

New employee Copilot usage: Insights into productivity and socialization

AETHER AI ETHICS AND EFFECTS IN
ENGINEERING AND RESEARCH
UXRE

Executive summary

This report summarizes a mixed-methods study examining how a new generation of employees interacts with the generative AI assistant Microsoft Copilot for productivity when acclimating to a professional environment. Through a series of surveys, interviews, and a diary study, 125 Microsoft interns in a variety of roles provided insights into their usage and effects of Copilot in their new-employee roles.

Top findings:

- We observed an association between frequency of Copilot use and workplace integration. Interns who used Copilot more frequently felt better socialized and identified with their teams more strongly.
- Greater usage of Copilot correlated with an increasingly favorable perception of the AI assistant.
- The most frequent and valued Copilot use cases were Information retrieval, writing assistance, and coding assistance.
- Participants highlighted multiple ways in which Copilot helped their productivity: (1) the benefit of seamless access to an AI assistant integrated across their work apps in the M365 suite; and Copilot capabilities that (2) helped new employees save time to focus on their primary responsibilities, (3) aided their getting “unstuck” on tasks, (4) stimulated creativity, and (5) served as a nonjudgmental assistant as they adapted to their new professional environment.
- Interns learned how to use Copilot by trial and error, picking up tips from peers, or accessing training documentation and resources.

Authors



Mihaela Vorvoreanu,
Ph.D.
Director, Aether UXRE



Sydney Graham
Research intern
University of Missouri



Amy Heger, Ph.D.
Researcher, Aether UXRE



Shipi Dhanorkar,
Ph.D.
Researcher, Aether UXRE



Kathleen Walker
Writer, Aether UXRE

Introduction

This report synthesizes findings from a mixed-methods study consisting of surveys, interviews, and a diary study to look at both usage and effects of the generative AI assistant Microsoft Copilot across M365 apps and Bing. We examined its productivity value for a new-generation workforce by engaging a total of 125 Microsoft interns.

Previous research indicates that new or inexperienced employees see a significant boost in productivity when using generative AI compared to their more experienced counterparts. For instance, experiments show that novices benefit more from AI assistance, with greater performance gains in writing,¹ coding,² legal reasoning,³ customer support,⁴ and consulting tasks.⁵

In this study, we explored how Copilot either helps or hinders new-employee productivity, including details of what about this AI assistant they particularly valued, across roles and organizations at Microsoft.

This report has five sections:

1. [Research goals and methods.](#)
2. [Integrating into organizational culture:](#) interns' socialization and Copilot usage.
3. [How interns used Copilot:](#) a look at usage frequency plus user attitudes and goals.
4. [Perceived benefits of Copilot:](#) advantages that users particularly value.
5. [Navigating a learning curve:](#) how users build their Copilot skills.

¹ Noy, Shakked and Zhang, Whitney, Experimental Evidence on the Productivity Effects of Generative Artificial Intelligence (March 1, 2023). Available at SSRN: <https://ssrn.com/abstract=4375283> or <http://dx.doi.org/10.2139/ssrn.4375283>

² Peng, S., E. Kalliamvakou, P. Cihon, and M. Demirer, "The impact of AI on developer productivity: Evidence from github copilot," arXiv preprint arXiv:2302.06590, 2023.

³ Choi, Jonathan H. and Schwarcz, Daniel, AI Assistance in Legal Analysis: An Empirical Study (August 13, 2023). 73 *Journal of Legal Education* (forthcoming, 2024), Available at SSRN: <https://ssrn.com/abstract=4539836> or <http://dx.doi.org/10.2139/ssrn.4539836>

⁴ Brynjolfsson, Erik, Danielle Li, and Lindsey R. Raymond, "Generative AI at work," Working Paper w31161, *National Bureau of Economic Research* 2023.

⁵ Dell'Acqua, Fabrizio, Edward McFowland III, Ethan Mollick, Hila Lifshitz-Assaf, Katherine C. Kellogg, Saran Rajendran, Lisa Krayner, François Candelon, and Karim R. Lakhani. "[Navigating the Jagged Technological Frontier: Field Experimental Evidence of the Effects of AI on Knowledge Worker Productivity and Quality.](#)" *Harvard Business School Working Paper*, No. 24-013, September 2023

1

Research goals and methods

Our research goal was to assess the role of M365 Copilot in new employees' experience of integrating in a new professional environment and learn how the AI assistant may help or hinder their productivity. We recruited 125 Microsoft interns to participate in a mixed-methods study comprised of surveys, interviews, and a diary study that provided insights into their attitudes towards Copilot and specifics about how they used it.

Participants: The 125 interns worked in organizations across the company (Figure 1) and in a variety of roles (Figure 2), although the sample was skewed toward engineering. The average age was 21, reflecting the undergraduate focus of the internship program.

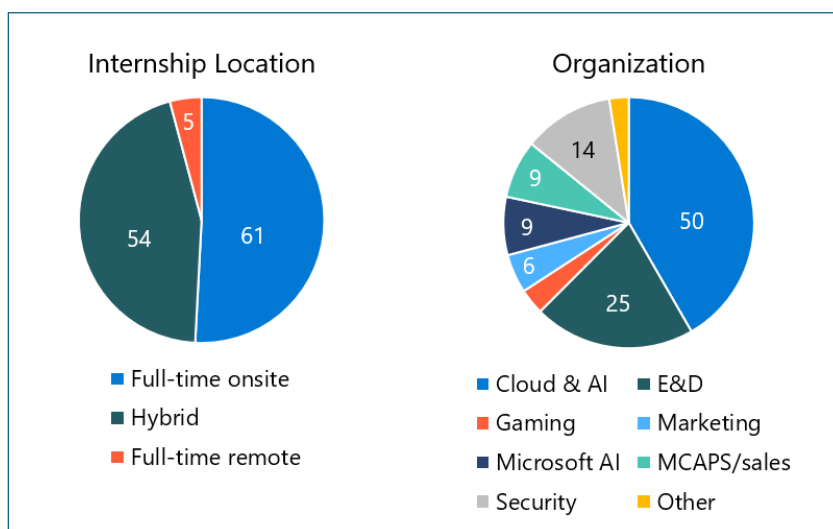


Figure 1: Participants worked primarily onsite and in organizations across Microsoft.

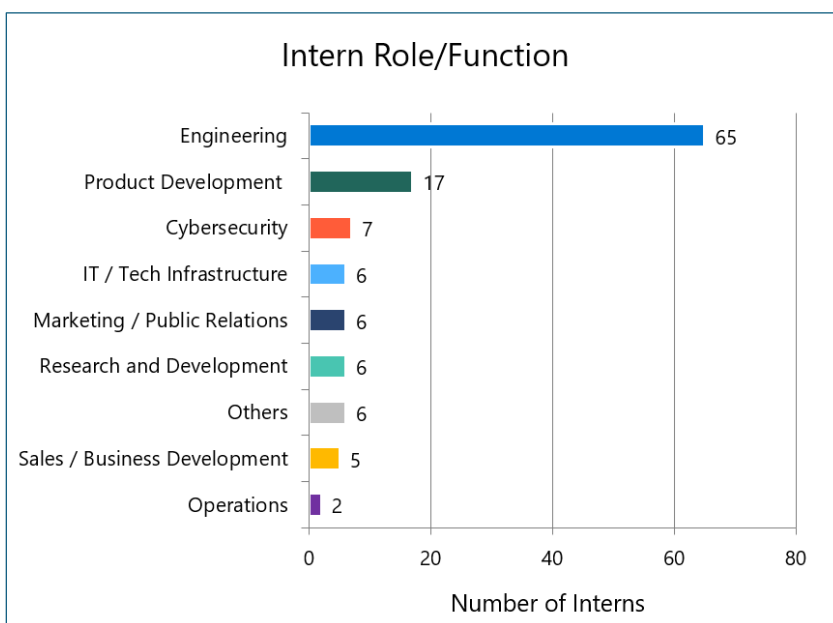


Figure 2: Participant roles across the company.

Surveys: We sent out a survey four times across July and August 2024, with participants answering the same questions every one to two weeks. Topics included frequency of use and value of Copilot for specific use cases (e.g., finding information, managing meetings); participants' socialization (e.g., rating their agreement with statements like "I feel like I know my team members pretty well"); and general attitudes toward using the AI assistant.

Interviews: We conducted 45- to 60-minute semi-structured interviews with 25 Microsoft interns. Interviewees were sampled selectively to roughly match distribution of full-time employees across Microsoft organizations and ensure a diversity of roles, gender, and geographic location. Topics focused on participants' general experience as an intern and their team dynamics, as well as the ways they used Copilot and how they perceived its impact on their workplace integration and productivity.

Diary study: We analyzed 360 diary study submissions logged by participants across two months. Submissions were screenshots of Copilot usage, each accompanied by an open-ended description, when the usage occurred, and a user experience rating. We coded the screenshots for Copilot product, use case and user goal to detect trending patterns.

Findings include interns' integration into organizational culture and a statistical correlation with Copilot usage; how interns used Copilot—frequency, attitudes, and user goals; what they perceived as benefits of Copilot; and how they navigated a learning curve for improving their Copilot skills.

2

Integrating into organizational culture: an essential for productivity

There are many facets to productivity, but for a new employee, successful socialization, or integration, is foundational. Socialization is a process that involves learning the skills, standards, practices, and values necessary for effective role performance within an organization,⁶ as well as developing a sense of belonging and identity with their team.

Our findings showed that interns with higher rates of Copilot usage were more socialized and more strongly identified with their teams than those who used it less frequently (Figure 3). This finding is based on statistical correlation, so we cannot attribute any causal effect in new-employee socialization to Copilot usage.

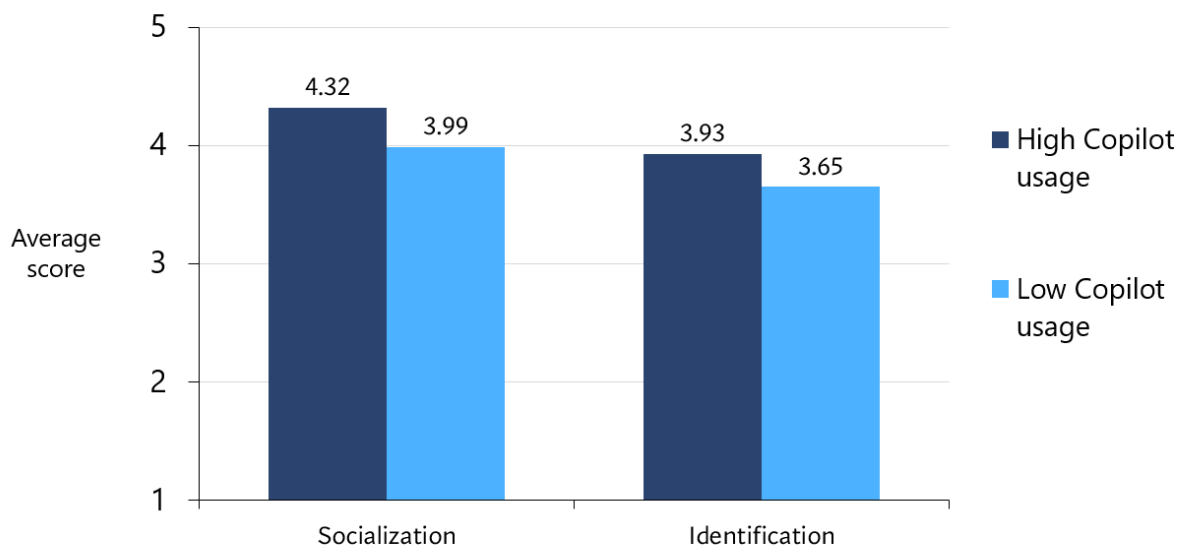


Figure 3: Copilot usage groups* (High vs. Low) and their reported levels of socialization and team identification.
*Copilot usage groups are participants one standard deviation above (high usage) or below (low usage) the average frequency of Copilot usage. See [Appendix B for more about socialization and identification measures](#).

⁶ Myers, K. K., & Woo, D. (2017). Socialization. *The international encyclopedia of organizational communication*, 1-17

3

How interns used Copilot: frequency, attitudes, and user goals

For a basic look at usage, we looked at how frequently interns used Copilot, as well as what their attitudes and user goals were.

Frequency and attitudes

Eighty-six percent of survey participants reported using Copilot daily for at least one use case. Greater usage correlated with an increasingly favorable attitude toward Copilot. In turn, this favorability projected to participants expressing a desire to continue using Copilot and viewing it as important to their future professional lives (Figure 4).

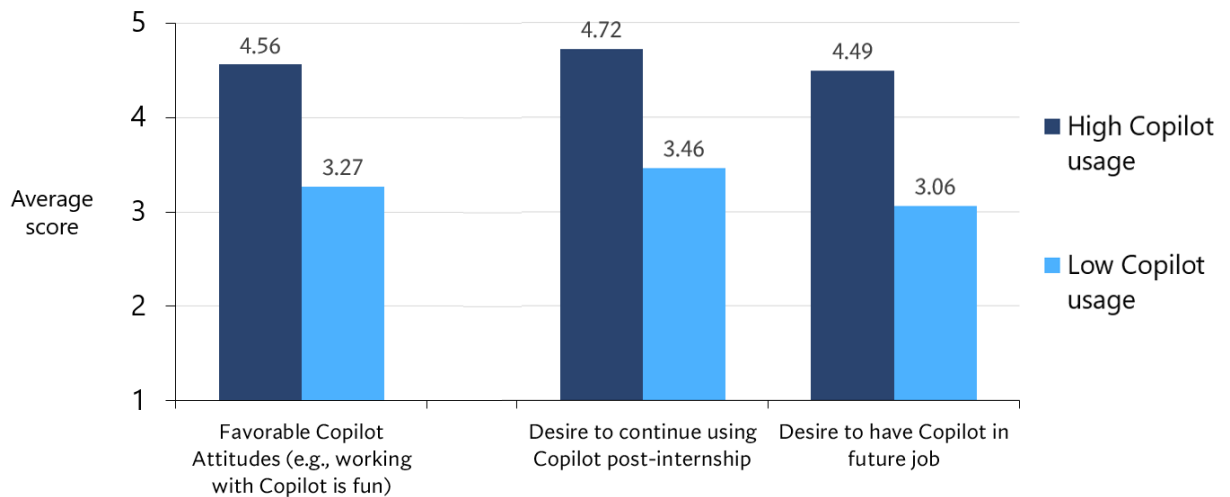


Figure 4: Frequency of use, favorable attitudes, and user desire to continue working with Copilot.

The top five reported Copilot use cases were:

1. Finding information.
2. Writing assistance.
3. Coding or data analysis.
4. Brainstorming or generating ideas.
5. Consuming information, or *summarization*.

These use cases were the most popular according to our surveys (Figure 5) and were also the most frequently submitted diary examples when interns were asked to share helpful or valuable Copilot uses (Figure 6).

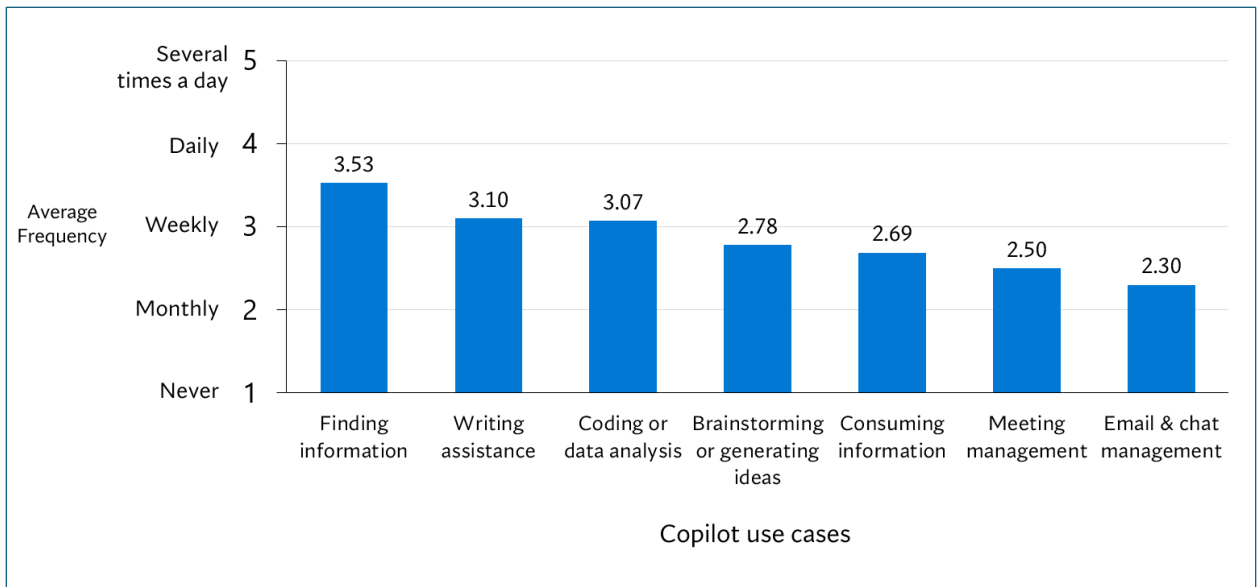


Figure 5: Survey results: Average self-reported frequency of common use cases for Copilot.

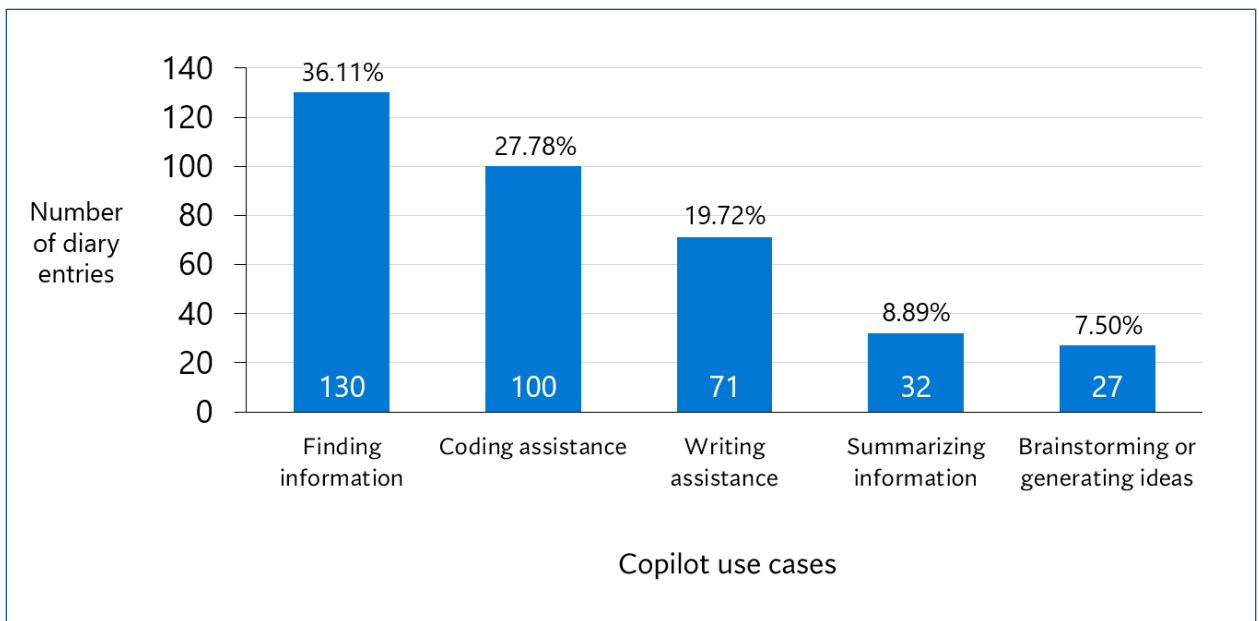


Figure 6: Diary study results: Top Copilot use cases from submitted diary entries.

Interns' use cases differed from other employees, who emphasize using Copilot for time-savings and value-managing meetings and emails.⁷ The difference may stem from interns' typical focus

⁷ Microsoft Work Lab blog post: [AI Data Drop: 3 Key Insights from Real-World Research on AI Usage](#)

on a single project, possibly limiting the number of meetings and emails. (See Appendix C for more about capturing uniquely new-employee use cases.)

User goals

With *information retrieval* and *summarization* listed among the study's top use cases, it's not surprising that 46% of Copilot examples from the diary study served the goal of meeting users' learning needs, either about Microsoft or open domain information (Figure 7). Participants, as interns seeking to integrate with their team's workflow, highlighted the retrieval and summarization value of Copilot, commenting on its facilitating understanding of "*so many acronyms and bespoke names for things*" (P-120) and helping them "*catch up with Microsoft concepts in my first week.*" (P-131)

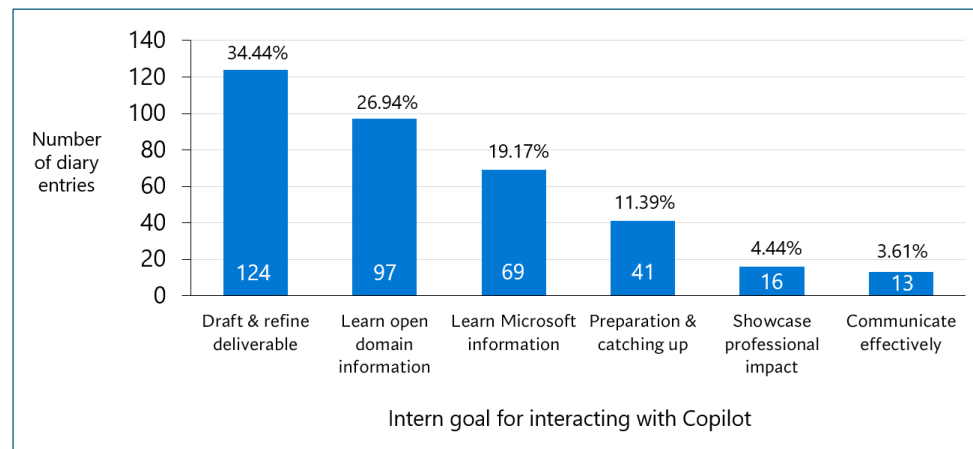


Figure 7: From the diary study, interns' top goals or reasons for using Copilot.

Information retrieval remained the most common use case throughout internships. At the same time, as seen in Figure 8, participants gradually increased their use of Copilot for "consuming information" (summarization) and for learning about the company's people and its norms—use cases specific to new-employee integration (see Appendix C).

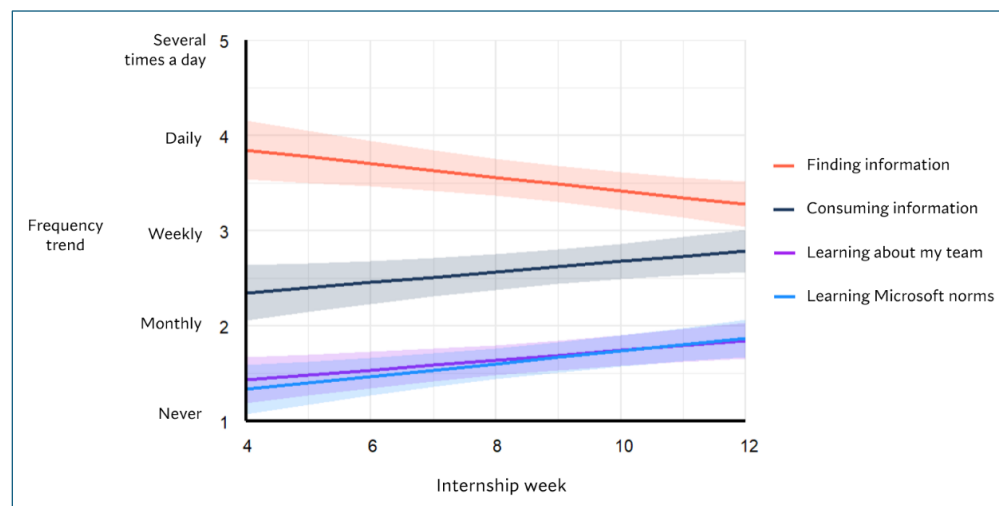


Figure 8: Trends in frequency of Copilot use cases over the 12-week internship.

Overall, as new employees, participants used Copilot most for retrieving information, as well as for help with writing and coding. Participant diary entries and interviews added depth for understanding why and when they chose to use Copilot and what about Copilot they particularly valued for productivity.

4

Perceived benefits of Copilot

The benefits interns attributed to Copilot in interviews and diary entries ranged from convenient access, time savings, and stimulating creative thinking to the freedom of getting information from a nonjudgmental assistant.

Accessing an AI assistant seamlessly

*"I use it 99.9% of the time at work because it's **easily accessible**."* (P-2)

Participants viewed Copilot's incorporation across M365 as a significant advantage, with the AI assistant conveniently available.

*"Microsoft integrates it into every software, every piece of software they build like Edge and Windows and everything. I think it's everywhere. So it's always like, you never forget that it exists [...] it's **easier to click the Copilot button than go to ChatGPT.com**. And so I think it's just one of those things where because it's everywhere, it's top of mind, it's easy to access."* (P-146)

*"This is going to sound so crazy [...] having Copilot [...] within my computer [...] this has been [...] **such a different way to interact with Copilot [...] the little tab on the bottom [...] having it within my apps**. I would say altogether, I am positive about it."* (P-26)

Noting Copilot is embedded in the M365 software ecosystem, participants appreciated the convenience of not having to switch gears mid-task to access AI assistance. This was especially true for P-92 who said, *"There's a bunch of things that you cannot do if your AI is not connected to the product you're working on. ... that's one of the things that really changed the game for me."*

Saving time for focus on primary responsibilities

*"Probably my **biggest use** was, hey, **how can I save time?**"* (P-45)

Averaging across their survey responses, 84% of interns agreed or strongly agreed that Copilot enabled them to accomplish tasks more quickly. Participants who claimed these time savings also experienced greater team identification or socialization.

*"It's **made me more productive just in that I have more time** to be able to ask questions, so I'm not sitting around for like a long period of time trying to figure something out. [...] **Copilot's at least able to ... guide me in the right direction.** So then it allows me to have more interactions with members of my team on what I can do to improve my project."* (P-96)

Notably, some participants reported dramatic increases in their efficiency when leveraging Copilot—reducing task times as much as from several hours to a few minutes.

*"The bottom line for it is efficiency for me and **Copilot just provides that efficiency.** And being able to **take down tasks from five hours to five minutes...**"* (P-56)

"It saves me a lot of time. So, for example, I hate writing emails, but GitHub Copilot literally does all the hard work for me, and I just have to write a tiny little message ... And then it writes, like, an actual full thing. ... it just makes me so much more efficient ... as long as I know the right prompts and know to give it the right context and give it the right information." (P-76)

These time savings enabled interns to turn their attention to the primary responsibilities of their role:

*"Probably my biggest use was, hey, **how can I save time?** And summarizing meetings, summarizing emails, summarizing documents, I think was a huge advantage. ... **taking that a step forward, it further enables me as an employee to do my job,** not taking extra time to dive deeper into something ... getting a summary of a meeting versus trying to revisit notes or talk to people about it is helpful all around."* (P-45)

Getting "unstuck" on tasks

*"It's not my first go-to, but [I'll use Copilot] **if I've been stuck for 30 minutes on something.**"* (P-96)

Copilot helped participants get started with tasks they found difficult to begin or were unsure of direction:

*"It's helped me a lot with building ... my test cases, because that's not something we learn in school [...] **It's not exactly what you're looking for, but having something written for you, even with seven lines of code, it's just a nice starting point.**"* (P-96)

*I think it **gives you a lot of options**, in terms of the answer. Sometimes I'll ask, how do I fix this problem, or how do I make this piece of code, or how do I find this in a list? And it'll*

give me four options. But I think if you go to a website, it'll give you one option, and then maybe that might not be the right one for your context. (P-149)

Participants using Copilot to get “unstuck” reported their interaction to be helpful even when the model output was not accurate. They used incorrect or incomplete responses as aids for further investigation and gaining direction:

*“Even if it hallucinates something and it tells me something completely wrong, it might use a term which then helps me. [...] It'll say something and it'll be wrong, but **it'll be ... vaguely in the right direction. And then I can search that up and then read more about it.** And then I can prompt with a better correct thing. ... I can get a better idea.”* (P-146)

*“It gets things wrong pretty frequently still. And I definitely **use it more as a guide** on how to go about solving it rather than using it as a solution.”* (P-96)

Stimulating creativity

“It helps you think in the direction where your thought wasn't before, which kind of leads you to that creativity piece.” (P-20)

Brainstorming, or generating ideas, was one of the top five use cases for Copilot. In fact, as one participant revealed, using Copilot for *creativity* superseded its productivity value.

“In some senses I think ... which I know is not a very popular consumer opinion ... it enhances creativity more than productivity. But in my project and ... what I needed it to do, I think creativity was probably more where it sat than productivity.” (P-26)

Nevertheless, creativity, or generating ideas, is often an inseparable element of productivity. As this participant remarked, these creativity demands can be taxing and Copilot can stimulate when you're depleted:

“I feel like when you're asked so often on the job to be always very creative and come up with very new things all the time, it can be pretty exhausting, and I can run out of ideas pretty quickly. So Copilot can sometimes stimulate that creativity.” (P-20)

As seen in example prompts from the diary study (Figures 9 and 10), participants used Copilot to generate ideas across a broad range of use cases, from creating and refining deliverables to scoping what questions to anticipate during a presentation.

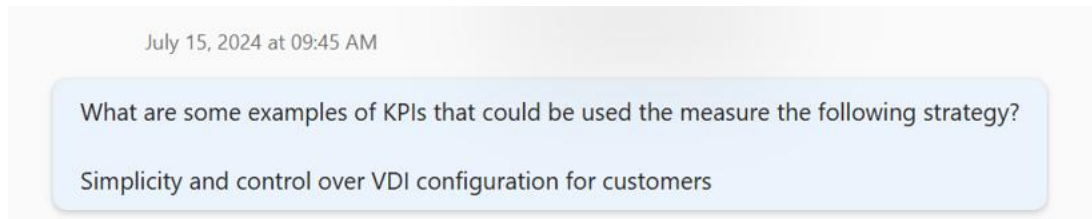


Figure 9: A prompt from a participant's brainstorming session with Copilot: "It was helpful to brainstorm the KPIs I will be using for my data model. I won't be exactly using everything, but it's a valuable starting point." (P-159)

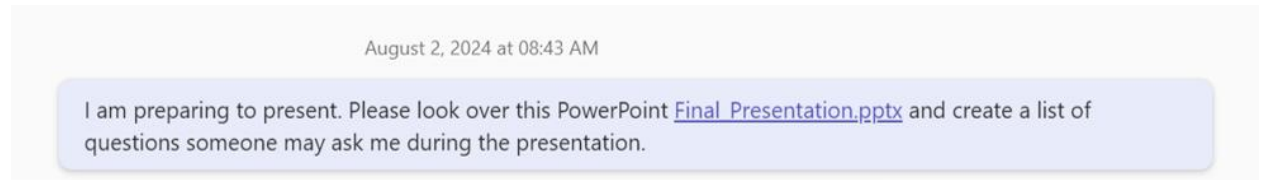


Figure 10: P-120 used Copilot to ideate for "mock questions that I can practice answering while rehearsing."

Saving face: relying on a nonjudgmental assistant

"I'm ... [an] intern. [Copilot is] awesome. Nonjudgmental. Because ... AI can't really judge me, hopefully." (P-76)

Participants regarded "AI assistant" to be a fitting label for Copilot. It liberated them from some of the self-consciousness and uncertainty they were prone to experiencing in a new professional environment. When Copilot successfully assists with a request, it is a form of relief:

"It's one less thing that I don't have to ping somebody on Teams and ask them a question and then wait, [...] they don't have to take time out of their day to answer it. So, to me, that's very helpful." (P-120)

Similarly, when seeking to not burden other team members for help with navigating tedious admin requirements particular to interns' new-employee status, P-20 used Copilot "as my assistant to try and get some of the more annoying administrative tasks, ... to try and do them quicker."

5

Navigating a learning curve: building the Copilot skill

We saw a direct correlation between participants' prior use of generative AI and their Copilot usage frequency and comfort level with it as a new employee ([Appendix A](#)). Previous experience with generative AI assistants was viewed as a skill transfer:

"I had used ChatGPT and Claude before, and then it was more of like, all right, how do I sort of bring that same prompt skillset and understand the nuances of Copilot better?" (P-112)

A recurring theme among interns with limited prior use of generative AI was that they faced a learning curve as they acclimated to Copilot's capabilities and limitations. Interns felt they would have been more productive out of the starting gate if they'd had earlier access, during their academic year, specifically to Copilot.

To deal with this learning curve, interns reported using three main pathways: experiential learning or self-education; learning from peers; and learning from various training venues.

Experiential learning

Self-education was a commonly reported learning approach—for example, a product marketing intern for M365 apps and services relied on independent exploration as essential to getting their job done:

"I don't think I necessarily went out to search for resources to learn how to use Copilot. I just think I had to learn how did the features work, in order to be able to convey that to consumers." (P-26)

For some, this exploratory form of learning was not necessarily an optimal way to learn, as noted by this engineering intern:

*"I wouldn't really claim that I've figured out ... how to use for debugging because **my process of using it does not seem to be the most effective**. So I think that's kind of a learning area that I have to do." (P-162)*

Other participants expressed sensing others at the company operated on an assumption that new employees know how to make the most of their Copilot usage:

"Nobody's really preached about Copilot to me or told me, you have to do this. You have to try this ... Everybody, I think, especially at Microsoft, is pretty cognizant of what Copilot can do because ... we dog food it so much." (P-146)

Learning from peers

Peer-to-peer learning through informal observation and trying out recommendations was another approach for new employees seeking to improve their Copilot skills.

*"... impromptu things where ... someone's very nice and I just see them ... use copilot sometimes. ... an intern who's on the Copilot team who was on my project ... **his job is to sell Copilot, so he knows a lot and he always would suggest uses**. He's like, oh, make Copilot do that. So I would try it out." (P-20)*

*"I would say **it's a mix of other interns using it** and, like, telling you, wow, this is so cool. And, like, **sending screenshots of Copilot response** and the mix of recruiters just letting you know, like, hey, you can use Copilot for this and this. Like, try it. We should try it." (P-2)*

Learning from training documentation, videos, and communities

As new employees tried to figure out how to work with Copilot, company documentation was helpful:

"So I had to try and use it myself to learn ... I was looking a lot at Microsoft documentation ... to learn how to use it, because it's got lots of capabilities and limitations." (P-20)

Participants also reported watching videos of "official Copilot trainings" ^{P-120} to be effective learning tools, as well as viewing those posted by the company's internal topic-based communities:

"I joined a bunch of these Viva Engage communities ... There's a lot of stuff ... they post these videos ... I would watch those and see the way people are using [Copilot]." (P-120)

Limitations

We used mixed methods to achieve data triangulation and a more complete understanding of how Microsoft interns use Copilot as they integrate into their teams and the company. Even though 125 interns participated in our research, they are not a statistically representative sample of Microsoft interns. We purposefully selected interns to participate in our research because we saw them as an extreme case of new employees: The limited duration of Microsoft internships puts additional pressure to ramp up and become productive quickly, before the internship ends. While some insights can be transferable to new employees, it is important to remember that new employees might have higher motivation to become socialized, as opposed to interns who are aware the internship will come to an end. Another difference is that new employees are not always novices, and we need to be cautious about transferring insights to people who are not early-in-career.

It should also be noted that at the time of data collection, Microsoft leadership and culture encouraged the use of Copilot. Also, because Copilot is a Microsoft product, participants might have been more likely to try it.

While this study provides interesting insights into a new generation of workers, caution is needed when transferring the learnings to different groups and contexts.

Conclusion

Interns, as a new-generation workforce using an AI assistant, reported that Copilot was most helpful for finding information, writing assistance, coding, brainstorming, and summarizing information. As participants acclimated to their new professional environment, they increased their usage of Copilot for summarization tasks, as well as for use cases specific to new-employee integration such as learning details about the company's people and its norms. Participants also cited benefits of seamless access to an AI assistant within their work apps; time savings (e.g., composing email) that freed them for primary tasks; help with generating ideas and getting "unstuck"; and the availability of a nonjudgmental

assistant when navigating various angles of new-employee uncertainty. They also revealed a learning curve for best practices and productivity when working with an AI assistant.

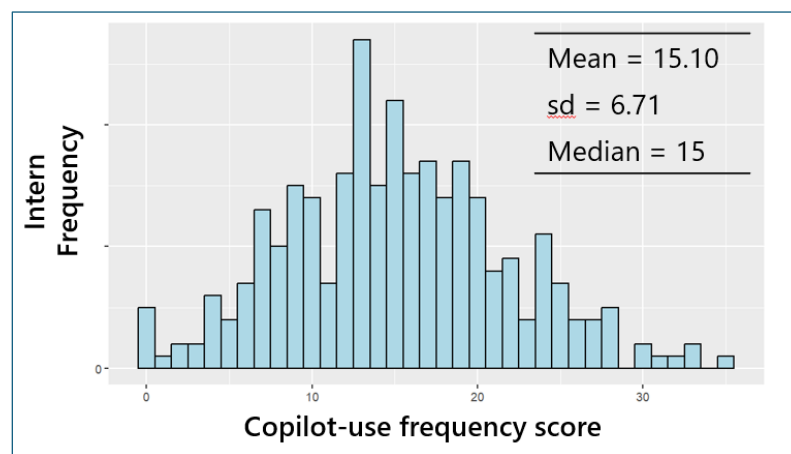
This learning curve indicates that industries preparing for a new-generation workforce will need to avoid making assumptions about new employees' AI literacy and help them maximize the benefits of their AI assistants. They'll need to provide training resources such as documentation and videos, plus discussion forums where employees can share learning tips. As our participants demonstrated, new employees need guidance to understand what an AI system can and cannot do, as well as for best practices in different use cases.

APPENDIX A

Survey analysis

Limitations: Our original goal was to conduct a longitudinal assessment of the internship experience; however, data limitations altered this plan. We captured about a month of internship, with a median interval of 4 weeks between an intern's first and last survey. Additionally, responses were collected at the tail end of internships and may not reflect earlier experiences. Participants varied greatly in how many surveys they did, with approximately a quarter of them completing 1, 2, 3, or 4 surveys respectively. Some participant internships ended before our study concluded and, therefore, they had fewer survey opportunities. Also, given that many Microsoft teams work on Copilot products, it is important to note our participants could have unique exposure or knowledge of Copilot, beyond using it as a work tool, which might have influenced our findings.

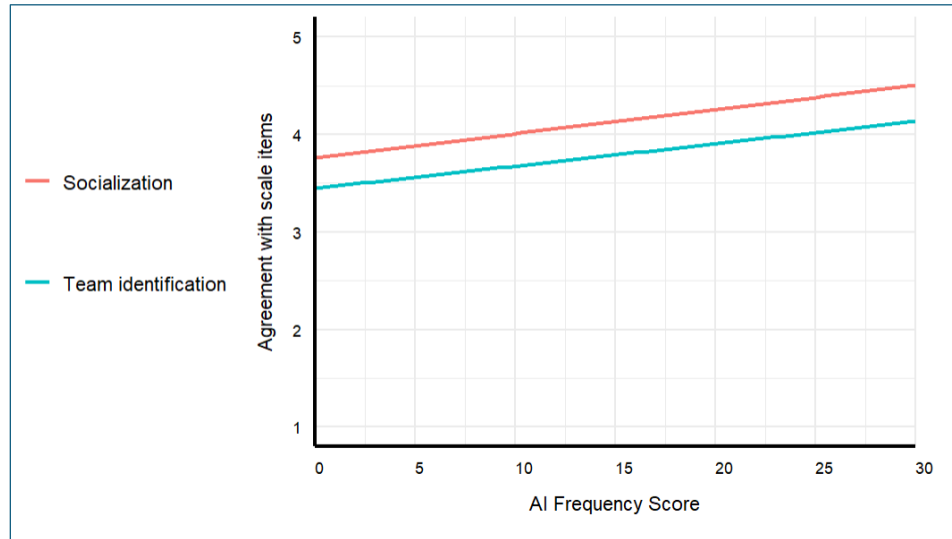
Measuring frequency of Copilot usage: For each survey response, we calculated a Copilot-use frequency score by summing across frequencies of the top use cases (e.g., finding information, writing assistance, etc.), giving greater weight to greater frequency (Never = 0, Monthly = 1, Weekly = 2, Daily = 4, Several times a day = 5). This Copilot-use frequency score is the predictor variable, unless use-case specific outcomes are specified.



Graphs: The report's bar graphs compare means between the portion of survey responses one standard deviation above or below the mean Copilot-use frequency score. These graphs provide a clear way to illustrate the trends identified in our multi-level linear regression analyses. Statistics and line graphs of these analyses are available in Appendix B.

APPENDIX B

Socialization and identification measures



Line graph for [Figure 1](#)

Interns who reported using Copilot more often reported had greater socialization, $b = .02$, $\beta = .30$, $t(114) = 3.70$, $p < .001$ and greater team identification, $b = .02$, $\beta = .23$, $t(117) = 2.82$, $p = .006$, compared to those who used it less often. Socialization was a 13-item measure (Mean = 4.16, SD = .48, Cronbach $\alpha = .91$) and team identification a 10-item measure (Mean = 3.84, SD = .55, Cronbach $\alpha = .84$) with responses on a 1 (strongly disagree) to 5 (strongly agree) Likert scale.

Socialization measure:

1. *I know who to ask for support when my job requires it.*
2. *I know how to acquire resources needed to perform my job (e.g., equipment, supplies, facilities).*
3. *I understand how to operate the tools I use in my job (e.g., software, programs, machinery).*
4. *I understand how to perform the tasks that make up my job.*
5. *I know the responsibilities, tasks, and projects for which I was hired.*
6. *I understand which job tasks and responsibilities have priority.*
7. *I know when to inform my mentor(s) about my work (e.g., daily, weekly, close to deadlines, etc.).*
8. *I know what constitutes acceptable job performance (i.e., what does my mentor expect from me).*
9. *In the course of performing my job, I understand how to complete necessary forms/paperwork (e.g., formal trainings, time off requests).*
10. *I understand the social norms of Microsoft.*
11. *I think I know "how things happen around here."*

12. *I think I have a good idea of how Microsoft operates.*
13. *I feel comfortable in my work environment.*

Team identification measure:

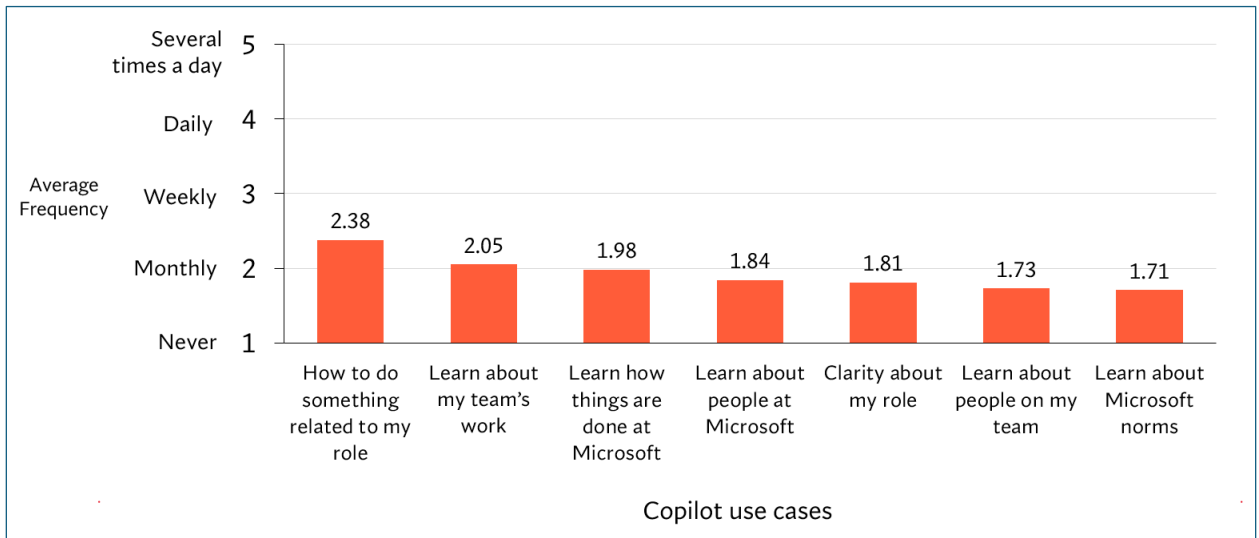
1. *I see myself as a member of the team.*
2. *I feel strong ties with other members of the team.*
3. *I consider my team members friends.*
4. *I feel comfortable talking to my team members.*
5. *I have shared problems at work with some of my team members.*
6. *I avoid conversations with my team members whenever possible. (R)*
7. *I must work up the courage to talk to my mentor(s) about a problem. (R)*
8. *My mentor(s) and I talk together often.*
9. *I feel like I know my mentor(s) pretty well.*
10. *I feel like I know my team members pretty well.*

(R) = Reverse coded

APPENDIX C

Copilot use cases for new-employee integration

We asked participants about Copilot use cases that could help them integrate into Microsoft and their new teams. Interns reported using Copilot this way occasionally, but not often. The low usage averages might reflect the late timing of survey data collection, as the median start date for participants was 8 weeks after their internship began.



Survey results: Average self-reported frequencies of Copilot use cases specific to new-employee integration