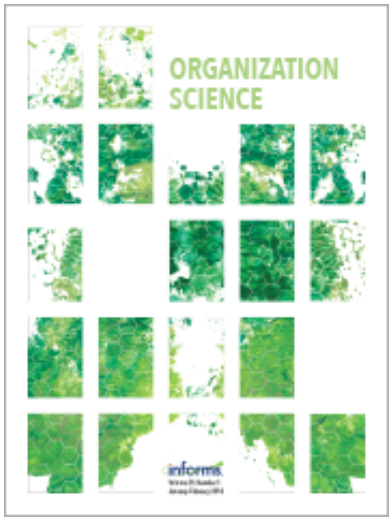

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With a Little Help from My (Girl) Friends: Field Evidence on Gender Homophily and Women's Training Outcomes in Remote Environments

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Abstract. Do women benefit more from gender-homophilous (all-women) or gender-heterophilous (mixed-gender) groups in remote training? Existing theories offer no clear answer, as remote training environments disrupt the social architecture that enables peer effects—weakening not only the collaborative structures that encourage cross-gender exchange but also the interpersonal cues that foster same-gender bonding. We argue that remote training environments reveal a key mechanism through which all-women peer groups confer distinctive benefits: *identity-based trust*. In all-women peer groups, shared gender identity can help participants transcend the relational barriers of remote interaction, fostering trust-based ties that facilitate mutual support. We test this argument in an 18-month randomized field experiment on a leading online career training platform, which randomly assigned over 2,700 unemployed women to all-women or mixed-gender virtual peer groups. We find that women in all-women groups were significantly more likely to complete their training on time, earn professional certification within a year, and secure in-field employment. Analyses of text communication data reveal three key patterns underlying identity-based trust in all-women groups: (1) multiple shared identities (i.e., marriage, motherhood, career), (2) affective expression, and (3) reciprocal exchanges of support. By contrast, interaction in mixed-gender groups was inhibited, preventing supportive dynamics—even among women—from forming. This study provides the first causal evidence on how peer gender composition shapes women's career outcomes in remote training and illuminates the microgroup mechanisms through which gender-homophilous groups foster success even in digitally mediated environments.

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Keywords: remote work • remote training • gender homophily • peer effects • workforce development • field experiment

1. Introduction

Peer groups play a critical role in shaping women's training and career outcomes, with gender composition emerging as a particularly consequential factor. In training contexts, peers serve as key sources of knowledge exchange and social support (Saks and Gruman 2012, Ranganathan 2018). The gender makeup of these groups influences the formation and quality of peer relationships and the types of resources exchanged (Hoxby 2000, Dasgupta et al. 2015, Wu et al. 2022). Despite the importance of peer dynamics, little is known about how gender composition operates in remote training environments, where participants interact through digital platforms rather than face-to-face.[1] This gap has grown increasingly salient as remote training programs have proliferated worldwide (Stein 2023), amid ongoing debates about whether gender diversity benefits women in professional development settings (e.g., Binning et al. 2024).

Remote training has expanded rapidly (Estrada 2020), reflecting broader shifts toward remote work (Villamor et al. 2023). A wide range of online programs—including job-skilling platforms, boot camps, mentorship initiatives,

and accelerators—frequently organize participants into virtual peer groups to enhance accountability, provide encouragement, and support progress toward career goals (Melin and Correll 2022, Lane et al. 2024). Remote training has broadened access to professional development opportunities beyond employer-sponsored programs, particularly for women seeking to reenter the workforce (Stein 2023). By lowering barriers to participation, remote training is increasingly viewed as a promising lever for narrowing gender gaps in skill acquisition and career advancement (Kelly et al. 2014). Understanding whether and how peer gender composition affects women's training outcomes in remote environments is critical to fulfilling this promise.

Beyond its practical relevance, remote training offers a unique opportunity to advance theories of gender and peer effects, which have largely been developed in face-to-face contexts. Two theoretical traditions offer contrasting predictions. Research on task groups and social networks in organizations highlights the advantages of mixed-gender ties for women's career outcomes (Brass 1985, Burt 1998, Belliveau 2005, Lutter 2015), positing that men are more likely than women to provide complementary skills and instrumental resources (Ibarra 1992, Brands et al. 2022). These benefits tend to be strongest in interdependent, task-oriented groups where shared goals encourage collaboration and mutual assistance (Chatman and Flynn 2001). By contrast, the peer-effects literature in educational and training contexts typically finds that women benefit more from gender-homophilous groups (Hoxby 2000, Lu and Anderson 2015, Goulas et al. 2025).[2] In these contexts, whereas men's relative advantages are less pronounced, women's interactions with each other play a critical role in professional socialization by reinforcing aspirations, fostering belonging, and encouraging persistence (Dasgupta et al. 2015, Yang et al. 2019, Wu et al. 2022). Together, these perspectives suggest that the relative advantage of same- versus mixed-gender peer groups for women depends heavily on the relational and structural features of the environment. Yet how these dynamics unfold in the increasingly prevalent context of remote training remains an open question.

Remote training environments introduce relational dynamics that complicate existing predictions. Unlike organizational task groups—where men often hold advantages in instrumental resources and task interdependence fosters cross-gender collaboration—peer training groups lack clear gender hierarchies and shared performance goals. Thus, the benefits typically associated with gender-diverse groups may be less evident in remote peer training contexts. At the same time, although virtual peer training groups resemble their in-person counterparts in structure and purpose, they lack the face-to-face interactions that foster trust and spontaneous socialization among peers (Gilson et al. 2015). Consequently, the relational and emotional benefits women often derive from same-gender peers in colocated training environments may be less likely to emerge online. Remote training environments therefore represent a novel context in which to examine whether and how peer gender composition continues to meaningfully shape women's training and career outcomes when the social mechanisms that normally sustain peer dynamics are weakened.

We propose that remote training environments reveal a distinct mechanism through which gender-homophilous groups continue to benefit women's career outcomes: *identity-based trust.* Drawing on social identity theory (Tajfel and Turner 1979), which posits that shared identity is a potent source of trust among in-group members (Brewer 1999, Hinds and Mortensen 2005), we argue that shared gender identity becomes salient as a basis for trust-building in remote environments where other interpersonal cues are limited. Such identity-based trust is more likely to form within all-women groups because they foster psychological safety that promotes more open connection and disclosure (Ely 1994, Ody-Brasier and Fernandez-Mateo 2017, Alan et al. 2025, Yarmar et al. 2026). Trust then enables the exchange of expressive and instrumental support (Lawler 2001, Casciaro and Lobo 2008), which enhances women's engagement and goal attainment. Conversely, the presence of men may heighten women's concerns about vulnerability and self-disclosure, thereby dampening trust—even among women—within mixed-gender groups (Inzlicht and Ben-Zeev 2000, Flynn and Ames 2006, Cole et al. 2023). Remote settings thus create a "trust deficit" in mixed-gender groups, while simultaneously heightening the salience of gender as a shared identity. This combination allows all-women groups to transform homophily into a unique source of relational strength and professional support.

We find evidence for our argument in a large-scale, 18-month randomized field experiment that randomly assigned over 2,700 unemployed women to all-women (*gender-homophilous*) or mixed-gender (*gender-heterophilous*) virtual peer groups on a leading online career training platform. Our study departs from prior studies in three key ways. First, we isolate peer effects from organizational culture. In most employer-provided training programs, participants share an organizational culture whose existing gender norms shape group dynamics; organizations with supportive gender climates are unlikely to exhibit differences between same- and mixed-gender groups. By contrast, our setting is free from such contextual influences, allowing us to observe peer effects independent of organizational culture. Second, we enable causal identification through random assignment. Whereas prior research has relied primarily on survey or archival data prone to selection bias, our field experiment randomly assigned participants to same- or mixed-gender groups, enabling causal identification of the effects of peer gender composition on training outcomes. Third, we examine peer dynamics in a

real-world remote training environment. Rather than the in-person or laboratory-based settings that dominate existing studies, we assess how gender composition shapes learning and engagement when interaction is digitally mediated—where patterns of communication, emotional expression, and resource exchange differ markedly from face-to-face contexts. To identify the mechanisms through which same-gender peer groups foster more effective engagement and professional development among women, we analyze text data from participants' online communications throughout the training program.

Our analyses focus on three training outcomes: on-time completion of the training, certification, and in-field employment. Our findings reveal that women in gender-homophilous peer groups were significantly more likely to complete their training on time and obtain professional certification within a year of starting their program than women in gender-heterophilous groups. Additionally, gender homophily significantly improved women's likelihood of securing in-field employment following program completion and certification. Results from nonlinear specifications found the strongest effects in all-women groups.

We unpack the micromechanisms behind our main results by analyzing participants' text communication data. Our evidence, both qualitative and quantitative, points to three key patterns characteristic of identity-based trust in all-women groups. First, shared gender identity served as a foundation for deeper connection through vulnerable disclosure, allowing women to bond over additional shared identities, such as those related to motherhood, marriage, and career transitions. By contrast, mixed-gender groups rarely engaged in identity-based or personal discussions. Second, revealing these shared identities allowed all-women groups to foster higher levels of trust based on affective expression (McAllister 1995), with members openly expressing enthusiasm, closeness, and solidarity. Third, increased trust enabled all-women groups to engage in more frequent and reciprocal exchanges of resources, including both instrumental (e.g., study groups, exam tips, job leads) and expressive (e.g., encouragement, empathy) support. By contrast, mixed-gender groups shared information in a more fragmented and transactional way, with limited sustained peer engagement. For each of the key patterns, quantitative comparisons showed statistically significant differences between gender-homophilous and gender-heterophilous groups.

Our study makes three contributions. First, we provide—to the best of our knowledge—the first field experimental evidence of how peer gender composition influences individual career goal attainment in remote training environments. Establishing this causal effect is meaningful because existing theories offer ambiguous predictions about whether women benefit more from gender-homophilous or gender-heterophilous groups in remote contexts. Second, we extend theory on gender homophily by identifying when and why gender-homophilous groups become particularly beneficial for women. Existing research emphasizes that gender homophily benefits women through face-to-face interactions that build trust and facilitate resource exchange. We show that identity-based trust can emerge in all-women groups even without face-to-face contact, enabling communal ties, resource exchange, and career goal attainment to flourish in digitally mediated environments. Third, we identify the distinctive communicative and relational dynamics through which all-women groups foster engagement in remote training. Through analysis of digital interactions, we show how women in gender-homophilous groups express emotion differently, exchange resources more readily, and develop stronger communal ties than women in mixed-gender groups. These findings carry important theoretical implications: They demonstrate that gender identity remains salient as a basis for trust-building even when opportunities for social connection are constrained by digital mediation. However, we also show that these benefits are fragile, with minor shifts in group gender composition sufficient to disrupt the trust-based dynamics that underpin women's collaborative engagement.

2. Theoretical Background

2.1. Career Training Programs

Organizational scholars have extensively studied career training programs, including their theoretical foundations and practical implications (Knoke and Kalleberg 1994, Dobbin et al. 2015, Lane et al. 2024). From a human capital perspective, training enhances job-relevant skills and productivity (Schultz 1961), whereas the career mobility perspective emphasizes the importance of both employer-sponsored and external programs for facilitating workforce reintegration following career interruptions (Barbulescu and Bidwell 2013, Sterling and Merluzzi 2019, Melin 2024, Yang and Lee 2025).

Although these frameworks explain the rationale for training initiatives, scholars studying labor market inequalities have increasingly focused on how training outcomes are shaped by social relationships (Saks and Gruman 2012), especially for women and other historically underrepresented groups (Ranganathan 2018, Seron et al. 2016). This perspective highlights how training programs influence access to economic opportunities not only through skill acquisition but also through the social processes they enable. The interpersonal context of training—especially peer dynamics—plays a critical role in shaping engagement and success. For instance, programs that combine formal instruction with interpersonal support, such as coaching or cohort-based structures, boost women's confidence and persistence in male-dominated fields (Melin and Correll 2022). Similarly, training initiatives that rely on experienced peers to provide technical

guidance and model key workplace behaviors enhance women's professional socialization and long-term retention (Ranganathan 2018).

Recent shifts toward remote training have raised new questions about how these social processes operate when training moves online. A growing array of online programs—including job-skilling platforms, boot camps, mentorship initiatives, and accelerators—now organize participants into virtual peer groups to enhance accountability, provide encouragement, and support progress toward career goals (Melin and Correll 2022, Lane et al. 2024). Notably, remote training has expanded access to professional development opportunities, particularly for women seeking to reenter or advance in the workforce (Stein 2023). Yet we know surprisingly little about how peer dynamics within these digitally mediated environments influence women's training and career outcomes. In what follows, we review research on peer-group gender composition in in-person settings and then theorize how remote contexts may alter the interpersonal mechanisms that support women's career advancement.

2.2. Effects of Peer-Group Gender Composition

Organizational research on gender and social networks has long argued that peer gender composition influences women's task-relevant experiences and career trajectories (Ibarra 1992, Lutter 2015, Brands et al. 2022). Because men disproportionately occupy structurally advantaged positions in organizations (Brass 1985, Burt 1998), gender-diverse networks often provide women with access to instrumental resources, such as high-status contacts and career-relevant information (Brass 1985, Burt 1998, Belliveau 2005, Lutter 2015). The advantages of cross-gender ties are most pronounced in collaborative, task-oriented settings where shared goals and evaluations on collective outcomes foster reciprocal support and resource exchange, reducing the relational barriers typically associated with network heterogeneity (Chatman and Flynn 2001). By contrast, women's gender-homophilous ties more often provide expressive resources, including social and emotional support, which complement but cannot substitute for the instrumental benefits of cross-gender ties (Ibarra 1992, Obukhova and Kleinbaum 2022). Consequently, mixed-gender networks, relative to more gender-homogeneous ones, have traditionally been viewed as especially advantageous for women's career advancement (Brass 1985, Ibarra 1992, Lutter 2015).

However, research on peer effects in educational and training contexts reveals a different pattern (Hoxby 2000, Lu and Anderson 2015, Goulas et al. 2025). In these settings, the relative instrumental advantages men typically offer are diminished, whereas women's interactions with one another play an outsized role in professional socialization (Dasgupta et al. 2015, Yang et al. 2019, Wu et al. 2022). Empirical research highlights the psychological benefits women experience in all-women or women-majority groups. For instance, experimental work in engineering classrooms found that first-year women in female-majority groups (75% women) participated more actively, felt less anxious, and reported greater career aspirations than those in female-minority groups (25% women). Notably, participation was even higher in female-majority groups than in gender-parity settings (Dasgupta et al. 2015). Gender-homophilous peer groups can also mitigate the "chilly climates" (Hall and Sandler 1982) of male-dominated environments by increasing motivation and confidence (Dasgupta 2011), strengthening role models (Goulas et al. 2025), and lowering disruption (Lavy and Schlosser 2011). Such psychological benefits are associated with career-related gains, including improved job prospects (Yang et al. 2019, Wu et al. 2022, Hampole et al. 2024). These findings underscore the distinctive value of all-women or women-majority groups in educational and training contexts.

Taken together, the literature has identified conditions under which mixed-gender versus same-gender groups benefit women's career outcomes: Whereas mixed-gender groups may benefit women in contexts where men's instrumental resources are pronounced and structurally incentivized (e.g., large professional firms), gender-homophilous groups are more likely to enhance women's outcomes in training and educational settings by fostering belonging, strengthening supportive climates, and offering socialization benefits.

The rise of remote training introduces a novel context that complicates these established predictions. On the one hand, the instrumental benefits of mixed-gender groups are unlikely to materialize in remote training. Cross-gender support is more likely to occur in organizational task groups, in which men hold advantages in instrumental resource access and shared performance goals encourage mutual support. However, peer training groups often lack both clear gender hierarchies that confer differential control over valued resources and shared performance goals that motivate their exchange. As a result, men in these settings have limited instrumental advantages to offer. On the other hand, the affective benefits of all-women groups in colocated settings may likewise be attenuated in virtual environments. Although remote training programs mirror many structural features of in-person learning, the absence of face-to-face interaction can impede trust formation, rapport building, and spontaneous support (Hinds and Mortensen 2005, Gilson et al. 2015). Without the informal interactions that typically facilitate bonding among women, all-women groups may fail to generate the sense of belonging and mutual encouragement that female peers provide in colocated settings.

If remote training disrupts both mechanisms that prior research highlights—instrumental exchange in

mixed-gender groups and trust-based support in women-majority groups—peer-group gender composition may have no systematic effect on women's outcomes. Yet this critical question remains largely unexplored: *When social interaction is digitally mediated, can peer gender composition still shape women's training and career outcomes*? If digital mediation fundamentally disrupts trust-building, both same- and mixed-gender groups may prove equally ineffective. However, if all-women groups can establish trust despite the lack of face-to-face contact, they may recreate the psychological safety and mutual support that enable women to fully engage and advance toward their goals. Remote training thus offers a valuable setting for examining whether the benefits of gender homophily for women's career outcomes depend on in-person interaction or can emerge through alternative pathways in digital environments.

2.3. Theoretical Prediction

Interpersonal trust serves as an essential foundation for open communication, reciprocity, and collaborative engagement (Lawler 2001, Casciaro and Lobo 2008). These socialization processes are central to women's persistence and achievement in training and education. Yet remote environments may pose distinct obstacles to cultivating trust. Without vocal inflections, facial expressions, and contextual cues, participants struggle to decode intentions, gauge sincerity, or find mutual understanding (Hinds and Mortensen 2005). Virtual environments also eliminate serendipitous encounters that create natural opportunities to signal openness and initiate deeper professional relationships. Consequently, virtual interactions tend toward asynchronous, fragmented exchanges, which undermine the rapid, reciprocal dialogue typically necessary for building trust and relational depth (Emanuel et al. 2023, Cappelli and Nehmeh 2025).

Compounding these challenges, remote peer groups often lack structural incentives for collaboration. Individuals must proactively reach out and choose whether and with whom to share resources. Consistent with this view, prior research suggests that trainees exhibit lower levels of engagement and peer interaction in online settings than in in-person ones, where spontaneous conversation and informal learning arise more naturally (Shaikh and Asif 2022). Such disengagement is concerning, as peer interaction can enhance training outcomes, which often involves collective problem-solving via group forums and collaborative documents (Dailey-Hebert 2018). Thus, peer groups that have a stronger relational foundation for collaboration and resource-sharing might be particularly conducive to better training outcomes in remote environments.

Despite these barriers to interpersonal trust in remote settings, research based on social identity theory (Tajfel and Turner 1979) suggests that shared identity helps foster trust and cohesion, particularly when other relational foundations are fragile or weak (Brewer 1999, Hinds and Mortensen 2005). In such contexts, shared identity offers a unique basis for trust by signaling similar experiences and aligned expectations. With respect to gender, several studies of group dynamics have shown that shared gender identity can provide a psychologically salient foundation for trust-building and resource exchange among women under conditions of limited interpersonal familiarity or relational constraint (Greenberg and Mollick 2017, Ody-Brasier and Fernandez-Mateo 2017, Yarmar et al. 2026). For example, Ely (1994) found that in law firms with more senior women, female attorneys were more likely to build trust and communal support with other female colleagues than with male colleagues, and Alan et al. (2025) similarly observed across 24 large corporations that female employees were more likely to receive both professional and personal support from female leaders than from male leaders. Taken together, these studies suggest that when interpersonal familiarity is limited, shared gender identity facilitates trust-based connection and resource exchange among women by simultaneously providing a basis for open engagement and activating a collective motivation to support other women.

In remote environments, however, such identity-based trust may emerge among women in gender-homophilous groups, but not in gender-heterophilous groups. Gender-homophilous groups can create conditions that allow shared gender identity to transcend remoteness barriers, thereby enabling women to cultivate interpersonal connections and form supportive communities with each other. However, such dynamics are unlikely to emerge in remote mixed-gender groups, where the presence of men may undermine women's access to the psychological benefits of a shared gender identity.

Such group dynamics have clear psychological foundations. Individuals, regardless of gender, must feel psychologically safe—secure from interpersonal threat—to develop trust and engage collaboratively (Edmondson 1999). However, a large body of research suggests that women's psychological safety is often undermined in mixed-gender groups, particularly when negative gender stereotypes and evaluative concerns are salient (Inzlicht and Ben-Zeev 2000, Cheryan et al. 2017, Cole et al. 2023). Women tend to disclose less and engage in greater self-monitoring in the presence of men (Flynn and Ames 2006), often reflecting anticipation of being judged as lower-status, incompetent, or overly emotional because of their gender (Eagly and Karau 2002); of having their personal disclosures misinterpreted or sexualized; or of inviting unwanted attention (Hart 2021). These psychological barriers directly impair women's performance in mixed-gender groups. In experimental research, Inzlicht and Ben-Zeev (2000) found that women's problem-solving skills declined when they

were the sole woman in a three-person group and that performance losses increased with the number of men present. Even women placed with one other woman and a single man showed moderate but significant decrements, indicating that the mere presence of men can erode the psychological benefits of gender homophily for women in peer groups.

Such concerns are likely to be acute in remote settings. The absence of informal reassurance, spontaneous feedback, and nonverbal cues in digitally mediated environments increases ambiguity in interpreting others' intentions and reactions. Such ambiguity may prove more consequential for women in mixed-gender groups than in same-gender groups by heightening the salience of gender dynamics and evaluative concerns during online interactions. This uncertainty could increase women's self-monitoring and discourage openness, particularly when communication norms privilege assertive or dominant styles more commonly associated with men (Eagly and Karau 2002). Yet self-disclosure facilitates trust-building and affiliation (Collins and Miller 1994); if women withhold it to avoid misinterpretation or judgment, they weaken the interpersonal foundations essential for collaboration and peer support—both with men and among women (Hall and Sandler 1982, Inzlicht and Ben-Zeev 2000). Consequently, the trust barriers that already constrain women's participation and learning in mixed-gender groups are likely to be pronounced in remote communication.

Taken together, these arguments suggest that in remote training contexts—where structural incentives for mutual support are weak and opportunities to build interpersonal relationships are limited—trust based on shared gender identity becomes valuable for fostering open connection and mutual support among women. However, such identity-based trust is more likely to emerge among women in gender-homophilous groups than in gender-heterophilous groups, because the presence of men in mixed-gender groups may heighten women's concerns about vulnerability and self-disclosure relative to all-women groups, thereby limiting the formation of trust among members, including women themselves. Based on this reasoning, we expect that gender-homophilous groups are better suited to supporting women's remote training and subsequent career outcomes than gender-heterophilous groups.

3. Experimental Research Design

To build on and extend prior research on peer groups in face-to-face environments, we conducted an empirical study to explore whether and how gender-homophilous groups, relative to gender-heterophilous groups, are more advantageous for women's training and career outcomes in a remote environment.

3.1. Research Context

We conducted our research in partnership with a leading online career training platform in the United States, which we refer to with the pseudonym "CareerSpace."[3] CareerSpace offers short-term, self-paced programs for certification exam preparation across dozens of healthcare and information technology (IT) occupations projected for high growth. Examples of common occupations for which individuals seek certification on the platform include medical administrator, medical billing specialist, phlebotomist, dental assistant, IT network technician, and IT security specialist.

CareerSpace exemplifies the growing appeal of flexible and affordable platform-based alternatives to traditional career education, such as community colleges and online degree programs. Programs last between three weeks and six months, with total costs of $2,500 to $4,000.[4] CareerSpace students fund their tuition through self-financing, Department of Defense grants (for military-affiliated individuals), and Department of Labor grants (for unemployed job seekers).

In contrast to online training platforms that target an elite group of skilled workers (e.g., Lane et al. 2024), CareerSpace serves an economically diverse student population, with a meaningful share coming from lower socioeconomic backgrounds. On average, the women in our analytic sample lived in neighborhoods with a median household income of approximately $72,000 around the time of enrollment—$2,580 below the median U.S. household income (U.S. Census Bureau 2023). The platform also skews heavily female, with women comprising approximately 80% of students at any given time, according to company estimates. Using a race-imputation algorithm based on surnames and ZIP codes, we estimate that approximately 66% of the women in our sample are White. With respect to age, CareerSpace estimates that its student population is relatively homogeneous, with most students in their 20s and 30s. In Section 5, we provide further details on the demographic makeup of the study participants included in our analysis.

3.2. Timeline and Procedure

The combined planning and execution of the study, including the collection of posttreatment results, spanned approximately 30 months. Embedding our experiment within the CareerSpace platform's ongoing programs allowed us to observe a large and well-defined sample of women under highly controlled conditions.

3.2.1. Participant Signup Flow. Between June 2020 and September 2021, we worked closely with CareerSpace to finalize the platform technology (i.e., platform messaging and video communication tools, automated group randomization) and logistics (i.e., appropriate student messaging at certain touch points) required

to conduct the controlled experimental study.[5] Then, between October 2021 and October 2022, every student living in the United States who registered for the platform was informed by email that they had been selected to participate in a new pilot program that would match them with a small group of peers beginning their training program in the same week. Participants were informed that this additional experience was intended to facilitate peer-to-peer learning and academic support between a small number of students with similar learning goals. The same email informed participants that they would gain access to an enhanced version of the current CareerSpace platform that included upgraded platform features, such as video conferencing and online messaging features, to communicate with their group throughout their training. Additionally, they would have access to a weekly virtual study hall session at a predetermined time when they would meet live with their group to discuss training content and assignments, as well as prepare for quizzes and exams.

All recipients of the email could opt out of study group assignment at this stage by clicking a link in the email. However, company reports indicate that attrition at this stage was low (less than 10%). Importantly, random assignment to condition occurred only after this point, ensuring that differential selection into treatment was not a threat to identification.

3.2.2. Randomized Assignment to Gender-Homophilous and Gender-Heterophilous Groups. Upon confirming their decision to stay in the program, participants were then randomly assigned to a gender-homophilous group of six women (with all members being either employed or unemployed) or a gender-heterophilous group of six men and women (with all members being unemployed).[6] This design resulted in three unique conditions (employed gender-homophilous, unemployed gender-homophilous, and unemployed gender-heterophilous). The company built its automated randomization tool to cluster on gender and employment status based on mandated student self-reported data.[7] The randomization tool was also designed to ensure that all participants assigned to a single group were in the same or a similar time zone. Upon random group assignment, participants were notified via email and text that they had been assigned to a group and could begin communicating with its members on the platform.

Participants first became aware of their group's gender composition when they gained access to the online platform and were prompted to introduce themselves to their cohort, which revealed gender identity through names, group forum introductions, and subsequent study hall sessions via the platform's video meeting technology. According to the company, there was no formal attrition in group participation following random assignment.

Because of the limited number of men in the general platform population, the company could not construct an employed, gender-heterophilous group condition or an all-men gender-homophilous group condition. However, our theoretical focus is on how peer-group gender composition shapes *women's* career goal attainment in remote environments—particularly for unemployed women, a key target population in our research context. Consequently, we limit our main analyses to two condition types, comparing the outcomes of unemployed women assigned to gender-homophilous versus gender-heterophilous peer groups. In supplemental analyses, we leverage comparisons with women in the employed gender-homophilous condition to test whether the effect of gender homophily on women's outcomes varies by baseline employment status. We also explore how higher versus lower male representation in mixed-gender groups affects men's training outcomes.

3.2.3. Controlled Group Communications. Our platform context offers a methodologically advantageous setting for minimizing potential contamination or spillover effects between treatment groups. Participants were geographically dispersed and lacked formalized opportunities to interact with individuals outside their assigned groups. Moreover, all participants on the platform experienced a uniform onboarding process.

On the CareerSpace platform, participants could message their groups through built-in features, including online group forums and one-on-one direct messaging. Upon initial sign-on to the platform, on-screen pop-ups prompted participants to introduce themselves on a public messaging forum by sharing basic information about themselves with the five other members of their group. Beyond this initial platform nudge and automated weekly reminders to attend study hall meetings, the platform did not actively intervene in group communication or collaboration habits.[8]

4. Data and Measures

Before study enrollment and upon program registration, the platform collected administrative data on participants through online registration forms and phone calls between participants and an assigned platform advisor. Behavioral data, including participants' online activity and training progress, were captured within the platform environment. Participants self-reported certification and employment on the platform, with advisors continually following up with participants via phone calls and emails to update their status post-program completion.

4.1. Dependent Variables

4.1.1. Timely Training Completion. Overall, training completion rates across the platform were relatively high, with approximately 75% of the sample completing

their training program within the 18-month study period. However, we assessed participants' completion rates by including a dichotomous indicator variable equal to one if a woman participant completed her training program within 38 days (or within roughly five weeks) of her projected training completion date, as set by the platform. Five weeks (or 38 days) is the average time sample participants took to complete their program after its projected completion date. The projected completion date is equal to the training program start date plus the platform-designated training program length.[9] Because program completion is required to achieve certification, timely completion serves as a key first step and baseline measure of a participant's training persistence.

4.1.2. Certification. Our primary outcome of interest is a dichotomous indicator equal to one if a woman earned certification within one year of her program start date, conditional on having completed the training program. This variable serves as a clear demarcation of a participant's training performance because (1) certification serves as the standard credential for nearly all of the occupations associated with the platform's program offerings and (2) the one-year mark is the official deadline by which the platform will pay for students to sit for their certification exams following training completion.

4.1.3. In-Field Employment. We also examined whether gender homophily translates into improved labor market outcomes for women. We measure in-field employment among *certified* women using a dichotomous indicator set to one if a woman participant became employed in her field of study during the study period. Employment is a more challenging outcome to capture in this context because it requires a longer observation period. The time lag between certification and employment leads to lower platform engagement, increasing the potential for participant nonresponse. This measure therefore provides meaningful insight into the lower bound of gender homophily's impact on employment likelihood for unemployed women seeking career mobility through remote training.

4.2. Independent Variable

Our independent variable is *homophilous*. We constructed a dichotomous indicator variable equal to one for participants randomly assigned to a gender-homophilous peer group (versus the gender-heterophilous comparison group).

4.3. Control Variables

We ensured our regression models were robust to controls for individual-level characteristics that could influence results, including race (*White versus non-White*), *median household income* (in U.S. dollars (USD)), *residence locale*, and *time zone* (all based on U.S. ZIP code). We also controlled for an individual's training program characteristics, including categorical variables for *program duration* (in weeks) and *quarter start date* (to account for variation in time available to complete training during the study observation period), training *program cost* (USD), and whether the individual *self-paid* for their program.

5. Sample Characteristics and Randomization Balance

Table 1 provides summary statistics on the characteristics of the women in our analytic sample by experimental condition with respect to race, income, residence locale, time zone, and program characteristics. Our full study population included 4,579 men and women on the platform who were randomly assigned across the three condition types (employed gender-homophilous, unemployed gender-homophilous, and unemployed gender-heterophilous).[10] Because our main analyses focused on comparing the training outcomes of unemployed women assigned to gender-homophilous versus

Table 1. Women Participant and Program Characteristics by Experimental Group

Variable	Gender-heterophilous (mixed-gender)	Gender-homophilous (all-women)
White (%)	64.39	66.89
	(47.96)	(47.07)
Median ZIP code income (USD)	73,312.06	70,720.36
	(27,145.73)	(25,509.18)
Residence locale (%)		
Urban	17.79	16.96
	(38.29)	(37.54)
Suburban	65.77	61.74
	(47.50)	(48.61)
Rural	16.44	21.30
	(37.11)	(40.95)
Time zone (%)		
Eastern time zone	54.05	50.28
	(49.89)	(50.01)
Central time zone	30.63	35.53
	(46.15)	(47.87)
Pacific time zone	11.49	8.63
	(31.92)	(28.09)
Other time zone	3.83	5.55
	(19.21)	(22.91)
Program characteristics		
Duration (weeks)	15.51	17.74
	(5.77)	(6.73)
Cost (USD)	3,249.66	3,209.05
	(1,015.96)	(1,027.14)
Self-pay (%)	52.25	56.27
	(50.01)	(49.62)
Number of women	444	2,305
Number of groups	133	395

Notes. Standard deviations are in parentheses. Regressions account for variance differences by weighting observations.

gender-heterophilous virtual peer-group conditions, these analyses correspond to an analytic sample size of 2,749 women. The limited number of men in our empirical context constrained the formation of gender-heterophilous groups, leading to an imbalanced experimental design, despite our attempts to maximize mixed-gender group recruitment. This imbalance does not affect the results, given that our regression analyses account for variance differences by weighting observations.

We drew on a rich set of participant characteristics, summarized in Table 1. The table shows that those assigned to the gender-homophilous and gender-heterophilous treatment groups were closely matched on observable characteristics. To account for any remaining differences in participant or program attributes, our empirical analysis included controls for participant race, median income, residence locale, program duration, program cost, and whether the program was self-paid.

6. Results

6.1. Descriptive Results

Table 2 presents summary statistics, including paired t tests that compare the career training outcomes of women participants by experimental condition. Figure 1 graphically presents the main results. Approximately 76% of women assigned to the gender-homophilous condition completed their training on time, compared with 67% of women assigned to the gender-heterophilous condition (mean difference (MD) = nine percentage points, $p < 0.05$). With respect to certification, 15% of women in the gender-homophilous condition achieved professional certification, compared with 8% of women in the gender-heterophilous condition (MD = seven percentage points, $p < 0.01$).[11] Finally, 24% of women in the gender-homophilous condition obtained employment in their field of study following certification, compared with 9% of women in the gender-heterophilous condition (MD = 15 percentage points, $p < 0.01$). We now turn to multivariate regression analyses to estimate the effect of gender homophily on women's remote training outcomes.

6.2. Main Results: Effect of Gender Homophily on Women's Remote Training Outcomes

This first subsection investigates our main prediction that women in gender-homophilous virtual peer groups will experience better training outcomes than women in gender-heterophilous virtual peer groups (see Section 2.3). Our regression models estimate the effect of a binary indicator that equals one for women enrolled in all-women groups and zero for women in mixed-gender groups on our outcomes of interest. Table 3 reports the results using both linear probability and logistic regression models, including and excluding controls for the participant's race, median income, and residence locale; whether the participant self-paid for their training program; and indicators for time zone, residence locale, and quarter of the program start date.

6.2.1. Timely Completion. We began our analysis by examining timely training completion across the experimental groups. Table 3 (Model 2, panel A) shows the effect of gender homophily on women's probability of timely training completion. Women assigned to gender-homophilous virtual peer groups were roughly seven percentage points more likely to complete their training within five weeks of their program's projected completion date than women assigned to gender-heterophilous virtual peer groups ($\hat{\beta} = 0.072, p < 0.05$).

6.2.2. Certification. Although timely completion is a useful indicator of performance, certification status is an even stronger behavioral measure of performance. Results for Model 2 (Table 3, panel B) show that compared with women in gender-heterophilous groups, women in gender-homophilous groups were five percentage points more likely to achieve certification status after program completion ($\hat{\beta} = 0.045, p < 0.01$).

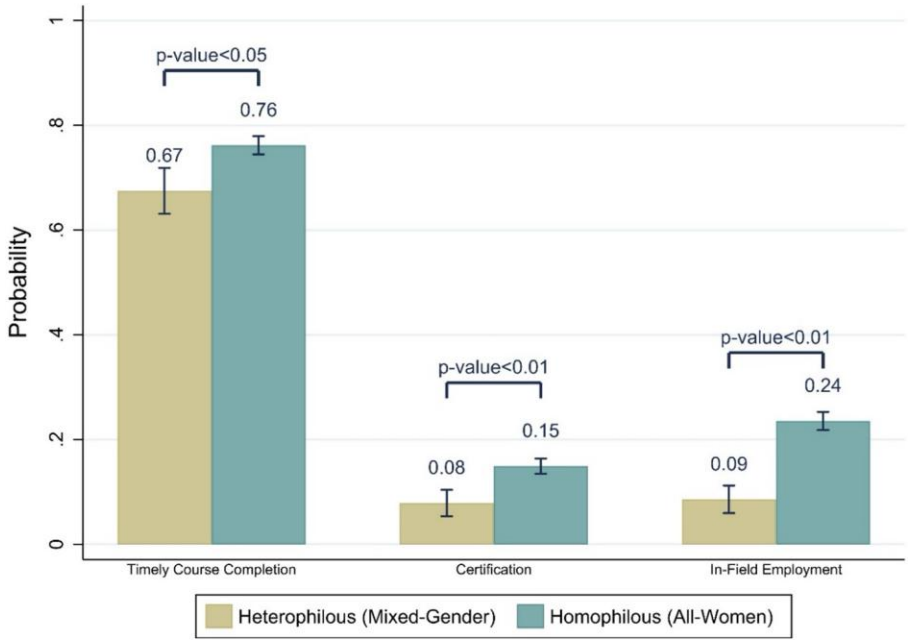
6.2.3. In-Field Employment. To determine whether the positive effects of gender homophily extend to labor market outcomes, we examined its impact on women's in-field employment conditional on certification.[12] As shown in Table 3, being in a gender-homophilous group

Table 2. Descriptive Statistics for Dependent Variables by Experimental Group

Dependent variables (%)	Gender-heterophilous (mixed-gender)	Gender-homophilous (all-women)	Significance of mean difference
Timely completion	0.67	0.76	*
	(0.47)	(0.43)	
Certification	0.08	0.15	**
	(0.27)	(0.36)	
In-field employment	0.09	0.24	**
	(0.28)	(0.42)	
Number of women	444	2,305	
Number of groups	133	395	

Note. Standard deviations are reported in parentheses.
$^{\dagger}p < 0.1$; $^{*}p < 0.05$; $^{**}p < 0.01$.

Figure 1. (Color online) Main Results: Remote Training Outcomes of Women Participants by Experimental Condition



was associated with a 12-percentage-point-higher likelihood of in-field employment within one year of the program start date compared with being in a gender-heterophilous group ($\hat{\beta} = 0.123$, $p < 0.05$; Table 3, Model 2, panel C).[13]

6.3. Robustness of the Main Results

We conducted several additional analyses to assess the robustness of the main results to alternative specifications and subsamples (reported in Online Appendix B). Results are consistent with the main findings when modeling gender composition as a continuous measure (Online Appendix Table B.4), comparing outcomes by women's baseline employment status (Online Appendix Table B.5), and restricting the sample to participants who enrolled within eight months of the study start date (Online Appendix Table B.6). Exploratory analyses that estimate nonlinear specifications of group composition (Online Appendix Tables B.7 and B.8) show patterns similar to the main results.

6.4. Gender Homophily for Women: Corrective or Distinctive Benefits?

Our primary research focus compared the remote training outcomes of women assigned to gender-homophilous versus gender-heterophilous virtual peer groups. However, we also investigated whether gender homophily either corrects for a potential baseline disadvantage women might face in mixed-gender groups or instead provides distinctive benefits for women in remote training. To examine this question, we conducted two separate analyses. The first analysis compared the outcomes of men and women assigned to gender-heterophilous groups as a baseline comparison to determine whether a gender gap in training outcomes exists between men and women in mixed-gender groups. Table B.9 (Online Appendix B) shows that the training outcomes of men in gender-heterophilous groups—

Table 3. Impact of Gender Homophily on Women's Remote Training Outcomes

	LPM		Logistic
	(1)	(2)	(3)
Panel A: Timely completion			
Homophilous group (all-women)	0.075*	0.072*	0.066*
	(0.035)	(0.035)	(0.031)
Panel B: Certification			
Homophilous group (all-women)	0.046**	0.045**	0.062**
	(0.016)	(0.016)	(0.022)
Panel C: In-field employment			
Homophilous group (all-women)	0.138**	0.123*	0.171†
	(0.053)	(0.057)	(0.101)
Participant controls		✓	✓

Notes. Participant controls include an indicator for White race; log of median ZIP code income; urban, suburban, and rural ZIP code indicators; time zone indicators; quarter of program start indicators; and an indicator for self-pay. All specifications include controls for program duration and log of program cost. Women in the gender-heterophilous (mixed-gender) condition serve as the reference group. LPM refers to linear probability models.

†$p < 0.1$; *$p < 0.05$; **$p < 0.0$.

including timely completion, certification, and in-field employment—do not significantly differ from those of women in gender-heterophilous groups; this indicates that gender homophily might instead offer women distinctive benefits on the platform.

We then examined how variation in male representation within mixed-gender groups influenced men's training outcomes. Although our data do not include all-men groups, comparing men in groups with higher versus lower male representation can offer a preliminary indication of whether gender homophily might confer similar benefits to men. This regression model is identical to the one used to investigate nonlinear effects of gender homophily among women, but here we focus on men's training outcomes and include indicators for the number of men in mixed-gender groups. Table B.10 (Online Appendix B) reports mean differences in outcomes for men in groups of three or four, relative to those in groups with only two men. Results show that increasing the number of men in a group produced either statistically nonsignificant or small effects of inconsistent direction. We validated these results using a continuous measure of gender composition (Table B.11, Online Appendix B).

7. Summary and Discussion of Experimental Results

We theorized that women in gender-homophilous virtual peer groups would experience better remote training outcomes than women in gender-heterophilous groups. Indeed, we found in our field context that unemployed women assigned to gender-homophilous peer groups were seven percentage points more likely to complete their training on time and five percentage points more likely to obtain professional certification within a year of starting their program than those in gender-heterophilous groups. Gender homophily also improved women's likelihood of securing in-field employment by about 12 percentage points following certification. Additionally, we found estimates to be robust to alternative model specifications, including the use of a continuous measure and nonlinear measure of gender composition, analyses assessing generalizability across women's employment status, and adjustments to the study's observation period.

Although our primary research focus was comparing the remote training outcomes of women in gender-homophilous and gender-heterophilous virtual peer groups, our research design also revealed no differences in outcomes between men and women assigned to gender-heterophilous groups. Instead, we found that gender homophily offers distinctive benefits for women: Increasing the proportion of men in a group did not yield comparable benefits for male participants, suggesting that gender homophily's positive effects are potentially specific to all-women groups.

8. Mechanism Exploration Using Group Communication Data

Our experimental study focused on isolating the effect of peer-group gender composition on women's career training outcomes. In this section, we analyze group forum messages exchanged among participants in peer groups.[14] A well-established tradition in mixed-method research is to first use experiments to establish causal effects and then use qualitative data to uncover the underlying mechanisms (Grant and Wall 2009). For our research, the analysis of qualitative data serves two purposes. First, it enhances the face validity of our experimental findings and theoretical framework. Second, it provides deeper insight into how participants interact within all-women and mixed-gender peer groups. In particular, we sought to identify prominent patterns in *how* women in gender-homophilous groups interact, compared with those in gender-heterophilous groups, to gain richer insight into the microgroup dynamics that differentially shape women's training experiences and outcomes.

8.1. Group Communication Data

On the CareerSpace platform, participants could message their groups through built-in features, including online group forums and one-on-one direct messaging. Our analysis mainly draws on group forum messages exchanged among participants in peer groups, as direct messages on the platform occurred infrequently and contained far less detail than group forum discussions. Later, we examine direct messaging and contact sharing behavior among women participants to mitigate potential concerns around the validity of our proposed mechanisms (Section 8.5).

8.2. Analytical Strategy

To explore how microgroup dynamics in gender-homophilous and gender-heterophilous groups differentially shaped women's training experiences and outcomes, we integrate qualitative interpretation with quantitative validation.

We first employed an inductive qualitative approach to examine how group composition shaped interactional dynamics within peer groups. We systematically examined the content and structure of forum interactions by manually coding the forum messaging using thematic analysis (Guest et al. 2011). This analytical process unfolded in three stages. First, two authors independently conducted open coding, systematically reviewing forum messages to identify emergent themes and interaction patterns. We paid close attention to linguistic cues and discursive strategies shaping group engagement, while maintaining detailed analytic memos documenting recurring topics, notable absences, and unexpected dynamics. Next, through categorization and axial coding,

we collaboratively grouped initial codes into broader constructs capturing patterns of social exchange, emotional expression, and knowledge-sharing. We iteratively refined the coding scheme to ensure consistency and systematically compared relationships among codes to identify differences between all-women and mixed-gender group interactions. Finally, during theoretical integration, we synthesized the findings into a structured framework linking emergent themes to the literature on social identity and networks. We revisited the data to confirm theoretical saturation and ensure that interpretations remained grounded in participants' discussions.

In addition to the qualitative evidence, we provide quantitative evidence by conducting text analysis of the group communication data. Whereas the qualitative analysis captures group-level interactional dynamics, the quantitative text-based analysis focuses on women's language use across experimental conditions. This approach enabled us to systematically categorize words from the online forum messages into psychological dimensions aligned with the identified themes—such as emotional tone, social orientation, and cognitive engagement—and compare the prevalence of these linguistic markers across experimental conditions (Park et al. 2023).

8.3. Qualitative Findings

Our interpretive content analysis revealed three key themes characterizing interactions among women in gender-homophilous groups: (1) revealing multiple shared identities, (2) using affective expression, and (3) exchanging instrumental and expressive resources. As illustrated in Figure 2, these themes suggest that women's interactions evolve to foster identity-based trust and mutual support in remote training contexts.[15]

The data suggest that women tend to disclose shared identities and experiences—such as gender, motherhood, marriage, or professional challenges—which establishes vulnerability and mutual recognition. These disclosures generate a sense of commonality that lays the groundwork for trust and belonging. As shared understanding deepens, women foster trust through the use of affective expressions (McAllister 1995), marked by enthusiasm, peer support, and a sense of solidarity. This emotional trust, in turn, sustains ongoing exchanges of both instrumental and expressive resources. Women discuss study strategies, time management, and workplace skills while also offering affirmation and encouragement, transforming positive emotions into tangible support through partnerships, advice, and peer mentoring. We illustrate these patterns in the following subsections.

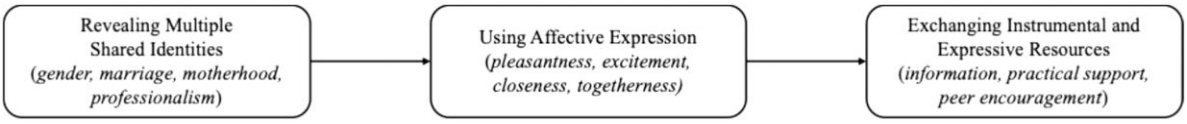
8.3.1. Revealing Multiple Shared Identities. Women in gender-homophilous groups tended to share their career backgrounds and program-related goals differently than participants in gender-heterophilous groups. Across the 395 all-women groups analyzed, about 12% of their forum posts weaved career aspirations into discussions of their intersecting identities, including gender, motherhood, marriage, and evolving professional ambitions. These messages included not only marital or motherhood status but also specific details about their children, such as ages, genders, names, and even upcoming births. Conversations about motherhood intertwined with deep reflections on the challenges of balancing parenting and career advancement. For example, one woman shared the following:

> I am a 32-year-old mom of three. I have been a stay-at-home mom for the past seven years, doing everything for everyone else, to the point that I forgot how to do something for myself. I love learning, and I miss working and doing something beyond being a mother. I'm definitely excited to go through these [training] lessons with all of you and earn a certification that will help me get a decent-paying job around other adults [laugh out loud].

Beyond discussions of motherhood, all-women groups also disclosed life circumstances, such as experiencing single parenthood or divorce, and linked them to their motivations for pursuing further education. One participant discussed how her role as a single mother shaped her career ambitions: "I am a single parent with a background in hands-on patient care and computer programming. I am hoping to find my niche here, open the door to a flexible career to support my child, and gain professional fulfillment." Others similarly emphasized the connection between motherhood and professionalism, articulating aspirations such as "bettering myself for my children" and "teaching my children that with hard work, anything is possible." Those with spouses framed their career ambitions within the context of their marriages. For instance, one woman explained how her husband's military deployment influenced her decision to enroll in the program: "My husband is in the Navy, and we recently got married in July. He is currently deployed, and I wanted to do something productive with my time while he's gone, and I thought schooling is the perfect way to do it." Another woman reflected on how the recent loss of her spouse led her to reevaluate her career trajectory: "I recently lost my husband in death in April, and it took something away that I cannot seem to get back. I am going back to the medical field where I began."

In contrast, participants in gender-heterophilous groups tended to share less information about their social identities, including family roles, life circumstances, and other background factors that might shape their career and life goals. Across the 133 mixed-gender groups analyzed, about 6% of posts contained these types of discussions. Notably, no participant in a gender-heterophilous group mentioned being a single parent, divorced, widowed, or pregnant. This relative

Figure 2. A Conceptual Model of How Identity-Based Trust Develops Among Women in Gender-Homophilous Groups to Improve Remote Training Outcomes



lack of disclosure suggests that mixed-gender group settings might discourage women from exposing and sharing personal identities, including the challenges associated with them, in a remote training context.

8.3.2. Using Affective Expression. About 34% of messages exchanged between women in gender-homophilous groups contained the use of affective expressions. Affective expression signals trust based on "emotional bonds between individuals that presuppose genuine care and concern for the welfare of partners" (Casciaro and Lobo 2008, p. 657). This language was characterized by pleasantness, excitement, closeness, and a sense of togetherness in women's online interactions. For instance, forum messages in gender-homophilous groups contained expressions of enthusiasm and excitement about learning and engaging with peers. Women described feeling "super excited," "very excited," and "looking forward" to both their training work and collaboration with their group members. Their messages reinforced their excitement with liberal use of exclamation points, smiley faces, and emoticons. These women viewed their online groups as an opportunity to expand their social networks, sharing that they "hope to meet new people" or "make new friends" during the program. Such positive sentiments help cultivate a shared sense of community, as one woman articulated:

> I am so grateful that we have completed one lesson and are on to the next. And even though I know that it will only get more challenging as we continue our journey, I am hopeful that we can rely on one another for help and support. Making a decision to further my education is the most rewarding feeling ever. Continue onward and upward, classmates, for we are in this together.

Further reinforcing this sense of community, women offered "good luck," "good vibes," "best wishes," and "positive thoughts" within their groups. For instance, one woman explicitly described how this positivity created a warm and uplifting atmosphere, strengthening the sense of connection within the group: "I've really enjoyed going through everyone's posts, seeing the natural love and uplifting of each other. Wishing nothing but best success for everyone!" Beyond expressions of excitement, women in gender-homophilous groups demonstrated an eagerness to collaborate with one another, with many sharing personal contact information (e.g., phone numbers, email addresses) to communicate off-platform. Within their online communities, women indicated an interest in finding "study buddies" or forming smaller subgroups on whom they could mutually depend. These women also commonly referred to their online group as their "team" or made comments about wanting to "get through this journey together as a team."

In contrast, about 22% of participants' messages in gender-heterophilous groups used similar language; in these groups, women expressed less excitement and cohesiveness in their group interactions. Although some messages conveyed enthusiasm, discussions were more individualized, with less emphasis on social connection, bonding, or teamwork. Expressions of gratitude and happiness were present but not as central to group interactions, and emojis and other emoticons were almost entirely absent from messages. Rather than fostering a strong sense of community, conversations in gender-heterophilous groups focused more on independent progress, with fewer references to shared experiences or collective motivation. Although some participants sought connections, meaningful efforts (e.g., sharing of personal contact information, offers to connect off-platform) were less common among participants in gender-heterophilous groups than among women in gender-homophilous groups. This relative absence of collective enthusiasm and emotional connection suggests that participants in gender-heterophilous groups experienced a weaker sense of group cohesion and overall trust than women in gender-homophilous groups.

8.3.3. Exchanging Instrumental and Expressive Resources. Women in gender-homophilous groups frequently exchanged instrumental and expressive resources in their messages; about 37% contained such exchanges. Instrumental resources included offering practical advice on navigating technical platform difficulties, forming strong study habits (e.g., note-taking and time management), passing certification exams, and locating externships and job opportunities. Expressive resources included emotional support and encouragement. These exchanges were reciprocal; women both solicited and extended this support. Group interactions revealed a strong emphasis on helping one another, such as through practical advice or direct offers of assistance. Women checked in on their group members' progress

and asked for insights on what to expect next, given the self-paced nature of the program. These discussions reflected the challenges of adjusting to remote career training: Women sought guidance on structuring study time, staying disciplined, and balancing training work with other responsibilities. Requests for "tips and tricks" were especially common; several participants revealed they were "new to online trainings" and uncertain about how to stay engaged outside a traditional classroom setting. These conversations fostered a sense of collective problem-solving and support throughout the remote training. For example, one woman expressed that she was "looking forward to the check-ins as we all progress."

Others expressed gratitude to their groups for making them feel "less alone" in their training journeys and allowing them to "keep each other accountable." Beyond general discussions of progress, women in gender-homophilous groups also actively exchanged training-specific strategies to overcome learning hurdles. When prompted for advice on navigating a particularly challenging training module, one woman shared her approach: "Hey! That was the hardest part of the training for me. I watched YouTube videos to help me understand what they were talking about. I found it very helpful to do that. Good luck!" Women also discussed the pressures of high-stakes assessments, particularly the certification exam, which they described as a source of anxiety. To alleviate this collective stress, those further along in the self-paced program shared their experiences and insights into the exam process. One woman offered reassurance by providing firsthand experience:

> It took me, like, four months to complete the program. I will be taking my state boards tomorrow. I will be sure to keep you posted on how it went and if the material that [CareerSpace] gives us mimics the state test. And if you need any help, you are more than welcome to reach out to me.

In addition to training work and exams, women in gender-homophilous groups openly discussed strategies for securing externships and full-time employment after certification. One woman advised her group members to apply for local part-time positions to gain experience and avoid training without pay. These discussions also included key workplace skills and professional expectations. For instance, among women in healthcare-focused trainings, women emphasized the importance of "emotional intelligence," "empathy," and "a positive attitude" in patient interactions. One woman reflected:

> I feel that a lot of people pursue careers in healthcare for the money. But this is really a field where you have to have compassion and respect for others. Bedside manner is a big part of healthcare. I know that we will come across many sour apples in our career. But how you deal with things in a professional and respectable way is what matters.

Another woman advised that professionalism includes "calling patients by name and maintaining eye contact." These skill-building conversations also include discussions about navigating workplace challenges, such as handling difficult colleagues and supervisors.

Beyond exchanging practical knowledge, women in gender-homophilous groups provided emotional support, including reassurance (e.g., "do not feel discouraged"), validation (e.g., "I agree"), and collective encouragement (e.g., "we've got this!"). Reinforcing the importance of both emotional and strategic support, these messages also accompanied practical advice. For instance, one woman blended instrumental guidance with expressive encouragement as she drew on the shared experience of motherhood to help a fellow group member stay motivated:

> I just finished the training. I am also a mom but have a supportive partner and parents. I work part-time. For me, setting a schedule and sticking with it worked best. And a lot of times limiting my studies into smaller increments helped. Thirty minutes to one hour before work and an hour and a half after. My daughter is down for the night. Maybe twenty minutes on your lunch break if you're able. I know that will look different for your schedule, but you have absolutely got this! It might mean doing take out more nights than you like or getting behind on some other household things, but you'll find your flow in no time.

In contrast, only 23% of participants' messages in gender-heterophilous groups showed evidence of resource-sharing. These exchanges tended to be more individualized and transactional; information-seeking was an isolated event rather than an embedded group norm. Participants sought information in isolated instances rather than as part of an embedded group norm. They focused primarily on technical, platform-related advice. Recommendations for passing the certification exam or obtaining employment were rare, as were expressions of peer encouragement. Offers to connect off-platform or provide direct peer assistance were sporadic. Participants in gender-heterophilous groups thus experienced a more individualistic learning environment, one that provided fewer opportunities to access practical guidance or encouraging reinforcement.

8.3.4. Discussion of Qualitative Findings. Our inductive qualitative analysis of forum communication data builds on the experimental results by illuminating the intergroup dynamics that underpin identity-based trust, which in turn help explain differences in training outcomes between participants in gender-homophilous and gender-heterophilous groups. A key insight from our qualitative analysis is that women in gender-homophilous groups engaged in richer identity-based discussions than participants in gender-heterophilous groups. These women openly

shared personal experiences—such as motherhood, marital status, and life transitions—and linked these experiences to their career motivations. In contrast, members of gender-heterophilous groups were less likely to disclose personal identities or the challenges associated with them.[16]

Our qualitative findings also help to explain why gender homophily might be particularly consequential for women in remote environments. The written nature of online interactions increases transparency by allowing group members to observe, internalize, and reinforce social norms. Studies on computer-mediated communication indicate that such visibility enables participants to adjust their behavior and also strengthens norms of affective expression and resource exchange over time (Tsai and Bagozzi 2014). We find evidence of this dynamic: Written transparency makes supportive behaviors more observable to women and fosters shared norms of mutual assistance.

Finally, our qualitative results provide insight into how emotional connections can translate into tangible support within gender-homophilous groups. In particular, we show that women in gender-homophilous groups reinforced one another's persistence and achievement by engaging in sustained exchanges of both instrumental (e.g., study strategies, professional advice, job leads) and expressive (e.g., encouragement, inspiration) resources. This interplay between emotional and practical support illustrates how affective bonds serve as a foundation for sustained collaboration and goal attainment (Casciaro and Lobo 2008).

8.4. Supplemental Quantitative Evidence

We conducted additional quantitative analyses of the online forum message data. We focus on women's language use to compare how identity-based trust-building among women varies between all-women and mixed-gender groups. These analyses complement the qualitative analyses by assessing the validity of the proposed mechanisms through variation in women's linguistic patterns across group compositions.

8.4.1. Shared Identities and Affective Expression. Our conceptual model (Figure 2) identifies revealing multiple shared identities and using affective expression as two key patterns underlying the development of identity-based trust and improving remote training outcomes among all-women groups. To provide support for these mechanisms, we used the Linguistic Inquiry and Word Count (LIWC) tool to quantitatively categorize words from the online forum messages into psychological dimensions aligned with these themes and compare differences across the experimental groups (Park et al. 2023). To the extent that shared identity strengthens trust (Hinds and Mortensen 2005), we would expect women in gender-homophilous groups to use more language reinforcing their shared identities and exhibit higher levels of affective expression—language conveying emotional and relational warmth grounded in trust (McAllister 1995, Casciaro and Lobo 2008)—than women in gender-heterophilous groups. As such, we examined the relationship between gender homophily and language conveying (a) shared identities and (b) affective expression. We measured these linguistic themes as follows:

8.4.1.1. Shared Identities. For shared identities, we examined references to *kinship and family*-related roles (e.g., being a wife or mother)—a predominant theme observed in our qualitative analysis. Example excerpts from the data include "I got married to my husband back in May, and we are currently expecting our first baby in December," and "I am a mother of 4 children and married to a soldier who is currently deployed. My daughter just started Head Start yesterday. I am hoping to complete this certification so that I can support my family after having my baby."

8.4.1.2. Affective Expression. For affective expression, we included two categories: (1) expressions of feeling and (2) contrast words. *Expressions of feeling* show both vulnerability and a desire to build connection and empathy with others (Laurenceau et al. 1998). Examples include "I have been in the patient perspective of a medical professional doing a good job on the procedure, but not being professional toward me and it made me feel really awful," as well as "I'm really nervous but I feel prepared at the same time." We also examined the use of *contrast words* (e.g., "but," "in fact," "although," "however," "whereas"), which suggest a willingness to introduce nuance or raise alternative perspectives. Contrast words can also indicate psychological safety, because people must trust each other enough to raise alternative views and risk potential conflict (Edmondson 1999). Illustrative excerpts include "But this is really a field where you have to have compassion and respect for others" and "I've had to practice my facial expressions in the mirror because I've been told I look mean or that something seems to be wrong, when in fact, it's just how I look." Together, these two categories (i.e., expressions of feeling, contrast words) are strong indicators of trust because they reflect the relational and emotional openness that underpins it (McAllister 1995, Casciaro and Lobo 2008).

8.4.1.3. Results. Table 4 (panel A, Model 2) presents linear probability regression estimates for the impact of gender homophily on the above-described categories. Our regression model is identical to that used in the main analysis but replaces the dependent variable with our thematic measures of shared identities and trust. The model includes controls for participant race, median income, and residence locale; whether the participant

Table 4. Mechanisms: Impact of Gender Homophily on Use of Language Indicating Shared Identities, Affective Expression, and Resource Exchange

			LPM	
	Mean (all)	Mean (heterophilous)	(1)	(2)
Panel A: Shared identities and affective expression				
			Kinship and family references	
Homophilous	0.090	0.044	0.057*	0.067**
			(0.024)	(0.023)
			Expressions of feeling	
Homophilous	0.054	0.023	0.027†	0.025†
			(0.014)	(0.014)
			Contrast words	
Homophilous	0.588	0.468	0.199†	0.221*
			(0.103)	(0.101)
Panel B: Resource exchange				
			Compliments and affirmations	
Homophilous	2.090	1.698	0.603**	0.580**
			(0.217)	(0.218)
			Numbers	
Homophilous	0.425	0.287	0.223**	0.253***
			(0.071)	(0.070)
			Word count	
Homophilous	8.507	7.030	2.270*	2.027*
			(0.924)	(0.940)
			Words per sentence	
Homophilous	3.253	2.795	0.726*	0.670*
			(0.324)	(0.321)
Participant controls				✓

Notes. Examples of each category include "mother" (kinship and family references), "I feel nervous" (expressions of feeling), "but" (contrast words), "congrats" (compliments and affirmations), and "Lesson 3" (numbers); word count and words per sentence capture longer and more reflective posts, respectively. The dependent variable "compliments and affirmations" is equivalent to the category "allure" in LIWC-22. Participant controls include White race indicator; log of median ZIP code income; urban, suburban, and rural ZIP code indicators; time zone indicators; quarter of program start indicators; and an indicator for self-pay. All specifications include controls for program duration and log of program cost. Women in the gender-heterophilous (mixed-gender) condition serve as the reference group. LPM refers to linear probability models. Dependent variables reflect word-category frequencies based on the LIWC-22 dictionary.

†$p < 0.1$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$.

self-paid for their training program; and indicators for time zone, residence locale, and quarter of the program start date. Results indicated that among the women in our study, gender homophily is more strongly associated with language use related to kinship and family ($\hat{\beta} = 0.067$, $p < 0.01$), expressions of feeling ($\hat{\beta} = 0.025$, $p < 0.10$), and contrast words ($\hat{\beta} = 0.221$, $p < 0.05$), compared with gender heterophily. Whereas language use related to kinship and family indicates the sharing of personal information, expressions of feelings and contrast words indicate the relational and emotional openness underpinning trust. Together, these results indicate the presence of identity-based trust among women in gender-homophilous groups.

8.4.2. Resource Exchange. Next, our model posits that higher levels of identity-based trust generated among all-women groups promote the sharing of expressive and instrumental resources. As such, we examined the relationship between gender homophily and language conveying expressive and instrumental support. We did so by using LIWC to quantitatively categorize words from the online forum messages into language that signals the exchange of expressive and instrumental support and then determined variation between the experimental groups.

8.4.2.1. Expressive and Instrumental Support. We measured the following linguistic categories to capture both expressive and instrumental dimensions of peer support: (1) compliments and affirmations, (2) numbers, (3) word count, and (4) words per sentence.

Compliments and affirmations reflect the exchange of expressive support by providing mutual encouragement

and emotional validation. Examples from the data that reflect participants' use of compliments and affirmations are posts such as "Congrats on growing your little family. Nothing can beat family EVER. Best of luck to you on your exam and know also [that you've] got this!" and "Congratulations passing your exam! Good luck with your current course too! [smiley face]."

The use of *numbers* (e.g., providing phone numbers, quantifying personal details or outcomes) and frequency-based categories such as *word count* (i.e., the total number of words used in a participant's post) and *words per sentence* (i.e., the average length of each sentence in a participant's post) serve as indicators of both expressive and instrumental support, because more detailed, quantified, and elaborated communication likely conveys the exchange of informational resources, practical guidance, and supportive regard. Example posts from the data that include the use of numbers and reflect peer support include "If you happen to be in Lesson 3 of the [course] introduction, be sure to spell everything correct because if you don't the computer will mark it as wrong" and "Hi, I would be glad to help if I can. My email is [name1234]@gmail.com." For word count and words per sentence, examples include longer reflective posts such as "This experience so far has been pretty interesting. I remember most of the terminology from a previous college that I attended … " compared with shorter, less detailed comments like "I'm new to taking online classes. "[17]

8.4.2.2. Results. Table 4 (panel B, Model 2) presents linear probability regression estimates for the impact of gender homophily on the above-described categories. Our regression model is identical to that used in the main analysis but replaces the dependent variable with our thematic measures of expressive and instrumental support. The model includes controls for participant race, median income, and residence locale; whether the participant self-paid for their training program; and indicators for time zone, residence locale, and quarter of the program start date. Results indicated that gender-homophilous groups are characterized by greater use of compliments and affirmations ($\hat{\beta} = 0.580$, $p < 0.01$), numbers ($\hat{\beta} = 0.253$, $p < 0.001$), longer word count ($\hat{\beta} = 2.027$, $p < 0.05$), and more words per sentence ($\hat{\beta} = 0.670$, $p < 0.05$), compared with gender-heterophilous groups for the women in our study.

Dictionary-based tools such as LIWC are less effective at detecting context-specific expressions of instrumental support. An exemplary form of instrumental support in our context is the study groups that participants formed autonomously to complete coursework together. As such, we used the regular expressions text analysis package (regexm) in Stata to further validate the argument that women in gender-homophilous groups were more likely to offer to study together than women in gender-heterophilous groups. Specifically, we examined how frequently terms associated with practical instrumental support appeared in forum messages and compared these frequencies across experimental groups. We measured the frequency of the following 12 relevant terms (listed alphabetically): "connect with," "group chat," "help," "in touch," "study buddy," "study chat," "study group," "study partner," "study together," "study with," "work together," and "work with." Example excerpts include phrases such as "I'm looking for a study buddy" and "I'd love to keep in touch with you all and study or help where I can." Results showed that messages written by women in gender-homophilous groups were more likely to contain these words relative to those written by women in gender-heterophilous groups (23% versus 16%; $p < 0.05$), suggesting more instrumental resources exchanged among women in gender-homophilous groups.

8.5. Addressing Alternative Peer Interactions

Although our analysis of the group forum messages provides evidence for the mechanism driving the benefits of gender homophily, there might be concerns about peer effects that we do not capture through the group forum data. One possibility is that the presence of men limits vulnerable disclosure among women in mixed-gender groups, leading them to instead use the platform's built-in direct messaging feature to communicate privately. To explore this possibility, we examined all direct messages sent through the platform's private channels. This analysis revealed no indication that women in mixed-gender groups engaged in one-to-one exchanges more frequently than women in all-women groups (see Figure D.1 in Online Appendix D). The lack of more frequent private communications among women in mixed-gender groups strengthens our core finding: The benefits observed in all-women groups arise from the identity-based trust that gender homophily fosters within open group interactions.

A second concern is that women might communicate privately off-platform, making forum messages incomplete for capturing group interactions. However, initiating any off-platform exchanges would have required first sharing personal contact information via either the group forum or direct messaging. To evaluate this possibility, we analyzed both data sources for evidence of contact information sharing. Fewer than 1% of women used the platform's direct messaging feature to share their contact information with another member, and this likelihood did not differ significantly between mixed-gender and all-women groups ($p = 0.418$). We also examined whether women shared contact information publicly in group forum messages. Women in all-women groups were 3.8 percentage points more likely to share contact information (e.g., emails or phone numbers) than women in mixed-gender groups ($p = 0.086$). Thus, there

is no evidence that women in mixed-gender groups were more likely to move their conversations off the platform. Taken together, these supplementary analyses indicate that the group forum data provide a valid and comprehensive view of the group dynamics underlying our proposed mechanisms.

8.6. Addressing Alternative Explanations

8.6.1. Men's Limited Advantage in Instrumental Resources. A key contextual feature of our setting is that men's relative advantages in instrumental resources are muted compared with the organizational contexts examined in prior research. We view this feature as a *boundary condition*—not an alternative explanation—of our finding that same-gender groups yield greater training benefits for women. If gender differences in instrumental resources were the main driver of our results, we would expect the benefits of mixed-gender groups to diminish but would not necessarily observe *superior outcomes* among all-women groups. Men's limited advantage in instrumental resources may explain the absence of gender-heterophily benefits, but it cannot by itself account for the positive and distinctive effects we observe for all-women groups.

One might argue that all-women groups outperform mixed-gender groups simply because women provide each other with expressive or socioemotional support—a mechanism consistently observed in prior in-person studies (e.g., Dasgupta et al. 2015, Wu et al. 2022). Yet for such benefits to emerge in remote environments, women must first overcome the relational barriers introduced by physical distance and digital mediation. Whereas prior research has focused on face-to-face interaction as the primary mechanism underlying the benefits of gender homophily for women, we extend this work by theorizing a mechanism through which shared identity allows women to foster trust and communal support *despite* the lack of in-person interaction.

Our findings on mixed-gender groups reinforce this interpretation. The results indicate not only that men's support for women is reduced, but also that women's mutual support is less likely to emerge in mixed-gender settings, as suggested by both qualitative and quantitative evidence (Sections 8.3 and 8.4). These findings highlight same-gender groups as a key condition for cultivating trust and resource exchange among women in our context. In short, muted gender differences in instrumental resources delineate the boundaries of our findings but do not constitute an alternative explanation. The superior outcomes of all-women groups arise not from the *absence* of male advantage but from the *presence* of trust-based ties that enable women to collaborate more effectively in remote training environments.

8.6.2. Occurrence of Interactions. We argue that dynamics within all-women groups reflect stronger identity-based trust than those in mixed-gender groups, as evidenced by more frequent disclosures of shared identities, greater affective expression, and richer resource exchange. These patterns capture differences in the *quality* of interaction. A potential alternative explanation, however, concerns the *occurrence* or *frequency* of interaction. That is, if male participants were less likely than female participants to engage with their assigned groups, then mixed-gender groups might have been less likely to activate or sustain meaningful study sessions, which could in turn have dampened outcomes for women in those groups. In that scenario, the observed treatment effect could reflect not only differences in interaction quality (e.g., trust-based resource exchange) but also differences in whether meaningful interactions occurred at all.

As described in Section 3.2.1, we found no evidence of participant dropout following treatment assignment, ruling out the possibility that men were more likely to leave their groups after exposure. We find that men in mixed-gender groups exchanged forum messages at a lower rate than women in both mixed-gender and all-women groups ($p < 0.01$). Although mixed-gender groups exhibited a lower overall forum posting rate—driven primarily by men's less frequent contributions—this difference did not appear to affect women's participation. Indeed, women in mixed-gender and all-women groups posted to their group forums at comparable rates ($p = 0.606$), suggesting that women's group activation did not differ systematically across conditions. By contrast, the results in Section 8.4 provide strong evidence that *how* women interacted differed sharply between same- and mixed-gender groups. Taken together, these findings indicate that the mechanism underlying the treatment effect lies less in whether interaction occurred and more in the quality and nature of those interactions.

9. Limitations and Future Research

Our findings should be interpreted with several limitations in mind. First, the core of our argument is that the constraints of remote interaction inhibit identity-based trust-building among women in mixed-gender groups but not in same-gender groups. Although our analysis of a remote environment provides supporting evidence, a fuller understanding of how remoteness uniquely shapes group dynamics would require a comparison between remote and in-person environments. Future research using the same group structure in both in-person and remote training could more definitively isolate the causal effect of remote versus colocated interaction.

Second, the fact that our data capture participants' behavior only during and shortly after their career training programs limits our ability to assess long-term outcomes such as sustained employment. Nonetheless,

prior work suggests that early engagement and peer resource exchange in training contexts predict later performance and retention (Ranganathan 2018, Melin and Correll 2022). Because our analysis draws on naturally occurring behaviors rather than self-reported intentions, it also offers stronger ecological validity than retrospective studies. Additionally, although our findings provide inductive evidence consistent with the proposed mechanisms linking gender-homophilous groups to women's improved training outcomes, our data do not permit us to establish the full causal chain; instead, they help identify promising directions for future research to test these mediation processes more directly.

Third, although our field site's predominantly female composition reflects broader trends in online training enrollment (Stein 2023), the female-skewed composition of our platform may have shaped the dynamics we observe. In such environments, the relative advantage men bring is less pronounced, and women may likewise perceive it as such, thereby amplifying the relative benefits of women's gender-homophilous groups. However, given evidence that gender homophily can have especially strong effects in male-dominated as well as gender-balanced in-person learning environments (e.g., Lavy and Schlosser 2011, Dasgupta et al. 2015, Yang et al. 2019, Wu et al. 2022), it is plausible that gender homophily would still benefit women in other online training contexts. At the same time, our findings are most applicable to training settings where peer groups lack a collective task orientation. In collaborative remote working groups with a shared goal, we would expect the relative benefits of same-gender groups to be more muted. For mixed-gender groups to become more advantageous under such conditions, men would need to hold stronger advantages in network positions and resources (Brass 1985, Lutter 2015).

Finally, the limited male population on the platform also prevented us from randomly assigning men to all-men groups at scale, constraining our ability to make direct comparisons between men's and women's same-gender peer environments. However, our analyses revealed that increasing the representation of men in a group did not enhance men's remote training outcomes. Although these findings should be interpreted with some caution, they are consistent with prior research showing asymmetrical returns to gender homophily for women (e.g., Greenberg and Mollick 2017, Ody-Brasier and Fernandez-Mateo 2017, Yang et al. 2019) and the potential drawbacks of all-men groups, which may stem from gender differences in interpersonal sensitivity as well as lower levels of information sharing compared with all-women and mixed-gender groups (Keck and Tang 2018). Further research is needed to identify the conditions under which men might benefit from same-gender peer environments.

10. Contributions and Conclusion

We investigated how the gender composition of peer groups shapes women's career training outcomes in remote environments through a field experiment on a large-scale online career training platform. Specifically, we examined whether randomly assigning women to gender-homophilous (same-gender) or gender-heterophilous (mixed-gender) virtual peer groups produced different training outcomes.

Our research presents the first causal evidence that gender-homophilous peer groups enhance remote training outcomes for women more than gender-heterophilous groups do (Section 6.2). Specifically, we theorized and found evidence from a field experiment that women randomly assigned to gender-homophilous peer groups were significantly more likely to complete their training work on time and obtain professional certification than those assigned to mixed-gender groups. Gender homophily also significantly improved women's likelihood of securing in-field employment, an effect concentrated among women in suburban areas. Our results are robust to alternative model specifications (Section 6.3), including continuous and nonlinear measures of gender composition, subgroup analyses by employment status, and adjustments to the study observation period.

Beyond confirming the main effect of gender homophily, our study also explored whether gender homophily corrects for a potential baseline disadvantage women might experience in mixed-gender groups or provides distinctive benefits (Section 6.4). Our findings support the latter: Women in gender-heterophilous groups did not perform worse than men in the same setting, suggesting that gender homophily enhances women's success rather than merely offsetting an existing gender gap. We found no evidence that increasing the proportion of men in a mixed-gender peer group improved men's training outcomes.

Second, our research extends existing theories of gender dynamics and peer effects. Existing theories imply that remote training environments may dampen both cross-gender and same-gender interaction mechanisms. Our study leverages remote training as a unique context for examining whether and how gender-based peer effects persist when the mechanisms that normally sustain them are weakened. We proposed that women benefit more from gender-homophilous peer groups than gender-heterophilous ones in remote training because of identity-based trust—a distinct mechanism through which gender homophily can benefit women despite the lack of face-to-face interactions.

We empirically explored the micromechanisms behind our results by analyzing text communication data from online group discussions (Section 8). Our inductive qualitative analysis revealed three key patterns underlying the formation of identity-based trust among

all-women groups: (1) revealing multiple shared identities, (2) using affective expression, and (3) exchanging instrumental and expressive resources. Women in gender-homophilous groups were more willing to disclose shared aspects of their identities and experiences, such as those related to gender, motherhood, or marriage. These personal reflections cultivated trust, which in turn gave rise to affective expression and cohesion, and encouraged active knowledge-sharing, collaboration, and mutual encouragement. Supplemental quantitative analyses of group communication data support these mechanisms: Women in gender-homophilous groups used more identity-disclosing, affective trust-oriented, and resource-sharing language than women in mixed-gender groups, suggesting that the presence of men dampened women's willingness to disclose, build trust, and exchange resources. By contrast, mixed-gender groups rarely engaged in identity-based discussions, exhibited significantly lower levels of affective expression, and shared information in a more fragmented, transactional manner with limited sustained engagement. Notably, the presence of a couple of men could introduce a "*chilly*" *affect* that altered the tone and dynamics among women in these groups (Hall and Sandler 1982).

The stark contrast between gender-homophilous and gender-heterophilous group dynamics in remote training environments carries important theoretical implications. Prior research in educational and training contexts has shown that women benefit more from gender-homogeneous groups because of socialization advantages that arise from in-person interaction (e.g., Dasgupta et al. 2015, Wu et al. 2022, Goulas et al. 2025). We extend this work by demonstrating that the benefits associated with gender homophily can emerge for women even when alternative channels for social connection are constrained. Despite the relational barriers inherent in remote settings, women in all-women groups still formed meaningful connections grounded in shared gender identity. Yet our findings also highlight the fragility of these dynamics: Even a small shift in gender composition can disrupt the trust-based cohesion that underpins women's collaborative engagement in remote environments.

Third, our research clarifies the structural and relational conditions under which peer-group gender composition affects women's training and career outcomes. The structural features of online environments help to explain why gender homophily is particularly consequential for women in remote training. For instance, unlike organizational task groups, virtual peer groups lack formal structures that facilitate cross-gender collaboration. As a result, because individuals must actively choose whether and with whom to share resources in virtual peer groups, support networks are particularly prone to gendered dynamics. In addition, unlike in-person settings, where support and knowledge-sharing among peers often occur in dyadic relationships (Emanuel et al. 2023), online peer groups create a persistent, visible record of interactions that reinforces supportive norms and collaborative behavior at the group level (Tsai and Bagozzi 2014). Consistent with prior research showing that accountability and engagement increase when individuals interact with similar others facing shared challenges in online spaces (Greenberg and Mollick 2017, Melin and Correll 2022), our findings suggest that online communities heighten women's awareness of common experiences and reinforce norms of collaboration and mutual support.

Fourth and finally, from an organizational perspective, our findings underscore the importance of designing effective peer learning environments as remote training becomes an increasingly central feature of workforce development (Estrada 2020, Lane et al. 2024). Certification and in-field employment rates in our setting were markedly lower than training completion rates, consistent with prior research documenting substantial drop-off in engagement and often limited effects on labor market outcomes in online training contexts (e.g., see Rivas et al. 2020, Shaikh and Asif 2022). Against this backdrop of generally modest downstream returns, the improvements we identify for women associated with gender-homophilous groups are meaningful. Rather than assuming that the structure of online learning environments has minimal impact, organizations should recognize how peer-group composition can significantly shape individual learning and career advancement outcomes. Structuring all-women peer groups can be a powerful strategy for fostering women's career growth in remote contexts. At the same time, mixed-gender groups may overcome their relational hurdles by deliberately scaffolding trust. For example, establishing clear norms for confidentiality, offering structured prompts for identity-based disclosures, and facilitating early one-on-one or same-gender breakout sessions might enable mixed-gender groups to develop trust and the ensuing engagement and resource exchange observed in all-women peer groups. As researchers, organizations, and training providers strive to build more inclusive and supportive remote training programs, rethinking peer learning structures could be a crucial lever for expanding women's opportunities for career development. This insight is relevant not only to online training platforms but also to workplace mentorship initiatives, leadership development programs, and online professional networks. More broadly, our findings contribute to research on the opportunities and challenges of remote work (e.g., Emanuel et al. 2023, Villamor et al. 2023, Doering and Tilcsik 2025) by identifying strategies that mitigate the impact of physical isolation on early-career women's access to professional mentorship and support.

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Endnotes

[1] We use the term *remote training* to refer broadly to online professional development and certification programs in which participants interact digitally rather than face-to-face. Such programs—including online job-skilling platforms (e.g., Maven, Section), boot camps (e.g., General Assembly, edX), mentorship initiatives (e.g., Lean In Circles), and startup accelerators (e.g., Y Combinator, Techstars)—differ in format but share an emphasis on peers progressing together toward developmental goals, often outside shared organizational contexts.

[2] Throughout the paper, *gender-homophilous* refers to same-gender groups, which are experimentally assigned in our study and therefore not the product of mutual liking or self-selection. *Gender homophily* refers to the broader theoretical concept of similarity among social ties (McPherson et al. 2001), which is sometimes used to denote either affinity or group composition. Although group composition is based on random assignment and thus induced here, relational processes commonly associated with gender homophily may nonetheless develop within these groups.

[3] To preserve the anonymity of our field site, we cannot provide the total number of platform users.

[4] For comparison, average tuition costs about $40,000 to $65,000 for an online bachelor's degree at a four-year institution (Wood 2024).

[5] Study design materials presented to the company are registered on the Open Science Framework (OSF) and available at https://osf.io/5ws9x. Any variation between the original and final design was due to company enrollment constraints.

[6] The gender composition of the heterophilous groups included combinations of three men and three women, two men and four women, or two women and four men.

[7] We classify part-time workers as unemployed based on company insights that most part-time jobs are low-wage and unrelated to students' intended fields of study.

[8] Although a more hands-on, group-based intervention might have increased platform engagement, our intervention model is valuable for two reasons: (1) it is scalable, cost-effective, and thus practical for the online credentialing environments that this study aims to inform, and (2) its less obtrusive design provides a more conservative test of gender homophily.

[9] For instance, if a participant started her training on January 1, and her program training length was six months, her projected finish date would be July 1 of the same year. The timely completion measure would then capture whether she finished her program within 38 days of July 1.

[10] Summary statistics for unemployed men assigned to gender-heterophilous groups and employed women assigned to gender-homophilous groups are available in Table A.1 (Online Appendix A).

[11] Certification rates are much lower than training completion rates in our setting, which aligns with the broader literature documenting lower levels of engagement and persistence in online training and education (Shaikh and Asif 2022). Although completing the coursework represents the first building block, moving from course completion to certification requires additional resources, preparation, and effort beyond the training itself.

[12] We measured in-field employment outcomes among certified women, given that certification serves as the standard credential for nearly all the occupations associated with the platform's program offerings. However, the company also reported employment outcomes for individuals who had not achieved certification. We conducted additional subsample analyses restricting the sample to women who completed training but did not achieve certification and found marginally significant effects (see Table B.1, Online Appendix B).

[13] We also investigated the impact of gender homophily on women's in-exam preparation status (i.e., if a woman completed her training and was preparing to sit for her certification exam), as well as her post-training wages. The former analysis showed marginal improvements, whereas the latter showed positive but statistically imprecise estimates (see Tables B.2 and B.3, Online Appendix B).

[14] Although many participants eventually chose to communicate with their group members off-platform (e.g., phone, text, email), the initial use of the platform was necessary to establish connections that later moved off-platform. Early group forum discussions therefore offer valuable insight into the validity and mechanisms underlying our results.

[15] Table C.1 (Online Appendix C) presents additional quotes illustrating each of the three key themes.

[16] As an additional descriptive check, we examined authorship of comments in mixed-gender groups. Across the three focal themes, women authored approximately 60% of such comments. This pattern indicates that these interactional features are not primarily driven by men's participation. At the same time, the substantially lower prevalence of these themes in mixed-gender groups relative to all-women groups suggests that their relative absence reflects differences in the interactional environment rather than simply compositional effects attributable to men's speech alone.

[17] We also examined the relationship between gender homophily and perceived motivation among women participants based on survey data obtained from the company. Effects were in the expected direction with relatively large coefficients but did not reach statistical significance, likely because of the limited number of women ($n = 180$) who completed this single-item survey question (see Table D.1, Online Appendix D). As such, the evidence for subjective experiences such as perceived motivation, aspirations, or persistence is weaker, given the limited available data.

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