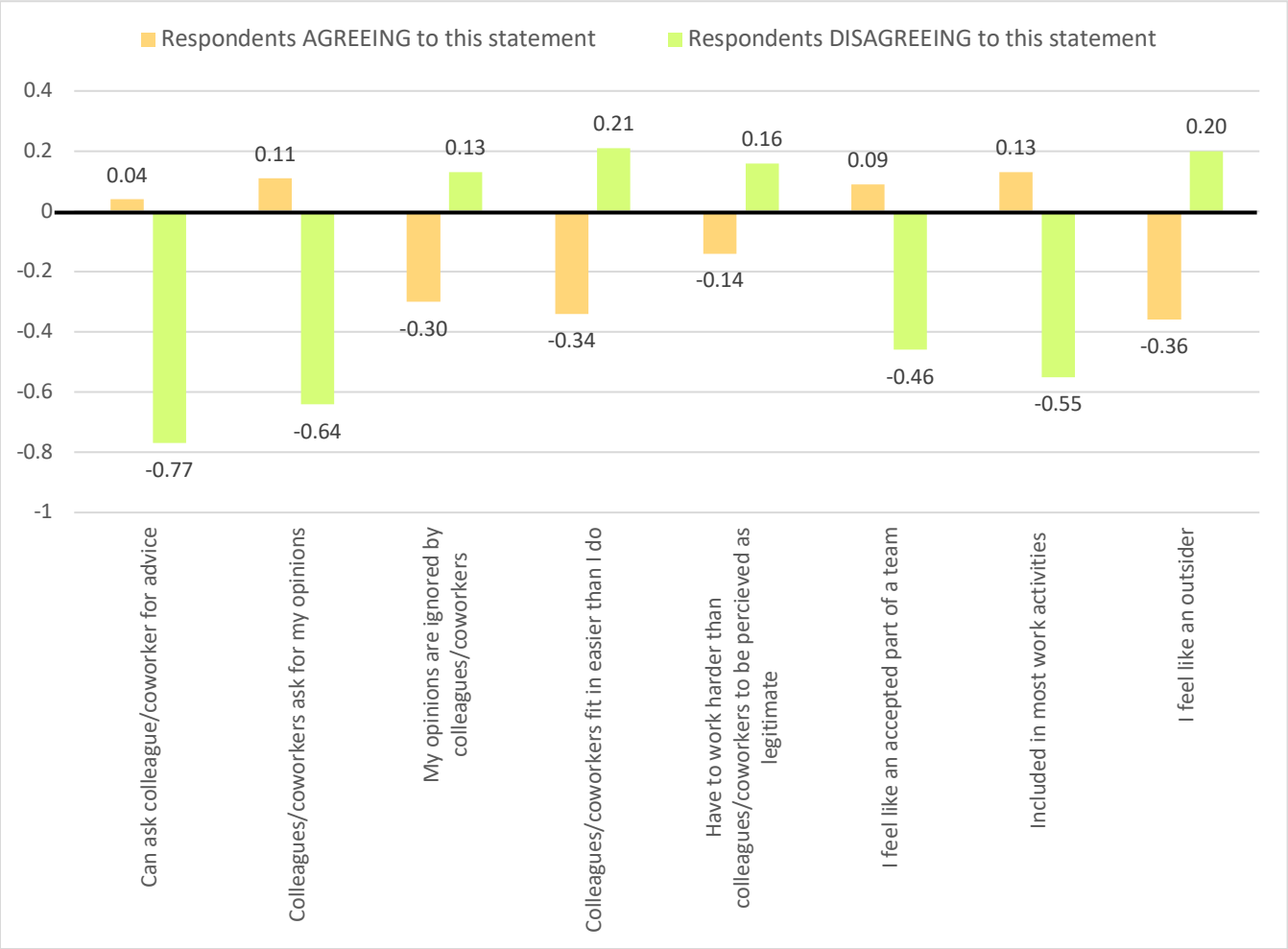
An index was computed to analyze overall trends in personal experiences of workplace support and inclusion. Negative scores on the index represent below-average experiences of inclusion and supportive workplaces, and positive scores represent above-average experiences. As shown in Figure 21, CSIT respondents scored low (M = -.18, SD = .96), whereas engineering respondents scored high (M = .08, SD = 1.01).

Figure 21: Personal Experiences of Workplace Support and Inclusion Index



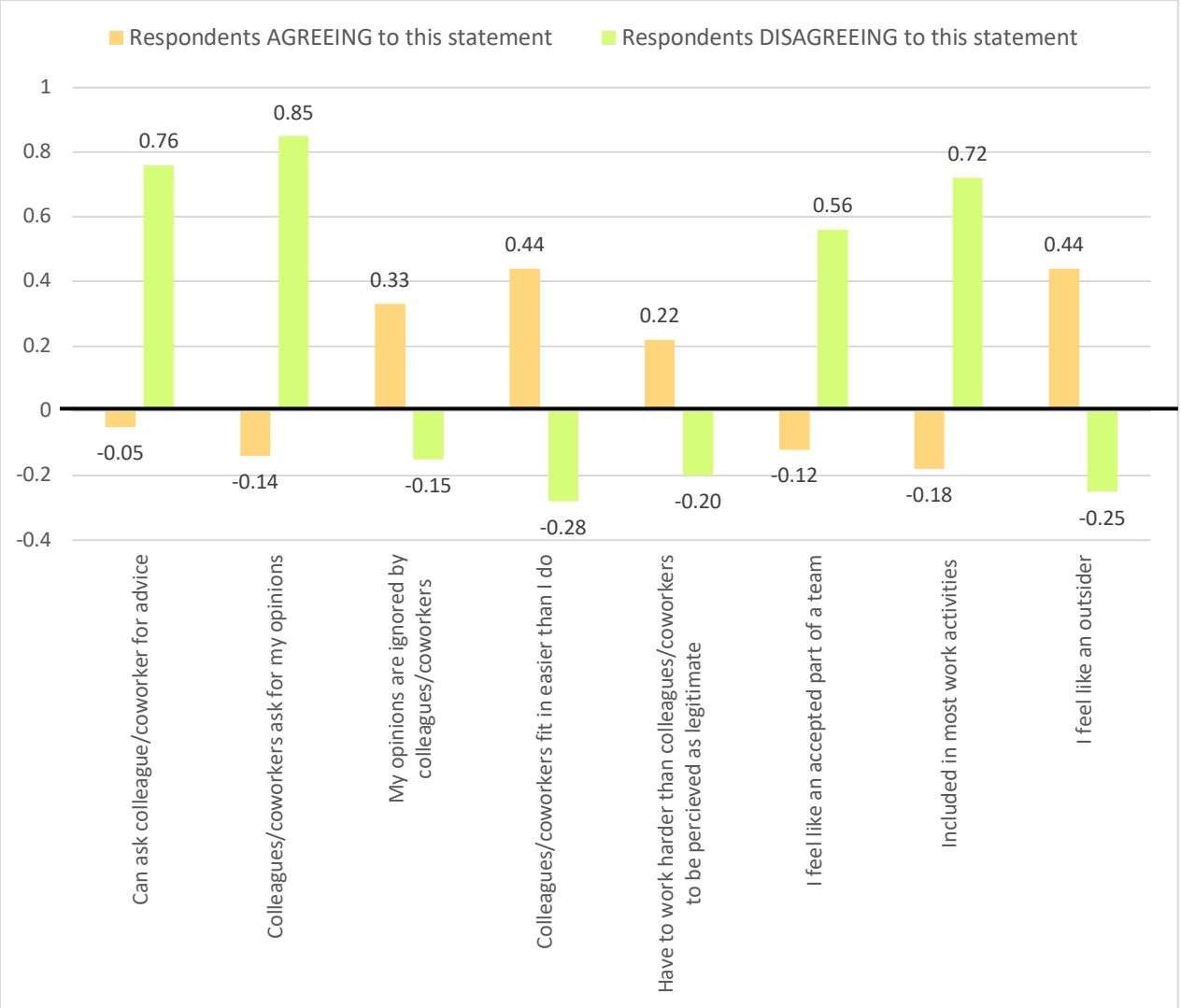
Additional analyses were conducted examining personal experiences of workplace support and inclusion along with the Career Satisfaction Index as an outcome measure. Positive scores indicate above average career satisfaction, and negative scores indicate below average career satisfaction. As illustrated in Figure 22, respondents who *agree* to statements that indicate more workplace inclusion and support, including: "I can ask colleague/co-worker for advice" (M = .04, SD = .95); "colleagues/co-workers solicit my opinions" (M = .11, SD = .95); "I feel like an accepted part of the team" (M = .09, SD = .96) scored positively on the Index indicating above average career satisfaction when compared to respondents who *disagree* with these individual statements. Similarly, respondents who *agree* to statements indicating more workplace exclusion and lack of support including: "my opinions are ignored by colleagues/coworkers" (M = -.30, SD = 1.08); "colleagues/coworkers fit in easier than I do" (M = -.34, SD = 1.01); and/or "sometimes I feel like an outsider" (M = -.36, SD = .97) recorded lower scores on the Index. In other words, respondents who *agree* with these statements had lower perceptions of career satisfaction. However, respondents who *disagree* with these statements recorded positive scores and had higher perceptions of career satisfaction. Overall, respondents who indicated experiencing workplace exclusion or lack of support were less satisfied by their careers.

Figure 22: Index of Career Satisfaction by Workplace Support and Inclusion



We also examine personal experiences of workplace support and inclusion along with experiencing workplace alienation. Positive scores on the Workplace Alienation Index indicate above average workplace alienation, and negative scores indicate below average workplace alienation. As shown in Figure 23, respondents who indicate more workplace inclusion and support have below average experiences of workplace alienation. To demonstrate, respondents who *disagree* to statements of inclusion and support such as "can ask colleague/coworker for advice" (M = .76, SD = 1.41); "colleagues/coworkers solicit my opinions" (M = .85, SD = 1.07); "I feel like an accepted part of a team" (M = .56, SD = 1.12); and/or "I feel included in most activities at work" (M = .72, SD = 1.00) scored high on the Index indicated above average workplace alienation compared to respondents who *agree* to these inclusion and support statements. Thus, respondents who feel excluded or a lack of support in their workplaces are more likely to experience workplace alienation.

Figure 23: Index of Workplace Alienation by Workplace Support and Inclusion



Exclusion, Discrimination and Harassment in the Workplace

Over three-quarters of respondents indicate that they have experienced at least one incident of exclusion, discrimination, and/or harassment in the workplace (75.5%). More engineering respondents indicated experiencing one or more incidents of hostility or other negative experiences compared to CSIT respondents (78.2% vs. 69.3%). As well, more respondents working in the non-academic sector also indicate experiencing hostility or other negative experiences compared to academic respondents (83.3% vs. 74%).

Notably, we find that engineering respondents are more likely to report having had gossip or rumours spread about them compared to CSIT respondents (53.2% vs. 37.4%). As well, more non-academic respondents indicate have been excluded from formal networks within their

workplaces (29.4.%), and/or excluded from informal workplace discussions (49%) compared to academic respondents (19.6% and 36.2%, respectively).

Open-ended comments illuminate on some of the types of hostility and/or negative experiences women face in the workplace, and some of this is due to gendered biases:

> *Equality is currently too superficial. Discrimination against women is usually much more subtle, which can then often not be understood in the male-dominated management levels. Thus, decision-makers usually do not pay enough attention to the issue. At the same time, the subtle discrimination leads to fewer women reaching management levels in order to create sufficient sensitivity for the topic there as well. – (Die Gleichstellung erfolgt aktuell zu oberflächlich. Die Diskriminierung gegenüber Frauen ist meistens um einiges subtiler, die in den männlich domininierenden Führungsebenen dann oftmals nicht nachvollzogen werden können. Somit legen die Entscheidungsträger meistens nicht genug Aufmerksamkeit dem Thema. Gleichzeitig führt die subtile Diskriminierung dazu, dass weniger Frauen in Führungsebene gelangen um die ausreichende Sensibilität für das Thema auch dort zu schaffen).* (Academic).
>
> *The men among themselves are not necessarily squeamish in engineering either. It's often the case that you earn more respect if you counterattack well. They often just want to test whether you can handle a stupid remark (and if you pass this test, you will be respected). I have not experienced anything worse in the near past. In the more distant past, there was a situation where a boss didn't want to promote me, contrary to company policy (because he didn't think much of promoting women), and badmouthed me so he wouldn't have to. In the end, I changed jobs because I realized (unfortunately only after a long period of persistent effort) that I could not win over someone like that. But such people also put everyone else in pigeonholes, and if you end up in the wrong one, you can't get on with such bosses - you have to change. It requires sensitivity in the advancement of women, especially on the part of managers, to see through such mechanisms and, if necessary, to react to them by refining the policies for the advancement of women or to react by holding individual discussions. - Just as it is necessary for the head of a company to question whether a particularly negative assessment of a male employee by the head of the company is really appropriate in a specific individual case. – (Die Männer untereinander sind in den Ingenieurwissenschaften auch nicht unbedingt zimperlich. Es ist oft so, dass man sich mehr Achtung verschafft, wenn man gut kontert. Die wollen oft nur austesten, ob man mit einer blöden Bemerkung umgehen kann (und wenn man diesen Test besteht, wird man dann auch respektiert). Schlimmeres habe ich in der näheren Vergangenheit nicht erlebt. In der weiteren Vergangenheit gab es eine Situation, in der ein Chef mich entgegen der Unternehmensvorgaben nicht fördern wollte (weil er nichts von Frauenförderung hielt) und mich schlecht gemacht hat, damit er das nicht tun muss. Da habe ich letztlich irgendwann gewechselt, weil ich gemerkt habe (leider erst nach längerem hartnäckigen Bemühen), dass ich so jemanden nicht für mich gewinnen kann. Solche Leute stecken aber auch alle anderen in Schubladen und wenn man in der falschen landet, kommt man nicht raus bei solchen Chefs, da muss man sich verändern. Es erfordert Sensibilität bei der Frauenförderung vor allem bei den Führungskräften, solche Mechanismen zu durchschauen und ggf. darauf mit*

Verfeinerung der Frauenförderpolicies oder auch mit Einzelfallgesprächen zu reagieren. - Genauso wie es erforderlich ist, als Chefchef zu hinterfragen, ob eine besonders negative Einschätzung des Chefs zu einem männlichen Mitarbeiter im konkreten Einzelfall wirklich angemessen ist.). (Academic).

I didn't report any of those "incidents" because they don't feel like it, since they happen way too often to be classified as "incidents". It feels more like this is the way my group works, even more since these behaviors are perpetrated by (male)people on leading positions. And because of that, I feel like there is no one to actually report this to, and that doing it would in the best case make no difference, in the worst case classify me as "whiner".[12] (Academic).

The most common microaggression in my experience is interrupting. I am interrupted and spoken over more often than my male colleagues of similar seniority.[13] (Academic).

*In my experience - the bigger (more traumatic) experiences only come from very few people - I experience a lot of slander about - and belittling of - other female colleagues (by male colleagues), also by the male colleagues who actually support me and with whom I talk about these things - is one of the biggest challenges for me to make my position and my experience known to my male colleagues, even if they actually support me. The word "taking the victim position" is often used (= frowned upon, especially by other female colleagues I don't know but who are talked about), the careers of other female colleagues are belittled, even if they have a slower progression up the career ladder due to children etc. – (Meiner Erfahrung nach - gehen die größeren (traumatischeren) Erlebnisse nur von ganz wenigen Leuten aus - erlebe ich viel Lästereien über - und das Kleinmachen von - anderen weiblichen Kolleginnen (durch männliche Kollegen), auch durch die männlichen Kollegen die mich eigentlich unterstützen und mit denen ich über diese Dinge rede - ist eine der größten Herausforderungen für mich meine Position und mein Erleben meinen männlichen Kollegen nahezubringen, auch wenn sie mich eigentlich unterstützen. Es fällt oft das Wort "Opferposition einnehmen" (=verpönt, vor allem bei anderen weiblichen Kolleginnen die ich nicht kenne aber über die geredet wird), es wird die Karriere andere weiblicher Kolleginnen kleingemacht, auch wenn diese durch Kinder etc. ein langsameres Fortschreiten in der Karriereleiter haben, etc). (*Academic).

These are often comments that are not obviously misogynistic, but would probably not occur in that form among male colleagues. Reporting these would rather harm me (interpreted as an overreaction) than improve anything. – (Es handelt sich häufig um Kommentare, die nicht offensichtlich frauenfeindlich sind, aber in der Form vermutlich nicht bei männlichen Kollegen vorkommen würden. Diese zu melden würde eher mir schaden (als Überreaktion gedeutet) als etwas zu verbessern). (Academic).

Little value is placed on gender-appropriate language. As a result, I often feel that I am not included as a woman and am thus structurally disregarded. - (Es wird wenig Wert auf

[12] Comment written in English by respondent.
[13] Comment written in English by respondent.

gendergerechte Sprache gelegt. Dadurch fühle ich mich als Frau oft nicht mitgemeint und werde dadurch strukturell missachtet). (Academic).

Question from male colleagues on first day of work "And when are you going to get pregnant?" Statements from colleagues that you only got the job because you're a woman Statements from colleagues that they can't find a job in the tech industry because they're not a woman and are therefore discriminated against (it's difficult to wrap your head around that level of stupidity) – (Frage von Kollegen am ersten Arbeitstag "Und wann wirst du schwanger?" Aussagen von Kollegen, dass man doch nur die Stelle erhalten hat, weil man eine Frau ist Aussagen von Kollegen, dass sie in der Tech-Branche keinen Job finden, weil sie keine Frau sind und deshalb diskriminiert werden (da muss man sich echt an den Kopf greifen). (Academic).

*They say these are just problems between colleagues and we can't do anything about it. I don't know how a male colleague coming to my desk and going through my papers, or calling me stupid in the middle of a formal meeting, or wanting me to act as a secretary and write his emails is just a problem between colleagues. The same colleague telling another colleague I want to f**k your wife, right in front of me is not a concern for the HR or the Gender Equality department. Gender Equality department said they'll get back to me but as their head changed they totally forgot my case.*[14] (Academic).

Comments like "women to the stove" as a "joke" during a break among male colleagues of 60+. – (Kommentare á la "Frauen an den Herd" als "Scherz" in der Pause von Kollegen 60+). (Non-academic).

My current boss started ignoring me after I took parental leave for my second child. He was always friendly and pro-active in helping me with work-life balance, however, I was no longer substantively involved in business decisions, meeting took place in the evening, meetings had already taken place informally in the hallway, my ideas were dismissed as unimportant and presented as his own 3 months later…) – (Mein derzeitiger Chef begann mich nach der Elternzeit für mein zweites Kind zu ignorieren. Er war immer freundlich und pro-aktiv, um mir mit der Vereinbarkeit von Familie und Beruf zu helfen, allerdings wurde ich nicht mehr inhaltlich in Business-Entscheidungen einbezogen, Meeting fanden abends statt, Besprechungen hatten bereits informell auf dem Flur stattgefunden, meine Ideen wurden als unwichtig abgetan und 3 Monate später als seine eigenen vorgestellt...) (Non-academic).

When further examining job turnover intention, we find that 65.3% of respondents indicating they plan to change jobs in the next two years report having experienced one or more incidents of workplace hostility and/or other negative experiences.

Additional analyses were conducted examining personal experiences of workplace hostility/negative experiences along with the Career Satisfaction Index as an outcome measure. Overall, respondents who indicate negative/hostile workplace incidents recorded high scores on

[14] Comment written in English by respondent.

the Index (M = .25, SD = .82). In other words, these respondents had above average career satisfaction. By comparison, respondents who indicated having had at least one negative/hostile workplace incident recorded low scores on the Index (M = -.05, SD = 1.02) for below average career satisfaction.

Reporting Exclusion, Discrimination and/or Harassment and Workplace Responses to Reports

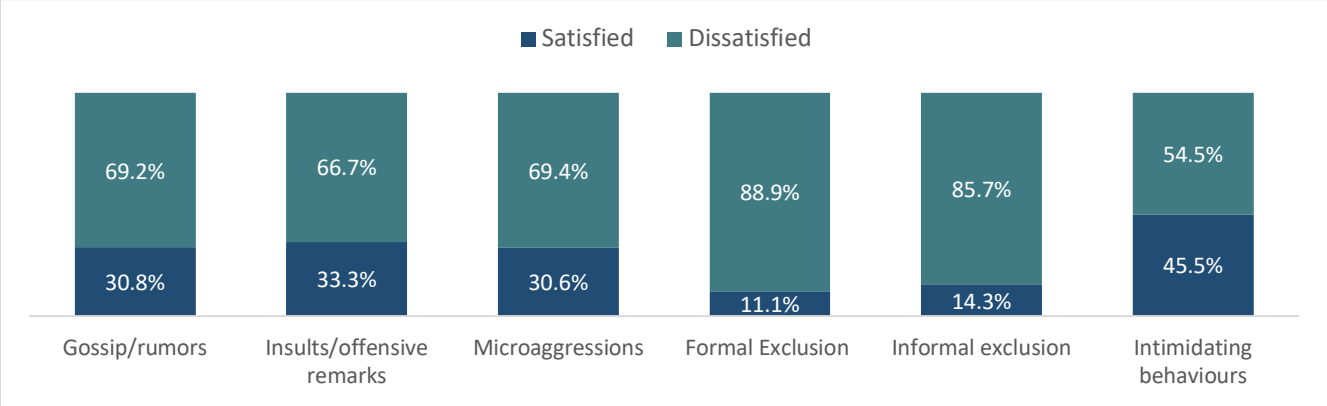
We asked respondents who have experienced exclusion, discrimination and/or harassment about reporting the incident(s). We find that across all individual measures, most respondents *did not* formally report experiencing workplace hostility or negative experiences. However, when comparing the individual measures, respondents were more likely to formally report experiencing direct forms of harassment such as intimidating behaviours (31.9%), having insults/offensive remarks made about them (25.8%), or experiencing microaggressions (23.1%). They were less inclined to formally report subtle or indirect forms of exclusion, discrimination, and/or harassment such as having gossip spread about them (14.8%), being excluded from formal networks (18.2%), or informal discussions (15.7%).

There are some differences in the likelihood of reporting incidents. While the overall likelihood of formal reporting is low, engineering respondents are more likely to formally report incidents of intimidating behaviours (35.3% vs. 23.1%) and formal exclusion (21.9% vs. 10%) compared to CSIT respondents. However, engineering respondents are less likely to report gossip or rumours (12.5% vs. 21.6%), and offensive remarks (24.2% vs. 30.3%).

Across sectors, respondents working in the non-academic sector were more likely to formally report incidents compared to academic respondents for all measures including gossip and rumours (25% vs. 12.8%); offensive remarks (40% vs. 23.1%); microaggressions (35.3% vs. 20.6%); exclusion from formal networks (26.7% vs. 15.7%); and exclusion from informal discussions (29.2% vs. 12.1%).

We asked respondents who formally reported incident(s) of exclusion, discrimination, and/or harassment about their satisfaction with the outcome of their workplaces' response to the reported incident(s). Overall, respondents indicate a high level of dissatisfaction for nearly all individual measures, and especially for incidents of exclusions (see Figure 24).

Figure 24: Respondents' Satisfaction with Workplace Responses to Reports of Hostile/Negative Experiences



Open-ended comments illustrate the difficulties women experience in reporting negative experiences and incidents such as having employers/management dismiss their concerns as trivial or lack action altogether.

> *The incident involved verbal intimidation by professors of much higher rank. As a result, I was immobilized in my pro-equality arguments. A clarifying conversation with the Dean afterwards led to an absolute trivialization of the situation instead of taking the issue seriously and acknowledging the problem. – (Bei dem Vorfall handelte es sich um verbale Einschüchterung durch Professoren, die wesentlich höher gestellt sind. Dadurch wurde ich in meinen Pro-Gleichstellungs-Argumenten ruhig gestellt. Ein klärendes Gespräch mit dem Dekan im Nachhinein führte zu einer absoluten Verharmlosung der Situation anstatt die Thematik ernstzunehmen und das Problem anzuerkennen).* (Academic).
>
> *I reported the condescending manner of a staff member from another institute to my professor, but he did not respond because we share rooms with the other institute and he did not want to cause "displeasure." – (Die herablassende Art eines Mitarbeiters eines anderen Instituts habe ich an meinen Professor gemeldet, der jedoch nicht reagiert hat, da wir mit dem anderen Institut Räume teilen und er keinen "Unmut" hervorrufen wollte).* (Academic).
>
> *The case was reported. I never received a reply or apology. – (Der Fall wurde gemeldet. Ich habe nie eine Antwort oder Entschuldigung erhalten.)* (Academic).

Some comments reveal why the respondent do not formally report incidents. In many cases, the respondents indicated that they believe reporting will harm their careers. Some tried to address incidents directly with the perpetrator:

> *These are often comments that are not obviously misogynistic, but would probably not occur in that form among male colleagues. Reporting these would rather harm me (interpreted as an overreaction) than improve anything. – (Es handelt sich häufig um*

Kommentare, die nicht offensichtlich frauenfeindlich sind, aber in der Form vermutlich nicht bei männlichen Kollegen vorkommen würden. Diese zu melden würde eher mir schaden (als Überreaktion gedeutet) als etwas zu verbessern). (Academic).

I don't report it, but clarify it directly -- at least in places where I see sense in it. But I'm also past the age where I have to fight every possible battle. – (Ich melde das nicht, sondern kläre das direkt -- zumindest an Stellen, wo ich einen Sinn drin sehe. Ich bin aber auch aus dem Alter raus, wo ich in jede mögliche Schlacht ziehen muss). (Academic).

The incident occurred during a private event with colleagues after work. After the incident, I told one of the colleagues involved in the incident that I didn't think the comments were okay. He reacted sympathetically, but repeated the comments some time later, whereupon I told him again that I didn't think it was okay. All the colleagues involved have since graduated and left the institute. The fact that I brought the matter up had no effect. However, I did not officially report it either, but tried to clarify it at eye level. – (Der Vorfall ereignete sich während einer privaten Veranstaltung im Kolleg:innenkreis nach der Arbeit. Ich habe nach dem Vorfall einem der an dem Vorfall beteiligten Kollegen gegenüber gesagt, dass ich die Kommentare nicht i.O. fand. Er hat verständnisvoll reagiert, jedoch in einigem zeitlichen Abstand diese Kommentare wiederholt, woraufhin ich ihm wieder gesagt habe, dass ich das nicht ok finde. Alle beteiligten Kollegen haben inzwischen promoviert und das Institut verlassen. Dass ich die Sache angesprochen habe, hatte keine Auswirkungen. Ich habe es allerdings auch nicht offiziell gemeldet, sondern versucht, es auf Augenhöhe zu klären). (Academic).

We also explored job turnover intention with incidents of harassment, discrimination, and exclusion. Overall, 73.3% of respondents who intend to change jobs in the next two years report dissatisfaction with the outcome of their formal reporting for at least one incident.

Sexual Harassment and Sexual Microaggressions

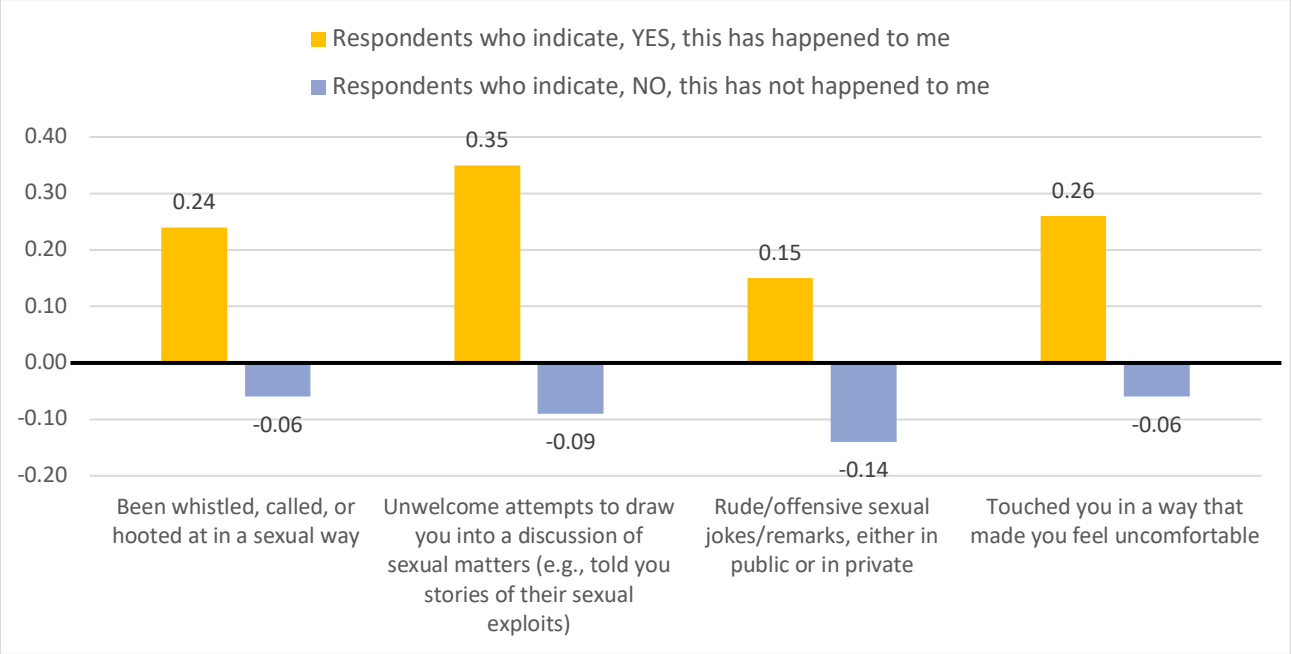
Respondents were asked a series of questions about their experiences with sexual harassment or sexual microaggressions. Respondents reported experiencing having rude/offensive sexual jokes/remarks made to them (44.6%), being stared, leered, or ogled in a way that made them feel uncomfortable (25.7%), unwelcome attempts to draw them into discussing sexual matters (18%), being whistled at or catcalled (17.9%), being touched in a way that made them feel uncomfortable (14.4%), and/or having offensive sexually themed content sent to them (8.1%).

Across sectors, a greater proportion of non-academic respondents reported hearing rude/offensive jokes/remarks (57.4%), and/or being uncomfortably stared, leered, or ogled at (39.6%) compared to academic respondents (42.1% and 23.1%, respectively). We computed an index to examine incidents of sexual microaggression and find that non-academic respondents scored high on the Index suggesting above average number of sexual microaggression incidents (M = 0.20, SD = .99). By contrast, academic respondents recorded a low score (M = -.05, SD = .96) indicated below average number of incidents.

We examined job turnover intention with sexual harassment and microaggressions. We find that 73.7% of respondents who intend to change jobs in the next two years report having experienced being whistled, catcalled, or hooted at within their current workplaces. We also find that among respondents with turnover intentions, 86.4% experienced having offensive sexually-themed content sent to them; 78.2% have experienced unwelcomed attempts to draw them into discussing sexual matters; 76.6% have been uncomfortably touched; 73.3% have experienced rude or offensive sexual jokes/remarks made to them; and 72.5% have been uncomfortably stared, leered or ogled.

We examine personal experiences of sexual harassment and microaggressions along with experiencing workplace alienation. Positive scores on the Index indicate above average workplace alienation, and negative scores on the Index indicate below average workplace alienation (Figure 25). Across these individual measures of sexual harassment or sexual microaggression, respondents who indicated "yes" they have experienced these incidents scored high on the Index, whereas respondents who have not experienced these incidents scored low. This suggests that respondents who experience sexual microaggression/harassment in the workplace have above average workplace alienation compared to respondents who have not experienced these incidents. For example, respondents who experience unwelcome attempts to draw them into sexual discussions (M = .35, SD = .98) have above average workplace alienation compared to respondents who have not had this happen to them (M = -.09, SD = .98).

Figure 25: Index of Workplace Alienation by Personal Experiences of Sexual Harassment/Microaggression



Some respondents offered their experiences with sexual harassment and sexual microaggressions:

> *Being massaged once in the framework of a project was very strange. It was also strange to be touched by another professor during a conference, as well – very intimidating. – (Einmal im Rahmen eines Projektes massiert worden, war sehr seltsam. Einmal während einer Konferenz von einem anderen Professor angefasst, auch seltsam, sehr einschüchternd).* (Academic).
>
> *I was sexually harassed on the phone by an unknown caller. He referred to my profile picture on the homepage. Since then, no more women at our institution accept phone calls from unknown callers. Also, I've been uncomfortable, since then, with the thought of having my picture on the homepage. However, I also don't see that I should make my homepage less informative (i.e., without a picture) just because of my gender. My male colleagues or (male) visitors to the homepage, who have no ulterior motives, would not have such thoughts about our profile pictures. – (Ich wurde bei unterdrückter Rufnummer vormittags telefonisch sexuell belästigt, der Anrufer hat dabei Bezug auf mein Profilbild auf der Homepage genommen. Seitdem nehmen keine Frauen an unserem Institut mehr Anrufe mit unterdrückter Rufnummer entgegen. Außerdem ist mir seither unwohl bei dem Gedanken, mein Bild auf der Homepage zu haben. Allerdings sehe ich es auch nicht ein, dass ich meine Homepage weniger aufschlussreich (d.h. ohne Bild) machen sollte, nur weil ich weiblich bin. Meine männlichen Kollegen oder (männliche) Besucher der Homepage ohne Hintergedanken würden sich solche Gedanken nicht machen.)* (Academic).
>
> *Sexual harassment (gripping of the buttocks) occurred at private, informal events with colleagues, which were outside of the workplace. - Aufgetreten sind sexuelle Belästigungen (Griff an den Hintern) bei privaten, infomellen Veranstaltungen mit Kollegen außerhalb des Arbeitsplatzen.* (Non-academic).
>
> *A senior colleague gained access to my private information (phone number and address) and stalked me even though I had made it clear that I did not want any contact outside of normal work-related matters. I received SMS regularly over a long period of time or he would intercept me in the hallway in front of the women's toilette (!). for a while I was afraid that he would show up at my house, and I still have his number blocked. – (Ein Kollege höheren Ranges verschaffte sich Zugang zu privaten Informationen (Handynr und Adresse) und stalkte mich, obwohl ich deutlich gemacht hatte, dass ich keinen Kontakt außerhalb der normalen beruflichen Anlässe wünschte. Ich erhielt über einen langen Zeitraum regelmässig SMS oder er fing mich im Flur vor der Damentoilette (!) ab. Ich hatte eine zeitlang Angst, dass er bei mir zuhause erscheint und habe seine Nummer immernoch blockiert.)* (Non-academic).
>
> *A colleague often calls me "Hey doll" or whistles and clicks his tongue at me. Maybe he means it as a joke, but I've already said that I don't want that. Since I don't know how to best deal with such situations, I often have to start laughing. I assume that this is the*

reason why my colleague doesn't take me seriously when I tell him that his behavior is annoying. I'm happy to say that lately he's been with clients or on vacation when I've had to work. – (Gleicher Kollege bei mir, wie im bereits erwähnten Teil mit einer meiner Kolleginnen. Dieser Kollege nennt mich des öfteren "Hey Puppe" oder pfeift/ schnalzt mir entgegen/hinterher, meint es vielleicht als Witz, aber ich habe schon gesagt, dass ich das nicht möchte. Da ich in solchen Situationen nicht weiß, wie ich am besten damit umgehen soll, muss ich oft auch leider anfangen zu lachen. Daher vermute ich kommt meine Aussage, dass ich es als störend empfinde auch nicht bei dem Kollegen an. Glücklicherweise war er in letzter Zeit beim Kunden oder im Urlaub, wenn ich arbeiten musste). (Non-academic).

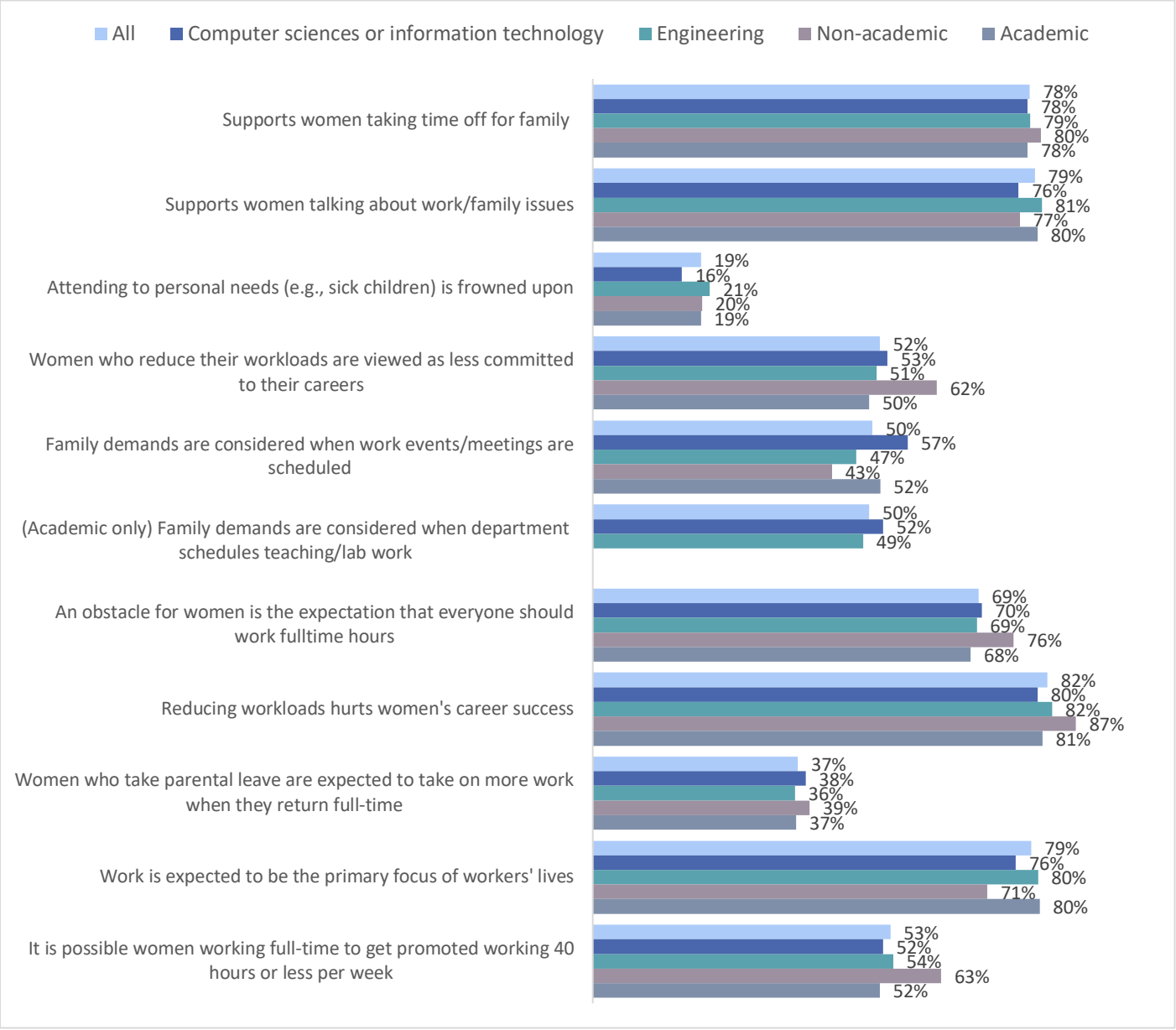
Work-Life Balance

We asked respondents a series of questions pertaining to their perceptions of work-life balance. As illustrated in Figure 26, most *agree* that colleagues/co-workers are supportive when taking time for family life (78%) and talking about work-family issues (79%). However, fewer respondents perceive support when scheduling work events/meetings (50%), or teaching/lab work (for academic respondents) (50%). In addition, many respondents perceive that maintaining a work-life balance can negatively impact women's careers. For example, the majority *agree* that reducing workloads for family-reasons can hurt women's chances of career success (82%), and women who reduce their workloads are viewed as less committed (52%).

Between work areas, engineering respondents perceive slightly less support for work-life balance compared to CSIT respondents. For example, engineering respondents are more likely to agree that attending to personal needs is frowned upon by 5 percentage points; and that work is expected to be the primary focus of workers' lives by 4 percentage points.

Across sectors there are more notable differences. Respondents working in the non-academic sector are more likely to *agree* that women who reduce their workloads are viewed as less committed to the careers by 12 percentage points; and that an obstacle for women is the expectation that everyone should work full time hours by 8 percentage points. However, academic respondents (80%) are more likely to *agree* that work is supposed to be the primary focus of workers lives compared to non-academic respondents (71%), and less likely to agree that it is possible for women working full time to get promoted working 40 hours or less per week by a factor of 11 percentage points.

Figure 26: Perceptions on Work-Life Balance

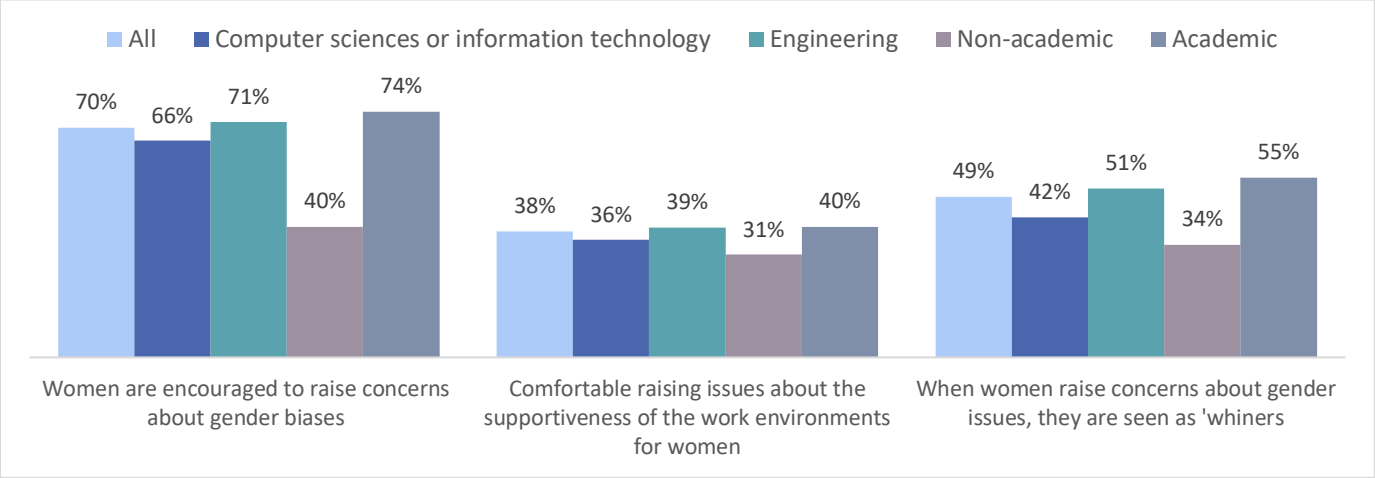


We further explored job turnover intention along with perceptions of work-life balance. We find that respondents who indicate changing jobs in the next two years are more likely to have negative opinions on work-life balance. For example, many respondents who indicate turnover intention *agree* to these statements: "women who reduced their workload are viewed as less committed to their careers" (66.4%); "reducing workloads hurts the chances that women will succeed in their careers" (64.5%); "women who temporarily reduce their workload for parenting responsibilities are expected to take on extra work when they return full time" (65.1%); and work is expected to be the primary focus of workers' lives (64.8%).

Overall, respondents indicate that their workplace culture may not be conducive to women's success (see Figure 27). While most respondents indicate that their workplace encourages women to raise concerns about gender biases (70%), they are less likely to *agree* that they are comfortable raising issues about the supportiveness of the work environment for women (38%), and nearly one-half of respondents *agree* that when women raise concerns about gender issues they are seen as "whiners' (49%).

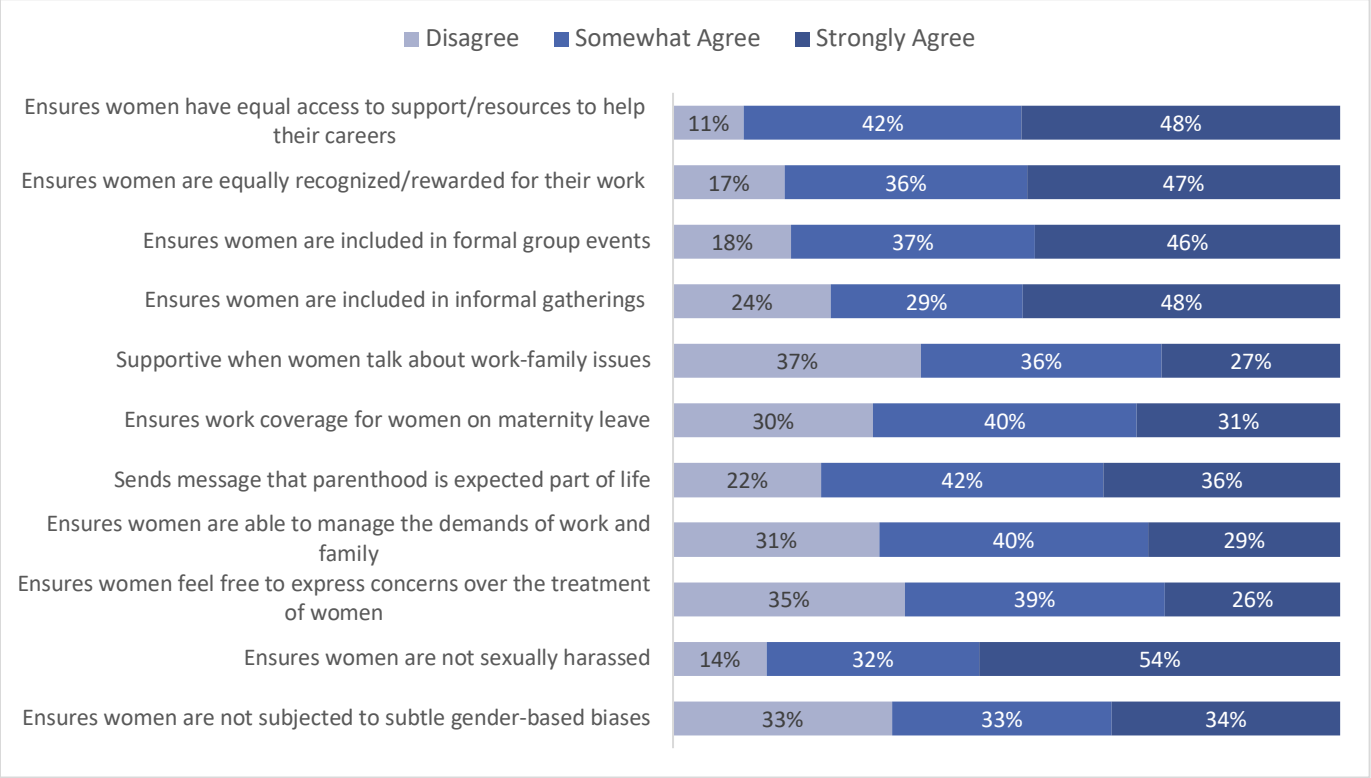
There are some notable differences across sectors. Specifically, while 74% of academic respondents indicate their workplaces encourage women to raise concerns about gender biases, only 40% of non-academic respondents shared this sentiment. However, more academic respondents indicate that when women raise concerns about gender issues they are seen as whiners compared to non-academic respondents (55% vs. 34%).

Figure 27: Perception of Workplace Support for Gender Issues



As shown in Figure 28, respondents mostly *agree* (somewhat or strongly) that their direct supervisors or department head supports gender equality. However, 1-in-3 respondents *do not agree* that their supervisor/head support women talking about work-family issues; ensures work coverage for women on maternity/parental leave; ensures women can manage the demands of work and family; ensures women feel free to express concerns over the treatment of other women; or ensures women are not subjected to subtle gender-based biases. In addition, nearly one-quarter of respondents do not perceive their supervisor/head as sending the message that parenthood is an expected part of life, or ensures women are included in informal gatherings.

Figure 28: Respondents' Perceptions of Supervisors/Managements' Supportiveness of Gender Equality

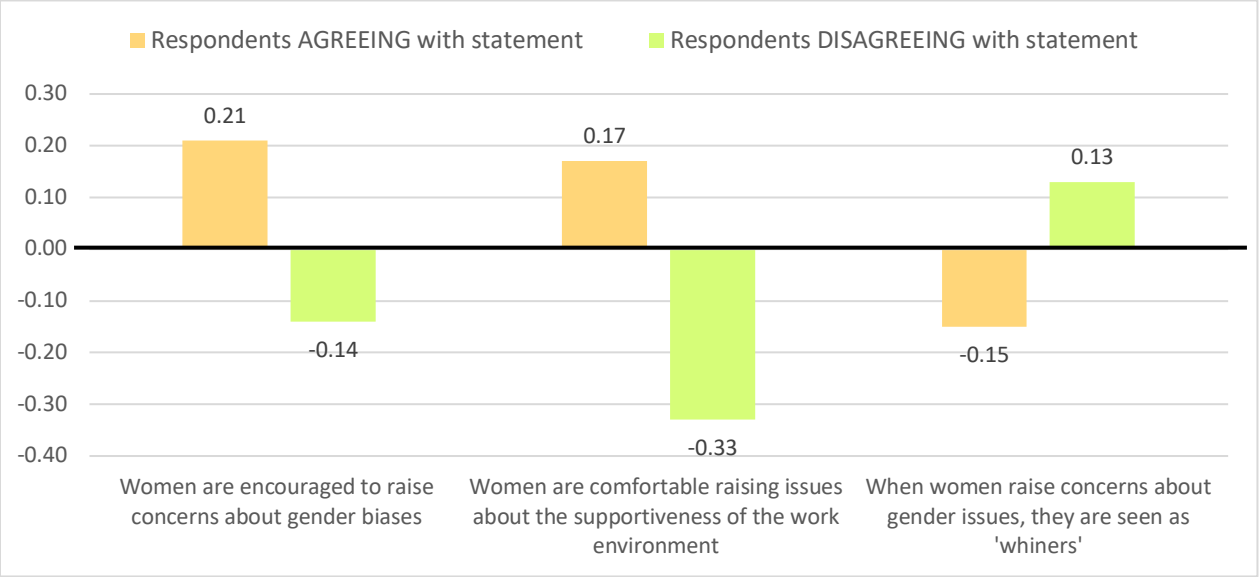


A closer examination reveals some notable differences across sectors. For example, more academic respondents *agree* that their department head/supervisors ensure women have equal access to support/resources to help their careers compared to non-academic respondents (91% vs. 79%); ensures women are included in formal group events (83% vs 79%); and included in informal gatherings (78% vs. 69%). However, academic respondents were less likely to agree that their department head/supervisors are supportive when women talk about work family issues (61% vs. 71%); ensure work coverage for women on maternity/parental leave (68% vs. 85%); or ensure women are able to manage the demands of work and family (67% vs. 81%).

Supportive Workplaces:

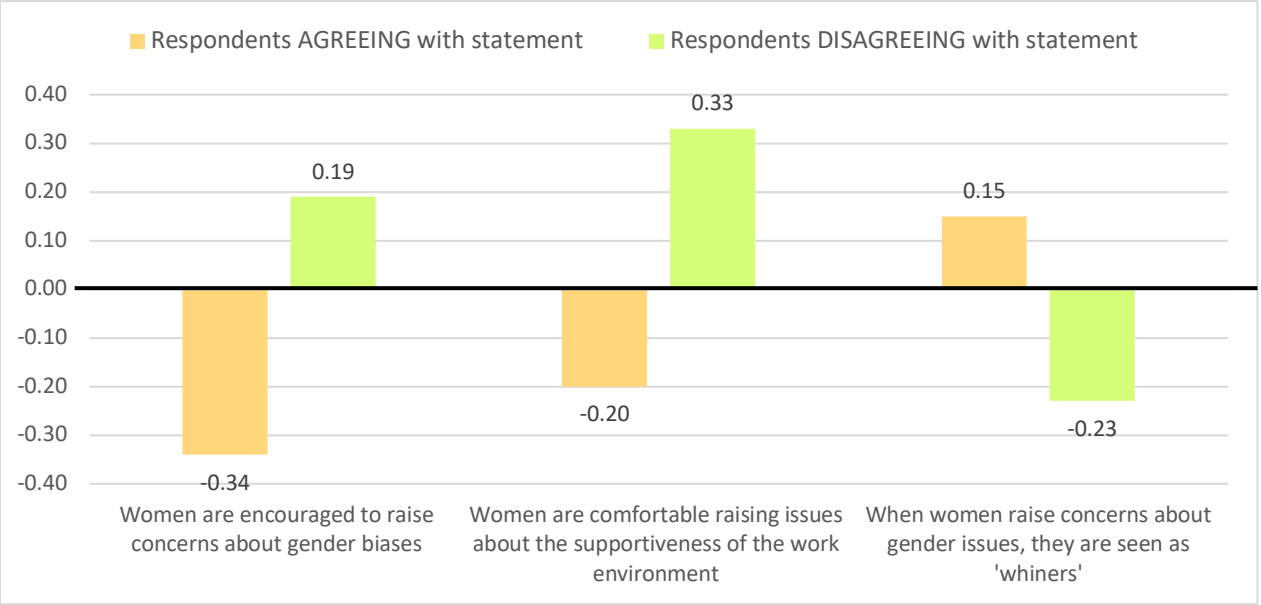
In order to examine supportive workplaces, individual items were assessed using the Career Satisfaction Index as an outcome measure (see Figure 29). Positive scores on the Index indicate above average career satisfaction, and negative scores indicate below average career satisfaction. Respondents who *agree* that their workplaces encourage women to raise concerns about gender biases, or where women are comfortable rising issues about the supportiveness of their work environment have higher scores on the Index than respondents who *disagree* to these statements.

Figure 29: Index of Career Satisfaction by Gendered Supportive Workplaces



Similarly, an Index was generated to examine trends in workplace alienation as an outcome measure. As illustrated in Figure 30, respondents who *disagree* to statements indicating supportive workplaces (e.g., "women are encouraged to raise concerns…" or "women are comfortable raising issues…") scored high on the Workplace Alienation Index. These positive scores denote above average workplace alienation compared to respondents who perceive their workplaces as being supportive of women.

Figure 30: Workplace Alienation Index by Gendered Supportive Workplaces

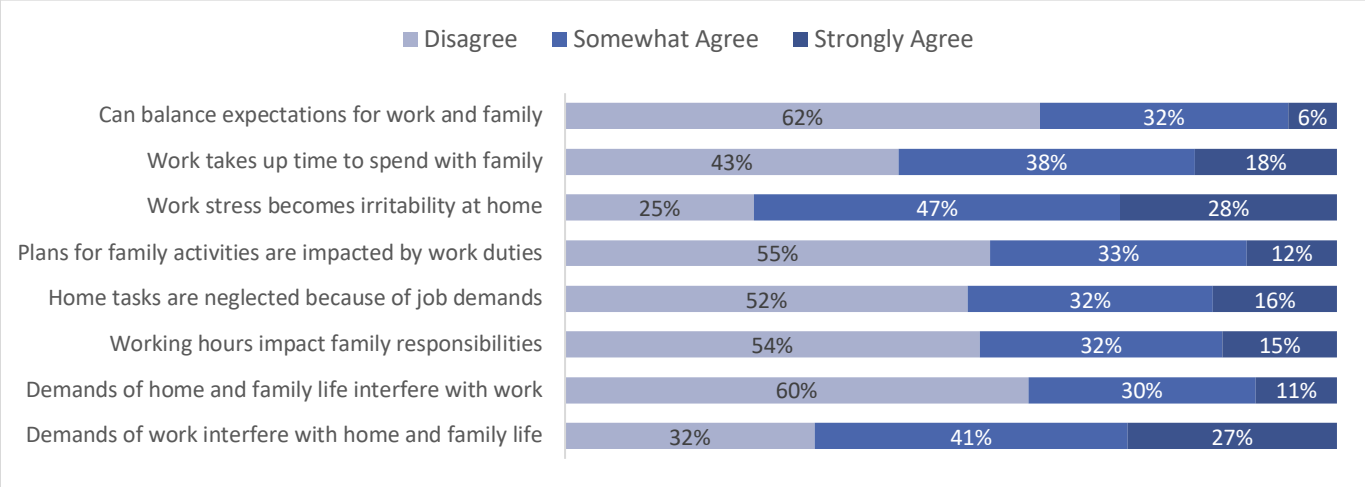


We also examined intention to change jobs in the next two years with gender supportive workplaces. We find that respondents who report turnover intention are more likely to *disagree* to the statements that indicate workplace support of women [e.g., "women are comfortable raising issues about the supportiveness of the work environment for women" (67.4%); and "women are encouraged to raise concerns about gender biases" (68.4%)]. They are also more likely to *agree* to the statement: "when women raise concerns about gender issues they are seen as whiners" (71.8%). Taken together, this suggests lower career satisfaction, greater workplace alienation, and increased turnover intention among respondents who perceive their current workplaces as being gender biased and/or unsupportive of women.

Work-Life Interference

Respondents highlight various pressures of work on personal/home life, and the interference of personal/home life on work (see Figure 31). Overall, 62% of respondents indicate being unable to balance the expectations for work and family. Specifically, more respondents indicate that the demands of work interfere with home and family life; that work takes up time to spend with family; and work stress can lead to irritability at home.

Figure 31: Perceptions of Work and Life Interference



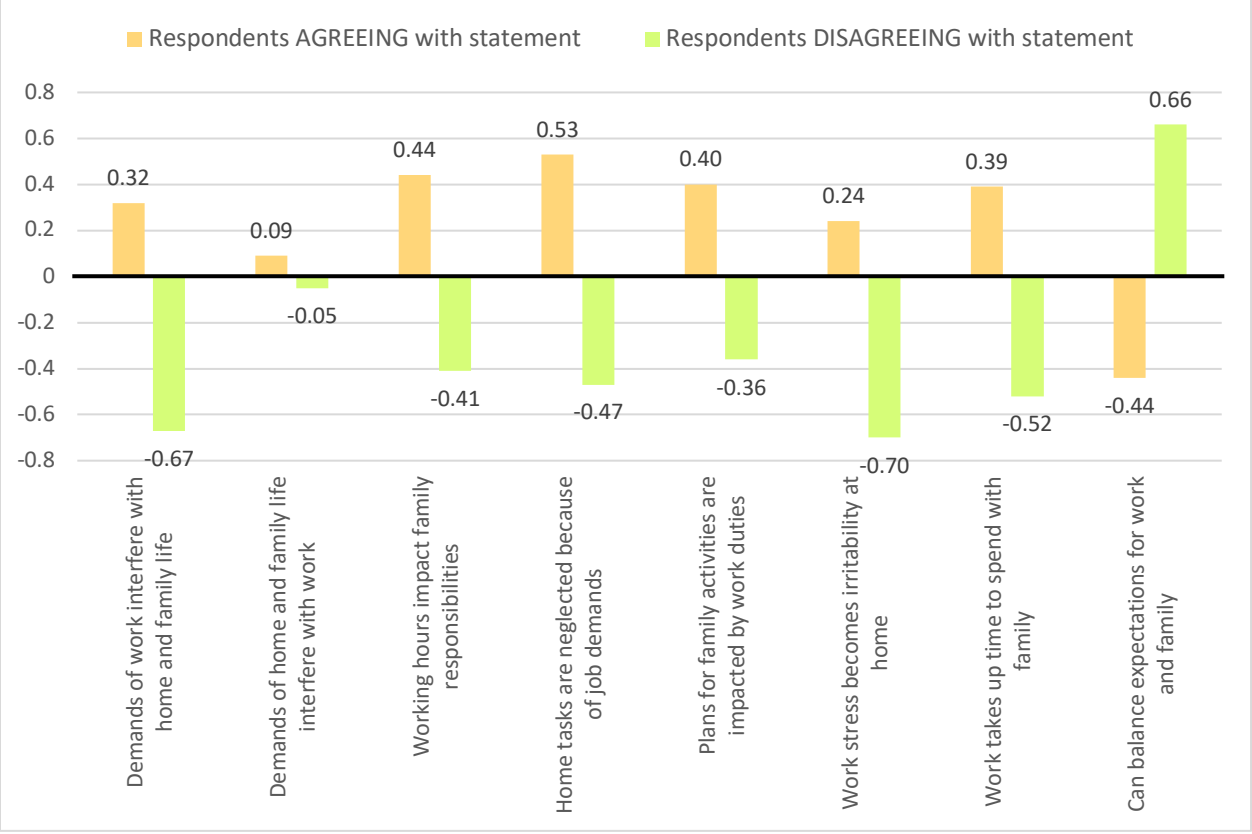
A closer examination reveals that slightly more engineering respondents indicate that the demands of work interfere with home and family life compared to CSIT respondents (69.4% vs. 63.6%). By contrast, more CSIT respondents (44.9%) indicate that the demands of home and family life interfere with work compared to engineering respondents (37.9%).

Across sectors, academic respondents are more likely to indicate work-life interference compared to non-academic respondents. For example, more academic respondents indicate that work interferes with home and family life (69.6% vs. 57.7%); the demands of home and family life interfere with work (42.9% vs. 24%); and plans for family activities are impacted by work

duties (46.8% vs. 35.3%). However, more non-academic respondents (82.7%) *agree* that stress at work leads to irritability at home compared to academic respondents (74.2%).

Experiences of the individual work-life interference items were analyzed with the Emotional Exhaustion Index as an outcome measure. As illustrated in Figure 32, respondents who *disagree* with the statement "stress at work makes me irritable at home" recorded the lowest score (M = -.70, SD = .85) compared to respondents who *agree* to this statement (M = .24, SD = .95). This suggests that respondents who *disagree* with the statement experience below average emotional exhaustion. By contrast, respondents who agree with this statement are more emotionally exhausted. In another example, respondents who *disagree* to being able to balance work and family expectations scored high on the Index (M = .66, SD = .89) indicating above average emotional exhaustion compared to respondents who *agree* to this statement and have work-life balance.

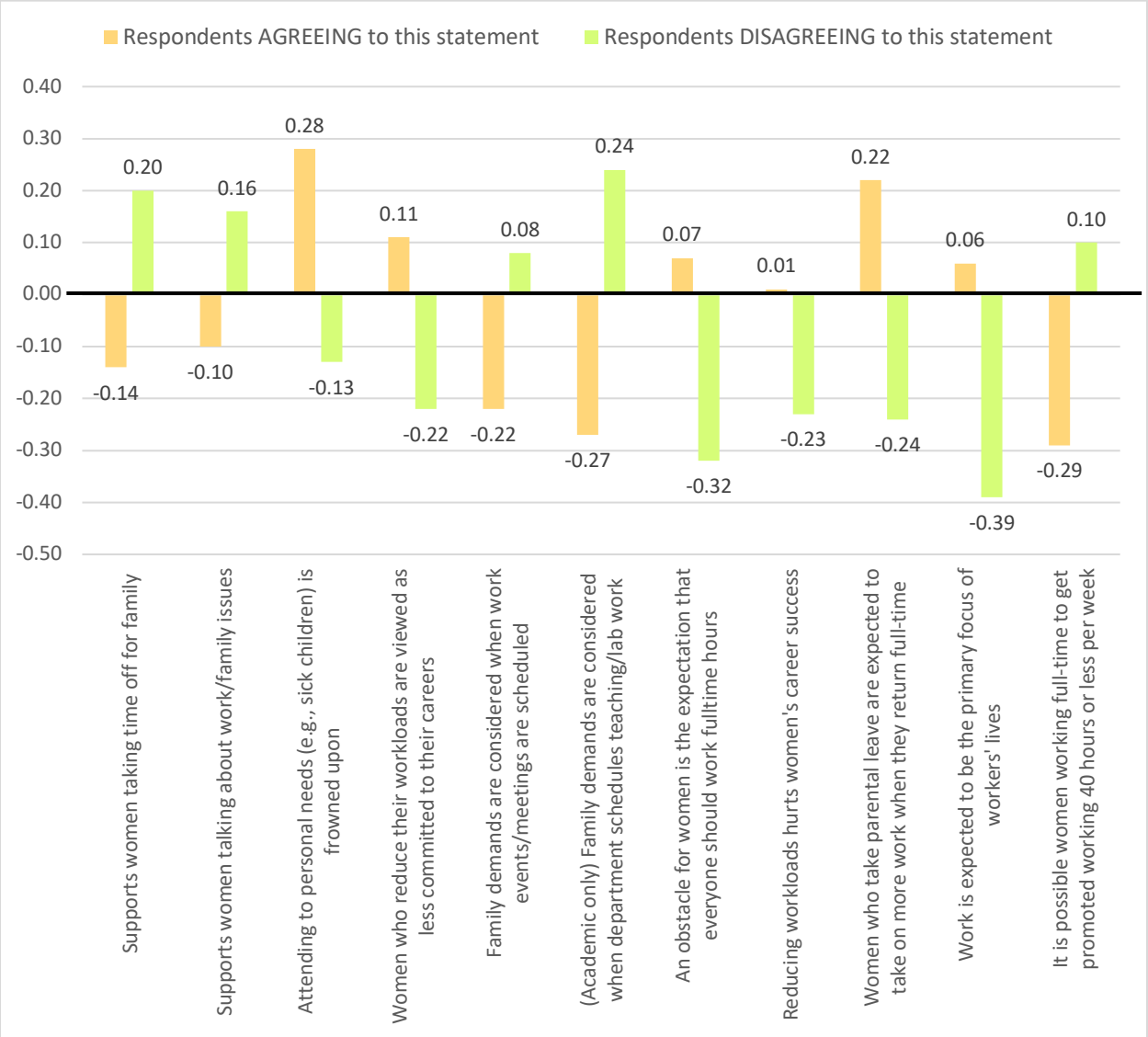
Figure 32: Index of Emotional Exhaustion by Work-Life Interference



Similarly, individual work-life balance items were compared to the Workplace Alienation Index as a way to measure the impact of supportive/unsupportive workplaces. As shown in Figure 33, respondents who *agree* to statements that indicate work is more important than family/personal life (e.g., "work is expected to be primary focus of employees/faculty's lives", "attending to

personal needs such as taking time off for sick children is frowned upon", "women who take parental leave are expected to take on more work when they return full-time") recorded high scores. These positive scores indicate experiencing above average workplace alienation. These findings suggest that respondents who work in environments supportive of maintaining work-life balance are less likely to experience workplace alienation compared to workplaces that are unsupportive of work-life balance.

Figure 33: Workplace Alienation Index by Work-Life Balance and Supportive Workplaces



Training and Professional Development:

Overall, 86% of survey respondents indicated having participated in professional development (PD) and training over the past 12 months. Nearly half (45%) of respondents have participated in formal activities (e.g., courses for credit or certification), 60.9% have participated in informal

activities emphasizing "hard" technical skills (e.g., self-study through journals/books, conferences or tradeshow attendance; technical workshops, or peer study groups), 52.8% have participated in informal activities emphasizing "soft" skills (e.g., leadership or communication workshops or conferences), and 26.3% have participated in activities specifically designed for women.

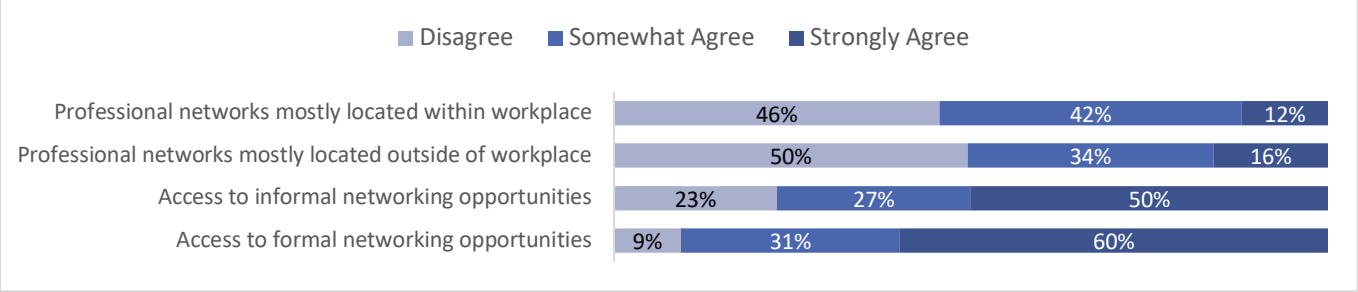
There are some notable differences in rates of participation in professional development. Specifically, engineering respondents were more likely to participate in formal activities (47% vs. 40.6%), informal activities emphasizing "soft" skills (54.7% vs. 48.5%), and activities designed for women (27.4% vs. 23.8%) compared to CSIT respondents. By contrast, more CSIT respondents (64.4%) participate informal activities emphasized "hard" technical skills than engineering respondents (59.4%). Across sectors, non-academic respondents (61.1%) were more likely to participate in formal activities compared to academic respondents (42%).

Respondents who indicated participating in personal development activities and training over the past 12 months were asked follow-up questions regarding their reason/motivation for doing so. Notably, academic respondents indicated participating in PD activities and training for personal or professional interests (85.4%), to prepare for future career advancement/promotion (39.6%), and/or to maintain a professional license/accreditation (11.2%).[15] By comparison, most non-academic respondents indicated participating for personal or professional interests (74.1%), to prepare for future career advancement/promotion (53.7%), and/or to maintain professional license/accreditation (16.7%).[16]

Networks and Mentoring.

Networks and opportunities for networking are important for career development. As shown in Figure 34, most respondents perceive having as much access to formal networking (91%), and informal networking opportunities as their coworkers (77%).

Figure 34: Networks and Networking Opportunities



[15] Totals exceed 100% to account for multiple reasons for participating in PD activities or training.
[16] Totals exceed 100% to account for multiple reasons for participating in PD activities or training.

However, networks are gendered. For example, 80.2% of respondents *agree* that their internal professional networks, and 66.8% *agree* that their external professional networks, are primarily composed of men. This is not surprising given that EICT jobs remain heavily male-dominated.

A closer examination of gendered networks reveals that slightly more engineering respondents have male-dominated external professional networks (68.8%) compared to CSIT respondents (62.2%). In addition, more academic respondents agree to having male-dominated external professional networks (70.2%) compared to non-academic respondents (49%).

Open-ended comments highlight that being a woman continues to impact networking opportunities and mentoring relationships:

> *I have the impression, that all my colleagues, male, female or other, get the same opportunities for formal networking. In terms of informal networking my impression is that preferences play a role (e.g., events that seem to involve heavy drinking/take till late at night etc.) and are the main reason I might not want to participate.*[17] *(Academic).*

> *Unfortunately, I miss a female perspective, as mentors are exclusively male. – (Ich vermisse leider eine weibliche Perspektive, da ich ausschließlich männliche Mentoren habe).* (Academic).

> *There are no female mentors or mentors of a different cultural background. Even after two years of working in my current workplace, I do not have any professional network in my area of work. This makes me feel like I am not good enough.*[18]

These comments also indicate a lack of institutional/organizational support for finding mentors:

> *We don't have formal mentorships for regular employees and probably no informal mentors at the employee level. – (Es gibt bei uns keine formalen Mentorenschaften für normale Mitarbeiter und vermutlich auch keine informalen Mentoren auf Mitarbeiterebene).* (Non-academic).

> *There is a mentoring program, but the professor has not defined the rules and, since he isn't interested in it, it is only mentioned in passing and is hidden somewhere in the guidelines. The older colleagues also don't have the time to be great mentors. – (Ein Mentoring Program gibt es, allerdings sind vom Professor die Regeln nicht festgelegt und da ihn das möchte interessiert, wird das nur am Rande mal erwähnt und steht irgendwo in den Richtlinien versteckt. Die älteren Kollegen haben auch gar keine Zeit, um großartig Mentor zu sein).* (Academic).

> *Tends not to exist in small companies. – (In kleinen Unternehmen eher nicht vorhanden).* (Non-academic).

[17] Comment written in English by respondent.
[18] Comment written in English by respondent.

We asked respondents about whether they have access to a mentor at their current workplace. We find that 41% of respondents do not have good mentors at their current workplaces. In addition, only one-half of respondents indicate that they have a mentor who is willing to use their influence to help their careers.

Perceptions about Women in STEM:

Respondents were asked a series of questions to gauge their perception of women in STEM careers. Table 2 presents the five individual questions asked to respondents. The largest variation to agreement is found with the following statement: "Even women with many skills and qualifications fail to be recognized for promotions". Overall, the large agreement (strongly or somewhat) to these statements indicate that respondents still perceive gender biases within STEM careers.

Table 2: Perceptions about Women in STEM

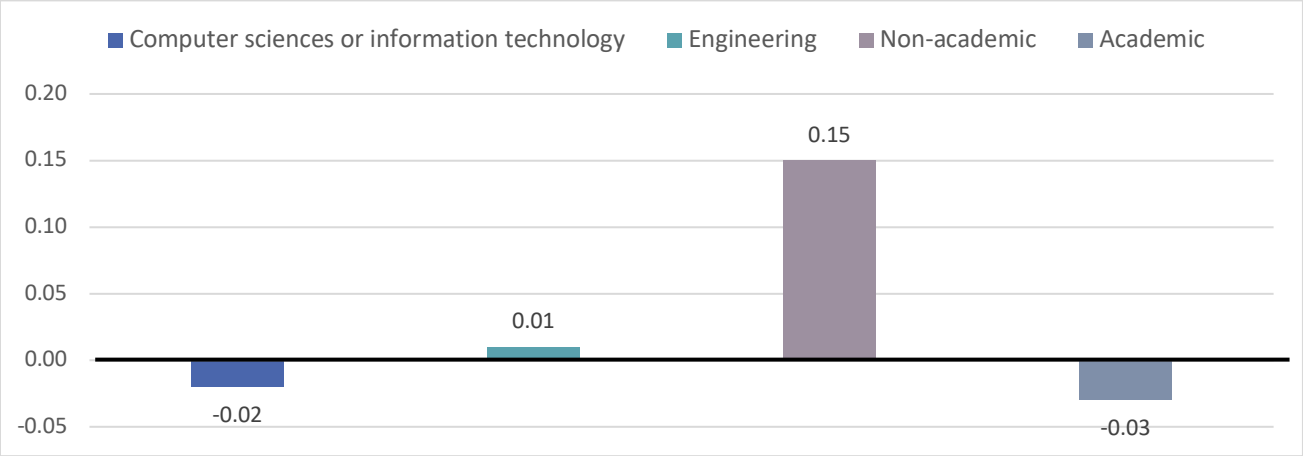
	Agree		**Disagree**
	Strongly	*Somewhat*	
Women starting careers today will face sexist barriers	**16.5%** (13.9%, 17.6%, 11.3%, 17.5%)	**40.5%** (44.6%, 38.8%, 45.3%. 39.6%)	**43%** (41.6%, 43.6%, 43.4%, 42.9%)
Even women with many skills and qualifications fail to be recognized for promotions	**9%** (7.8%, 9.5%, 8.2%, 9.1%)	**37.9%** (37.8%, 37.9%, 44.9%, 36.5%)	**53.2%** (54.4%, 52.6%, 46.9%, 54.4%)
Women must work harder than men to be recognized	**35.7%** (29.9%, 38.2%, 51%, 32.8%)	**42.5%** (49.5%, 39.6%, 37.3%, 43.5%)	**21.7%** (20.6%, 22.2%., 21.8%, 23.6%)
Women believe they have to make too many compromises to gain senior positions	**36.7%** (30.2%, 39.5%, 33.3%, 37.3%)	**47.6%** (52.1%, 45.7%, 52.9%, 46.6%)	**15.7%** (17.7%, 14.8%, 13.7%, 16%)
The more women seek senior positions, the easier it will be for those who follow	**50%** (43.9%, 52.7%, 52%, 49.6%)	**39.1%** (49%, 34.7%, 40%, 38.9%)	**10.9%** (7.1%, 12.6%, 8%, 11.5%)

Note: Percents for computer sciences or information technology, engineering, non-academic, and academic are presented, respectively, in parentheses.

We explore this further by computing a Barriers Index where scores are standardized so that groups could be compared to a mean (M) of zero. As shown in Figure 35, non-academic

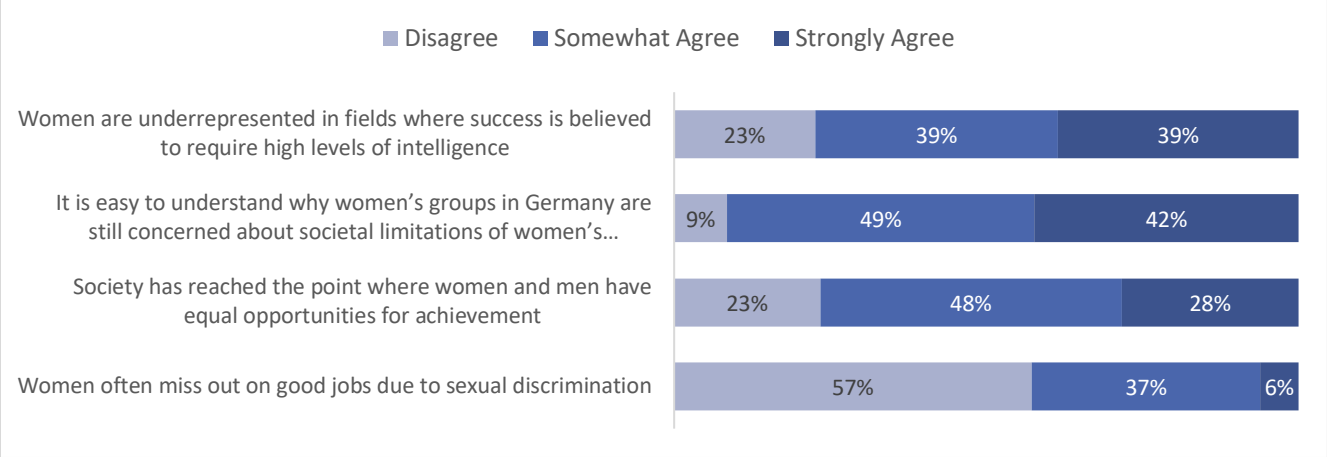
respondents scored the highest (M = .15, SD = .86) which suggest non-academic respondents perceive above average barriers for women in STEM careers.

Figure 35: Barrier Index



We also ask respondents a series of questions about women's experience with gender bias and gender equality on a broader scale. As illustrated in Figure 36, respondents largely *agree* to statements that indicate gender bias and inequality within STEM careers.

Figure 36: Perceptions of Gender Biases in STEM careers



Open-ended comments provide additional insight into gender inequality/equality within STEM.

> *I am in the very privileged position of rarely having been directly discriminated against myself, but I see that there are structural inequalities under which other women are also individually much more strongly discriminated against. Personally, we went back to the East for better compatibility/social recognition of working mothers + fathers taking care as well as better care structures for starting a family. That comes with significantly less*

pay but also less stress. Apart from that, federal offices pay the same in the East and West. – (Ich bin in der sehr privilegierten Lage selber selten direkt diskriminiert worden zu sein, sehe aber, dass es strukturelle Ungleichheiten gibt unter denen andere Frauen auch individuell sehr viel stärker diskrimeniert werden. Persönlich sind wir für bessere Vereinbarkeit/ gesellschaftliche Anerkennung arbeitender Mütter + care übernehmender Väter sowie besserer Betreuungsstrukturen für die Familiengründung wieder in den Osten zurück gegangen. Das geht mit deutlich weniger Gehalt aber auch weniger Stress einher. Abgesehen davon zahlen Bundesämter in Ost und West gleich viel/wenig). (Non-Academic).

I found it difficult to answer many of the questions because they presupposed implicit assumptions about other people's mindsets and attitudes. From my point of view, a change in thinking is taking place in my very male-dominated and dominated field. Socially, however, I have the impression that here many things are still deeply anchored in the subconscious and partly consolidated by e.g., the (gaming) industry. Why, for example, are work gloves in size S typically pink and in size L and XL blue? Why do little girls still get to hear that they'd better leave the screwdriver to dad and little boys that the doll belongs to their sister? Just to name two examples ... And from my point of view, such early imprints are still very widespread and prevent us from finding more women in STEM (especially engineering) professions and from finding more men in social professions. It seems to me that it (almost) doesn't matter what efforts are made at later points in time to change exactly these points. - Die Beantwortung vieler Fragen fand ich schwierig, da sie implizite Annahmen über die Denkweise und Einstellung von anderen Menschen voraussetzten. Aus meiner Sicht findet in meinem sehr männlich geprägten und dominierten Bereich ein Umdenken statt. Gesellschaftlich gesehen, habe ich aber den Eindruck, dass hier noch viele Dinge tief im Unterbewusstsein verankert ist und teilweise durch z.B. die (Spiele-)industrie gefestigt wird. Warum sind z.B. Arbeitshandschuhe in der Größe S typischerweise pink und in der Größe L und XL blau? Warum bekommen kleine Mädchen immer noch zu hören, dass sie den Schraubenzieher besser dem Papa überlassen sollen und kleine Jungs, dass die Puppe der Schwester gehört? Um nur einmal zwei Beispiele zu nennen ... Und solche frühen Prägungen sind aus meiner Sicht immer noch sehr weit verbreitet und verhindern, dass wir mehr Frauen in MINT (insbesondere in Ingenieur-)Berufen finden und dass wir mehr Männer in sozialen Berufen finden. Dabei scheint mir (fast) egal, was zu späteren Zeitpunkten an Anstrengungen unternommen wird, genau diese Punkte zu ändern. (Academic).

In general, I would like to say that my male colleagues and my male supervisor are very supportive and would like to see more female colleagues. Sexist remarks tend to come from men of older generations. In my opinion, the problem is not my direct colleagues, but societal stereotypes that not only men have, but also women. Above all, this leads to women often having less confidence in themselves. That's why I think women's informal regulars' tables are particularly important for sharing experiences and realizing that you're not an isolated case and don't have to feel like you have to legitimize yourself, but that you have a community. – (Generell möchte ich sagen, dass meine Kollegen und mein Vorgesetzter sehr unterstützend sind und sich mehr weibliche Kolleginnen wünschen. Sexistische Bemerkungen kommen eher von Männern älterer Generationen. Das Problem

sind meiner Meinung nach nicht meine direkten Kollegen, sondern gesellschaftliche Stereotype, die nicht nur Männer haben sondern auch Frauen. Das führt vor allem dazu, dass Frauen sich oft weniger zutrauen. Deshalb finde ich besonders Frauen Stammtische wichtig, um Erfahrungen auszutauschen und zu merken, dass man kein Einzelfall ist und nicht das Gefühl haben muss sich zu legitimieren, sondern dass man eine Community hat). (Academic).

At the beginning of my career, I was of the opinion that I had the same opportunities as men. Today I see it differently. Women still don't have the same opportunities. And just working hard is not enough. You also have to have the right networks or a supervisor who encourages you. Otherwise, it's very difficult to assert yourself. I often experience recognition at the work level but not with superiors. There, it's not so important to do a good job but how you present yourself. – (Zu Beginn meiner Berufstätigkeit war ich der Meinung, dass ich die gleichen Chancen habe wie die Männer. Heute sehe ich das anders. Frauen haben immer noch nicht die gleichen Möglichkeiten. Und nur hart zu arbeiten reicht nicht. Man muss auch die richtigen Netzwerke haben bzw. einen Vorgesetzten, der einen fördert. Sonst ist es sehr schwer, sich durchzusetzen. Ich erlebe häufig Anerkennung auf der Arbeitsebene aber nicht bei den Vorgesetzten. Dort ist es nicht so wichtig, gute Arbeit zu leisten sondern sich zu präsentieren). (Non-academic).

Additional comments highlight that while gender equality may be improving in Germany, mothers and women who intend to have children still largely face inequalities and disadvantages:

Most of the problems are not so much about gender, but rather about the fact that there are children and the corresponding expectations (e.g., working hours, lack of interest in work, upcoming absences, more children, etc.) for mothers. Especially since family (whether for men or women) always means responsibility and (financial) obligation. In general, there is an awareness that the working conditions for all women are worse (more often temporary jobs, more often unsuitable working hours, etc.) but nothing is changed. Emphasis is placed on what are considered political goals and achievable metrics (e.g., number of female professors). The employer is most interested in presenting itself as exemplary (we offer to participate in the search for short-term childcare, we offer vacation care), less in finding regulations that really help (and are also long-term and not just goodwill in direct consultation). – (Die meisten Probleme rühren weniger aufgrund des Geschlechts, es geht eher darum, dass es Kinder gibt und entsprechende Erwartungen (z.B. an Arbeitszeiten, fehlendes Interesse an Arbeit, kommende Ausfälle, weitere Kinder etc.) an Mütter. Zumal Familie (egal ob für Männer oder Frauen) immer auch Verantwortung und (finanzielle) Verpflichtung bedeutet. Generell gibt es zwar ein Bewusstsein, dafür dass die Arbeitsbedingungen für alle Frauen insgesamt schlechter sind (häufiger befristete Stellen, häufiger unpassende Arbeitszeiten etc.) aber daran wird trotzdem nichts geändert. Wert gelegt wird auf das, was als politische Ziele und erreichbare Kennzahlen gilt (z.B. Anzahl Professorinnen). Das meiste Interesse hat der Arbeitgeber daran sich als vorbildlich darzustellen (wir bieten an uns bei der Suche nach kurzfristiger Kinderbetreuung zu beteiligen, wir bieten Ferienbetreuung an), weniger daran Regelungen zu finden die wirklich helfen (und auch langfristig sind und nicht nur Kulanz in direkter Absprache). (Non-academic).

*Regarding equal opportunities for men and women: From conversations with friends and my own experience, it feels as a woman at 30 and newly married in the application process that you have more problems than your male colleagues to be invited. We suspect that there is the fear that the applicant could soon become pregnant and then drop out again. If you change your name, you can't "hide" this fact (married) in your application. I see the "potential to get pregnant" as one of the biggest inequalities between men and women. Or child planning in general. Especially through an academic career, the start of a career shifts further and further back - but the biological window for fertility does not. That is, there remains an ever-shrinking window for child planning. Especially with a high academic degree (doctorate), you are not finished until you are 30 and are then confronted with the job market, which would like to give you only temporary contracts as a career starter. This offers no security at all when planning children and also makes planning pregnancies (if this is even possible) impossible. And if you are pregnant at the end of a fixed-term contract, you will not be employed any longer. And because of this general suspicion, women who do not want to have children are also disadvantaged. In general, however, this problem seems to me to be more prevalent in the industrial environment than in academia. – (Bzgl. der gleichen Chancen von Männern und Frauen: Aus Gesprächen mit Freund*innen und meiner eigenen Erfahrung fühlt es sich als Frau mit 30 und frisch verheiratet im Bewerbungsprozess so an, dass man mehr Probleme als die männlichen Kollegen hat eingeladen zu werden. Wir vermuten, dass da die Angst ist, dass die Bewerbin ja bald schwanger werden könnte und dann wieder ausfällt. Bei Namensänderung kann man diesen Tatbestand (verheiratet) auch nicht "verstecken" in der Bewerbung. Ich sehe das "Potential Schwanger zu werden" als mit die größte Ungleichheit zwischen Männern und Frauen. Oder generell die Kinderplanung. Gerade durch eine akademische Laufbahn verschiebt sich der Berufseinstieg immer weiter nach hinten - das biologische Fenster für die Fruchtbarkeit aber nicht. D.h. es bleibt ein immer kleiner werdendes Fenster für die Kinderplanung. Gerade mit hohem akademischen Abschluss (Promotion) ist man dann erst mit 30 fertig und sieht sich dann dem Arbeitsmarkt konfrontiert, der einem als Berufseinsteiger gerne nur befristete Verträge geben möchte. Das bietet bei der Kinderplanung überhaupt keine Sicherheiten und macht auch das Planen von Schwangerschaften (wenn dies denn überhaupt nur möglich ist) unmöglich. Und wenn man dann schwanger am Ende eine befristeten Vertrages ist, wird man nicht weiterbeschäftigt. Und durch diesen Generalverdacht werden dann auch Frauen benachteiligt, die gar keinen Kinderwunsch haben. Generell scheint mir dieses Problem aber eher im industriellen Umfeld vorzuherrschen, als im akademischen).* (Academic).

The restrictions imposed by the WissZeitVG make long-term career & family planning impossible; the problem is probably gender-independent. If I wanted to have children, I would have to leave academia as a woman, since my partner works in a care profession and could not bear the finances alone. – (Die Einschränkungen durch das WissZeitVG machen eine langfristige Karrierre- & Familienplanung nicht möglich, das Problem ist vermutlich geschlechtsunabhängig. Im Falle eines Kinderwunsches würde ich als Frau die Akademia verlassen müssen, da mein Partner in einem Care-Beruf arbeitet und die Finanzen nicht alleine tragen könnte.) (Academic).

In general, I think women have the same opportunities as men - at least until they have children and go part-time. The fact that this is still mainly done by women and that they are still underrepresented in the profession makes job sharing more difficult, I think. – (Generell denke ich haben Frauen bei uns schon die gleichen Chancen wie Männer - zumindest solange bis sie Kinder bekommen und in Teilzeit gehen. Dadurch, dass dies immer noch hauptsächlich Frauen tun und diese in dem Berufszweig immer noch unterrepräsentiert sind ist entsprechend auch das Jobsharing schwieriger denke ich.) (Academic).

I am unsure if we should not often replace "women" with "mothers". Because in the context of discrimination, I often experience discrimination against mothers rather than women. Being both, I often can't differentiate. – (Ich bin mir unsicher, ob wir nicht oft "Frauen" durch "Mütter" ersetzen sollten. Denn im Diskriminierungskontext erlebe ich oft eher eine Diskriminierung von Müttern als von Frauen. Da ich beides bin, kann ich oft nicht differenzieren). (Academic).

I think there are limitations to women's careers that we as a society will never be able to eliminate, even if we try as hard as we can with gender equality seminars/advocates/.... try as we might. Only women can have children biologically, men cannot. This means that female academics are usually thwarted at the age of 30 - 40. In my opinion, the egalitarianism about "equal opportunities" leads to young mothers not even allowing themselves the few weeks of rest with their baby that their bodies actually need. In the end, this is simply socially produced pressure that degenerates into inhuman stress and is not healthy in the long term. In short: in my opinion, the alleged "promotion" of female academics is actually more of a cleverly concealed "demand" on ambitious women to fulfill both roles as a matter of course and thus to have to give 200% permanently. –(Ich denke es gibt Einschränkungen für die Karriere von Frauen, die werden wir als Gesellschaft nie beseitigen können, selbst wenn wir uns mit Gleichstellungsseminaren/-beaftragten/-... noch so bemühen. Nur Frauen können biologisch Kinder kriegen, Männer nicht. Das heißt, Akademikerinnen werden dann halt meist im Alter von 30 - 40 Jahren dadurch ausgebremst. Die Gleichmacherei von wegen "Chancengleichheit" führt meiner Meinung nach eher dazu, dass sich junge Mütter nicht mal die paar Wochen Ruhezeit mit ihrem Baby zugestehen, die ihr Körper eigentlich bräuchte. Im Endeffekt ist das dann einfach nur gesellschaftlich produzierter Druck, der in unmenschlichen Stress ausartet und langfristig nicht gesund zu stemmen ist. Kurz: die angebliche "Förderung" von Akademikerinnen ist meiner Meinung nach eigentlich eher eine geschickt kaschierte "Forderung" an ehrgeizige Frauen, selbstverständlich beide Rollen zu erfüllen und so dauerhaft 200 % geben zu müssen). (Academic).

I think that less women per se than parents who stay at home for a while or then work reduced hours are discriminated against in terms of career advancement opportunities. Not because women are seen as less intelligent, for example, but because of the suspicion of (possible) future absences due to parental leave/part-time are subequently less often employed or given responsibility. Therefore, in my opinion, it is necessary that fathers

have to take the same amount of parental leave as the mother (of course, this would have to be financially supported in such a way that everyone can afford it). Only then can even smaller companies afford to hire without discrimination. – (Ich denke, dass weniger Frauen an sich als Eltern, die zu eine Weile zu Hause bleiben bzw. dann reduziert arbeiten diskriminiert werden hinsichtlich beruflicher Aufstiegschancen. Nicht, weil frau z.B. für weniger intelligent gehalten wird, sondern durch den Verdacht auf (mögliche) zukünftige Abwesenheiten wegen Elternzeit/Teilzeit weniger oft angestellt werden oder Verantwortung bekommen. Deswegen ist es meiner Meinung nach notwendig, dass Väter verpflichtend genauso viel Elternzeit nehmen müssen wir die Mutter (natürlich müsste das finanziell so untersetzt sein, dass sich das jeder leisten kann). Nur dann können sich auch kleinere Unternehmen leisten diskrimierungsfrei einzustellen). (Academic).

You are also discriminated against as a woman, at least it can happen, if you do NOT want/get children. Because then you do not correspond to the typical image of women. – (Man wird als Frau auch diskriminiert, zumindest kann es passieren, wenn man KEINE Kinder will/kriegt. Weil man dann nicht dem typischen Frauenbild entspricht). (Non-academic).

One comment also highlights challenges experienced by trans-women in STEM fields:

Trans-women are also strongly affected by discrimination and are often also excluded (best example self-determination law). This shows very clearly the degree of misogyny in our society, which is also reflected in the working environment. I as a trans person in the other direction do not find any support in dealing with my situation: I am in the final phase of my dissertation and will apply for a job in autumn at the latest, while starting my hormone therapy in the same period. Now the question: am I experiencing misogynistic discrimination or transphobia in the application process? The topic of gender plays far too big a role in society and restricts the living out of one's own identity very much. On the other hand, I almost look forward to trading sexism for transphobia. In the immediate work environment, sexism happens very slightly, but if you look, you'll find it, it's subtle. Quite openly, I experience it every day in public, in sports, on social media, etc. - Trans Frauen sind ebenfalls stark betroffen von Diskrimierung und werden häufig auch ausgeschlossen (bestes beispiel Sebstbestimmungsgesetz). Dies zeigt sehr deutlich den Grad der Misogynie in unserer Gesellschaft, der sich auch im Arbeitsumfeld widerspiegelt. Ich als trans* Mensch in der anderen Richtung finde keinerlei Unterstützung im Umgang mit meiner Situation: Ich befinde mich in der Endphase meiner Dissertation und werde mich spätestens ab Herbst bewerben, dabei beginne im selben Zeitraum mit meiner Hormontherapie. Nun die Frage: erlebe ich misogyne Diskriminierung oder Transfeindlichkeit beim Bewerbungsprozess. Das Thema Geschlecht spielt in der Gesellschaft eine viel zu große Rolle und schränkt das Ausleben der eigenen Identität sehr stark ein. Andereseits freue ich mich schon fast darauf, Sexismus gegenüber Transfeindlichkeit einzutauschen. In der direkten Arbeitsumgebung findet Sexismus nur sehr geringfügig statt, aber wenn man hinsieht, findet man es, es ist subtil. Ganz offen erlebe ich es tagtäglich in der Öffentlichkeit, beim Sport, auf Social Media etc.).* (Academic).

Government Policies and Politics:

We asked respondents a series of questions about government policies. These individual items are presented in Table 3. As indicated, the majority of respondents *agree* to statements that there should be monetary increases for all government benefits or subsidies except for COVID-19 related benefits. The most agreement was for enhancing older adult or non-child related care subsidies with over one-half of respondents indicating significant financial increases are needed. Respondents also indicated agreement for increases in child-care subsidies, child-related financial benefits, and illness/injury leave.

Table 3: Opinions on Government Benefits/Subsidies

Should there be policies changes in amount of government financial benefits for:	**Agree**		**Disagree**
	Significant increase	*Somewhat of an increase*	*Reduce or remain the same*
Birth/adoptive leave benefits (e.g., maternity, paternity, and parental)	30.5%	39.4%	30.1%
Child-care subsidies	46.2%	35.6%	18.2%
Other child-related financial benefits (e.g., child tax credit)	38.1%	40.2%	21.7%
Older adult or other non-child related care subsidies	52.6%	38.2%	9.2%
Illness/Injury leave (short or long-term)	18.6%	48.4%	33%
Unemployment benefits	17%	29.5%	53.6%
COVID-19 related benefits	14.4%	23%	62.6%

Notably, more engineering respondents indicated that unemployment benefits should be reduced or remain the same (57.9%) compared to CSIT respondents (44.4%). As well, more non-academic respondents (68.4%) *agree* to unemployment benefits being reduced or remaining the same (50.5%).

Below are some open-ended comments from respondents pertaining to improving government benefits.

> *I found the last question about government benefits/subsidies difficult to answer. For example, I would rather have a good childcare infrastructure than more money (have had). The state should put more into structures here than pay out to individuals. Even double child benefits don't help much if there is no qualified care available. - Die letzte Frage zu staatlichen Leistungen/Zuschüssen fand ich schwer zu beantworten. Ich hätte z.B. lieber eine gute Kinderbetreuungs-Infrastruktur als mehr Geld (gehabt). Der Staat sollte hier mehr in die Strukturen stecken als an Einzelpersonen auszahlen. Selbst das doppelte Kindergeld hilft nicht viel, wenn keine qualifizierte Betreuung vorhanden ist.* (Academic).
>
> *Parental leave/children's allowances should be increased primarily for low incomes, not for already good salaries – (Elternzeit/Kinderfreibeträge sollten vor allem bei den niedrigen Einkommen erhöht werden, nicht bei den ohnehin schon guten Gehältern).* (Academic).
>
> *I think it makes sense not to cap parental benefits so that the family does not lose out financially when the main earner takes parental leave. This could provide a stronger incentive for fathers to participate more. – (Ich halte es für sinnvoll, das Elterngeld nicht zu deckeln, damit die Familie keine finanziellen Einbußen hat, wenn der Hauptverdiener Elternzeit nimmt.Das könnte einen stärkeren Anreiz liefern, dass sich die Väter stärker beteiligen).* (Non-academic).
>
> *What matters in childcare is quality and reliability; not the financial perspective - Bei der Kinderbetreuung kommt es auf die Qualität und Verlässlichkeit an; nicht auf die finanzielle Sicht.* (Non-academic).
>
> *It should be obligatory for men to take parental leave and preferably more than 2 months e.g. 50% (of the 6 months). If the parental leave benefit is attractive (e.g., 100% of the last salary), then there would be less arguments not to do it. Managerial positions and professorships can be part-time. Childcare needs to be better paid and more educator jobs should be advertised as part-time (often only full-time educators are wanted). Core working hours are enormously important. Meetings after 5:00pm exclude women from important decisions. Decisions are often made over a beer or "on the golf course". 30 hour week for all. - Es sollte für Männer verpflichtend sein, Eltenzeit zu nehmen und am besten mehr als 2 Monate z.B. 50% (der 6 Monate). Wenn das Elternzeitgeld attraktiv ist (z.B. 100% des letzten Gehaltes), dann gäbe es auch weniger Argumente, es nicht zu tun. Manager-Positionen und Professuren können in Teilzeit ausgeübt werden. Kinderbetreuung muss besser vergütet werden und mehr Erzieher:innen-Jobs sollten in Teilzeit ausgeschrieben werden (es werden oft nur Vollzeit-Erzieher:innen gesucht). Kernarbeitzeiten sind enorm wichtig. Meetings nach 17:00Uhr schließen Frauen aus wichtigen Entscheidungen aus. Entscheidungen werden auch oft beim Bierchen oder "auf dem Golfplatz" getroffen. 30h Woche für alle... (*Non-academic)

Now that my children are grown, this is again a major factor that prevents me from doing my job on an equal footing with colleagues. In addition, I feel it is unfair when parents are excused from work for sick children, but I officially had to make up every hour I had to take my sick mother to the doctor. Without the goodwill of my supervisor, this would have been impossible. I would have had to reduce my hours or quit my job. The offers for parental leave have improved significantly in recent years, but caregiver leave is extremely unattractive in Germany; this is only an option in extreme situations. I am currently caring for my father's cousin, who has no other relatives. Although I do not care for her myself (this is done by the nursing service), the time required is immense, especially due to the corresponding bureaucratic disputes (she needs help for care from the social welfare office). This costs me so much time and energy that, in addition to my family, I can hardly maintain professional networks or get involved in academic self-administration. I even have to think twice about business trips... – (Dies ist, nachdem meine Kinder nun groß sind, erneut ein wesentlicher Faktor, der mich daran hindert, gleichberechtigt mit Kolleginnen und Kollegen meine Arbeit zu tun. Zudem empfinde ich es als ungerecht, wenn Eltern für kranke Kinder von der Arbeit befreit werden, ich aber offiziell jede Stunde nacharbeiten musste, in der ich mit meiner kranken Mutter zum Arzt musste. Ohne die Kulanz meines Vorgesetzten wäre dies unmöglich gewesen. Ich hätte meine Stunden reduzieren oder meinen Job kündigen müssen. Die Angebote für Elternzeit wurden in den letzten Jahren deutlich verbessert, Pflegeauszeiten sind in Deutschland hingegen äußerst unattraktiv, dies kommt nur in Extremsituationen in Frage. Derzeit betreue ich nun die Cousine meines Vaters, die keine weiteren Angehörigen hat. Obwohl ich nicht selbst pflege (dies übernimmt der Pflegedienst) ist der zeitliche Aufwand immens, vor allem auch durch die entsprechenden bürokratischen Auseinandersetzungen (sie benötigt Hilfe zur Pflege vom Sozialamt). Dies kostet mich soviel Zeit und Kraft, dass ich neben meiner Familie kaum berufliche Netzwerke pflegen oder mich in der akademischen Selbstverwaltung einbringen kann. Selbst Dienstreisen muss ich mir gut überlegen…). (Academic).

Conclusion:

Women continue to be underrepresented in science, technology, engineering, and mathematic (STEM) fields. This research highlights factors that contribute to the retention and attrition rates of women working in engineering and information and communication technology (EICT) jobs across Germany.

The primary objective of this study was to identify the impact of welfare state entitlements, job factors, and family/individual circumstances on women's intent to stay or leave their jobs. Our findings suggest that many respondents intend to change jobs due to their contract/limited term position ending – and they expressed dissatisfaction with being unable to find permanent/secure employment. In addition, other job-related factors such as dissatisfaction with salary, few promotion opportunities, and hostile climate impact job attrition. As well, job turnover intention is present among respondents who indicate experiencing: at least one emotional labour incident with their colleagues or co-workers; at least one incident of workplace hostility/other negative situations; dissatisfaction with the outcome of formal reporting of at least one incident of

harassment, discrimination, and/or exclusion; and at least one incident of sexual harassment and/or sexual microaggressions – especially overt forms. Turnover intention is also impacted by having a lack of work-life balance, and a workplace that is gender-biased and/or unsupportive of women. Therefore, supportive workplaces that promote job security, work-life balance, good pay, peer inclusion, and work autonomy can improve job retention.

Respondents indicate wanting to see improvements to welfare state entitlements especially for elder care, childcare and child-related benefits, parental leave, and illness/injury leave. In addition, open-ended comments suggest additional improvements to parental leave and childcare are needed to better support working parents and/or women who intend to have children. The respondents also highlight the continued presence of gendered informal and formal networks that are male-dominated within EICT workplaces. It remains a challenge to find "good" mentors and mentors of diversity that can assist them with career advancement.

Another objective of this study is to evaluate the impact and variation of these circumstances by employment sector and work type. We directly compared the experiences of women working in engineering to computer science and information technology (CSIT), as well as women working in the academic sector to the non-academic sector. Our findings indicate that there are pros and cons to working in each work area and/or sector. Broadly, there is more job retention within the academic sector compared to non-academic sector. However, academic respondents are more likely to indicate intention to change jobs because their position is ending (e.g., contract or limited term). Open-ended comments reveal challenges to obtaining permanent/secure employment in the academic sector. Non-academic respondents indicate more job-related factors as contributing to their turnover intention including dissatisfaction with pay and/or hostile/unsupportive workplaces. We also find that while non-academic respondents perceive their work to be meaningful, academic respondents are more likely to have more work autonomy. Academic respondents report the longest working hours and are more likely to experience emotional exhaustion. By contrast, non-academic respondents indicate more experiences with hostility/negative situations within the workplace.

When examining variations between work areas, we find no notable differences in the turnover intention of engineering and CSIT respondents. However, engineering respondents are overall more satisfied with their careers and experience less workplace alienation than CSIT respondents. Engineering respondents also have more positive perceptions of their leaders/management, perceive their workplaces to be more gender equitable overall, and report more inclusion and support than respondents working in CSIT. Engineering respondents are also more likely to experience hostility or other negative experiences in the workplace. CSIT respondents indicate more flexible work options available to them and slightly more work-life balance.

These findings have raised important questions which we intend to investigate in the qualitative phase of the project. In sum, we seek to further understand why intentions to leave are the same for CSIT and engineering respondents despite engineering respondents indicating greater support for gender equity, more leadership/management support and inclusion, career satisfaction, and less alienation. Similarly, we also seek to better understand why intentions to leave are lower for academic respondents despite longer working hours and greater emotional exhaustion. Furthermore, we also aim to uncover why respondents do not formally report incidents of hostility, harassment, and exclusion despite the frequency in which these negative experiences occur.

To conclude, this report outlines the findings from a Germany-wide survey on women working within EICT fields. In the future, we will compare these results to similar surveys administered in Sweden and Canada to uncover potential similarities and differences in job attrition and retention. Overall, the statistical analysis demonstrates that, despite increased efforts to improve gender equity across STEM fields, gender inequalities, stereotypes, and biases remain problems within EICT in Germany, shaping women's day to day workplace experiences across employment sectors.