Gender and Help Seeking by Older Adults When Learning New Technologies

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ABSTRACT

A gender stereotype that has some basis in research is that men are more reluctant to ask for directions than women. We wanted to investigate whether this stereotype applies to technology-related contexts, affecting older adults' abilities to learn new technologies. To explore how help seeking and gender might relate for older adults, we conducted a controlled experiment with 36 individuals (18 men and 18 women), and observed how often they asked for help when learning new applications. We also conducted post-experiment interviews with participants. We found that although most participants stereotyped older men as being reluctant to ask for help in the interview, the difference between men and women was minimal in the experiment. Instead, other factors had a greater effect: older participants took longer to complete tasks and participants with lower technology self-efficacy asked significantly more questions.

Author Keywords

Older adults; help seeking; gender; technology use.

ACM Classification Keywords

• Human-centered computing~Laboratory experiments • Social and professional topics~Gender • Social and professional topics~Seniors

INTRODUCTION

Seeking help is important for learning new skills, including how to use technology [26]. Meanwhile, help seeking interplays with gender: in a US-based cultural context at least, the stereotype that men are reluctant to ask for help has been empirically shown in different areas, from health issues to stressful life events [18,28,32]. Gender is largely a performative social construct, a system of practices, norms, and expectations that shape our social worlds, roles, and identities (which can include binary and non-binary forms) [23]. Help seeking and gender in the context of learning new technologies has yet to be explored (although learning *with* new technologies has been widely investigated, e.g., in math and statistics education, [27]). Our focus is on technology learning and use.

If men are more reluctant than women to seek help, this reluctance might be even more pronounced in later life and affect adoption and learning of new technologies. In the US, older cohorts (i.e., born before 1960) tend to show more traditional gender role attitudes (e.g., men as breadwinners and women as homemakers), due to the historical period in which they grew up [6]. In addition, technology is often stereotyped as a masculine domain; across ages and even many countries, men tend to be seen as more proficient users and have greater confidence in their technological ability than women [9]. So older men might be influenced by 'hegemonic masculinity' – i.e., practices that enact men's dominant position, in this case, in a Western context – that could lead to not asking for help for technological issues. This could affect their adoption and use of new technologies.

To investigate how gender relates to help seeking, we conducted an experiment with 36 community-dwelling older adults. We investigated whether women sought help more frequently than men while learning tablet-based apps, and how expectations around gender influenced help-seeking behavior. The study was framed by a life course perspective [11,33], which considers that older adults' adoption and use of technologies is shaped by lifelong social and technical circumstances, from technology access to gender.

We found that despite the perception among our older adult participants that men are reluctant to ask for help, there was a relatively small difference between men and women in help seeking behavior. Instead, we found that characteristics such as age and technology self-efficacy substantially explained differences in help seeking behavior. This research contributes empirical results from a controlled experiment showing that gender roles and individual differences in age and self-efficacy explain help seeking behavior for older men and women, although gender has a minor effect.

RELATED WORK

In this section, we review research on gender and help seeking as well as gender and technology use—much of which has focused on binary understandings of gender.

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Technology Use and the Life Course Perspective

Recently, there has been a push in the HCI community to change the dominant discourse in aging research from one that generalizes older adults as a homogeneous group experiencing functional decline and low digital literacy to a view of people with a mix of skills, experiences, and challenges that all come to bear on their technology use [34]. Gender is one factor that can explain differences in technology use and provide insights into how technology could be better designed for older adults. The life course perspective [11], which we used, has been advanced as an alternative to examine how sociodemographic factors (including gender) and individual histories cause people to age differently, and by extension, use technology differently.

Gender, Help Seeking, and Computing Technology

Gender exists largely as a social structure that shapes behaviors and beliefs [29]; that is, a society will have expectations for behaviors, activities and attributes that are considered appropriate for a given gender [35]. Western society has traditionally seen gender as binary ("man", "woman"), immutable, and physiological (based on "externally expressed physical characteristics"), but "the assumption that sex dictates gender […] fails to capture the existence of transgender (trans) people, whose genders do not match their assigned sex" [19].

Our study focuses on how older adults perceive themselves and more generally perceive gender in the context of learning new technologies. In a US-based study published in 2000, older cohorts tended to hold more traditional gender role attitudes than younger cohorts, which could affect attitudes towards help seeking [24]. Traditional men's gender expectations in the US emphasize toughness, emotional stoicism, and self-reliance—characteristics that are challenged in help seeking [16]. Men tend to be more reluctant to ask for help—perhaps due to identification with these gender role expectations—than women across a variety of issues, including mental health and medical needs [18,28,32]. Several studies have also shown that men tend to have greater confidence, greater self-efficacy, and lower anxiety when using computers than women [3,5,8,9]. Gender may also impact older adults' adoption and use of technology today because of differences in access over the life course [20], with studies showing that older women are less likely to use information and communication technologies compared to men [10,20].

Summary

Technology is a highly gendered domain. Thus, gender, and more specifically attitudes towards gender roles, could affect technology-related help seeking, especially for older cohorts who have more traditional views toward gender. Our study addresses this knowledge gap for the first time.

STUDY METHOD

To investigate whether older men seek technology-related help less than older women, we conducted a study in which 36 older adults learned to use two tablet apps.

Participants

Thirty-six community-dwelling older adults (aged 65+) participated. All participants self-identified as either women (N=18) or men (N=18), with none describing their gender in other terms. The average age was 72.5 years (*SD*=5.4). All participants owned a smart device. Twenty-one participants identified as not having any disability according to the Modified Rankin Scale [31]. Twenty-nine participants identified as Caucasian, 21 indicated that they lived with others, and 31 were retired. Participants were recruited through flyers posted in community centers and compensated with $25 USD.

Apparatus

All participants used an iPad (iOS v.12.1.4, 6th generation) provided by the researchers. Participants used Snapseed, a photo-editing app by Google, and Google Keep, a note-taking and to-do list app. We chose these apps because they provide common functionality but are not ubiquitous, and we confirmed that no participant had used either app before.

Procedure

After signing the informed consent form, participants filled out a demographic questionnaire, and the first two of five standardized questionnaires: the Modified Computer Self-Efficacy Scale [21], and The Media and Technology Usage and Attitudes Scale [30] for measuring frequency of technology use. Participants were then informed that they were going to complete tasks using two apps and could ask the researcher for help whenever they needed.

Participants completed nine tasks with Snapseed and seven tasks with Keep. Their hands were video recorded as they interacted with the tablet. Tasks were ordered so that the participant had to explore the interface each time to complete the task (see our supplementary materials for the task list). Participants were invited to ask for help but were not aware that the researchers would offer help if they had not made progress on a task after one minute. The one-minute cutoff was chosen based on piloting with two older adult participants to determine reasonable timings for progressing through each task. The researcher offered help around 5.5 times per task (*SD*=5.2). If the participant accepted help, the researcher demonstrated the next step to complete the task. Often, participants would seek help indirectly, for example, by saying that they did not know what to do next. When this happened, the researcher asked, "Would you like help?" to clarify whether the participant was trying to seek help or was just thinking out loud.

After completing the tasks, participants filled out two additional scales: the Social Roles Questionnaire [2] for measuring attitudes towards gender roles, and the BIDR-16 Impression Management subscale [17] for measuring tendency to perform impression management (i.e., behaviors stemming from the desire to project a certain image of oneself [15]). Finally, a semi-structured interview was conducted to explore how participants usually sought technology-related help and their perceptions of how gender

relates to technology help seeking behavior among their peers. The interview was audio recorded. Average session time was 59 minutes (*SD*=14.0).

Design and Analysis

Our experiment used a single-factor between-subjects design (gender) with two levels (woman, man).

Task Data and Measures

Task measures were extracted from the video data. The primary dependent variable was *total questions*, *i.e.*, the total number of questions a participant asked across all tasks. Secondary dependent variables were: *test duration* (the time to finish all tasks, in minutes), *question rate* (the number of questions asked per minute), and *minutes to first question* (how long it took a participant to ask their first question). We chose *total questions* as an outcome measure based on prior work [26]. We thought time-based measures (*question rate*, *minutes to first question*, and *test duration*) demonstrated willingness to ask for help. To calculate these measures, two researchers independently analyzed the video, noting direct help requests, timestamps, and time to complete each task.

Standardized Questionnaires

Because gender is a complex social construct, we captured related dimensions through the instruments described before. We used the Social Roles Questionnaire [2] to measure *attitudes towards gender roles* (i.e., beliefs that roles and responsibilities are associated with gender in non-dichotomous ways or with particular genders). This questionnaire was developed to overcome dichotomous gender categorizations used in outdated questionnaires. Participants with non-traditional views towards gender roles might seek help differently than those with traditional views.

We were also interested in how *technology use frequency* and *self-efficacy* related to help seeking behavior: people who use technology frequently might ask fewer questions because they are more familiar with it. People with higher technology self-efficacy might feel more confident learning and using a technology independently, so might ask fewer questions. *Impression management* could be associated with help seeking behavior. For example, people who tend to perform impression management might ask fewer questions so as not to appear "incompetent." Descriptive statistics by gender group for questionnaire data are presented in Table 1.

Table 1. Participant demographic and questionnaire data, showing means (and SDs) where applicable. Questionnaire scales are: 10-100 (self-efficacy), 1-10 (tech use), 0-100 (gender role attitudes), and 0-8 (impression management). Higher scores represent greater self-efficacy, tech use, traditional gender role attitudes, and impression management tendencies.

	Women	Men
Age	70.6 (3.8)	74.4 (6.6)
Education	Master's (n=9)	Master's (n=7)
Income	$60,000+(n=8)	$60,000+(n=10)
Technology Self-Efficacy	75.3 (17.2)	74.7 (11.0)
Technology Use	5.7 (2.1)	5.1 (1.0)
Gender Role Attitudes	17.8 (12.9)	21.5 (10.0)
Impression Management	2.8 (2.0)	3.1 (1.6)

Statistical Analyses

We performed single-factor and multiple regression analyses to analyze the different data types that we collected: behavioral and self-report. To measure whether men and women exhibited differences in help seeking behavior, we ran independent samples *t*-tests with the primary independent variable being *gender*, which was participants' gender self-identification with two levels: woman and man (no participants identified as non-binary). As *total questions* was a count response, we used a generalized linear model with a quasi-Poisson distribution. *Test duration* and *minutes to first question* were scalar and lognormally distributed so we log-transformed these variables before running the *t*-tests, a usual practice for time measures [22].

To investigate how gender role attitudes, technology use frequency, technology self-efficacy, and impression management affect help seeking behavior, we specified one linear model for each dependent variable:

$$Y = \beta_0 + \beta_1 G + \beta_2 T + \beta_3 E + \beta_4 I \quad (1)$$

In Eq. 1, Y is the dependent variable, G is gender role attitude, T is technology use, E is self-efficacy, and I is impression management. The β symbols are regression coefficients for the linear model, with β_0 as the intercept.

Finally, since the interviews were semi-structured and responses short, the audio recordings were not transcribed. Instead, the first author listened to the recordings and paraphrased participants' responses to questions. The responses were then grouped and counted.

RESULTS

In this section, we present the results of our study. Specifically, we present our quantitative results for *total questions*, *test duration*, *question rate*, and *minutes to first question*. We also present our qualitative results from our interviews and questionnaires.

Effect of Gender on Help Seeking Behavior

Our single-factor analysis showed a significant difference in how long the two participant groups took to finish the tasks. Women took on average 19.0 minutes to finish all tasks (*SD*=5.4), while men took 24.8 minutes (*SD*=11.2). This difference was statistically significant according to an independent-samples *t*-test ($t(34)=2.04$, $p<.05$). Women also asked questions at a significantly higher rate than men did, at on average 1.0 question per minute (*SD*=0.6) compared to 0.7 questions per minute (*SD*=0.4). This difference was statistically significant according to an independent-samples *t*-test ($t(34)=-2.05$, $p<.05$).

The difference in *total questions* between women (*M*=18.7, *SD*=11.8) and men (*M*=16.0, *SD*=10.6) was not statistically significant ($t(34)=0.73$, *n.s.*). The difference in *minutes to first question* between women (*M*=2.9, *SD*=3.3) and men (*M*=2.6, *SD*=2.4) was also not statistically significant ($t(34)=-0.10$, *n.s.*).

We identified age as a possible covariate that might explain the gender difference in *test duration* and *question rate*. Men in our study were an average of 3.8 years older than women (see Table 1). Older individuals might have taken longer to complete tasks due to declining performance on cognitive tasks [25]. Therefore, we built two additional linear models with *gender* and *age* as predictors to determine whether *age* had a significant effect:

$$T_D = \beta_0 + \beta_1 G_{MW} \times \beta_2 A_Y \quad (2)$$

$$Q_R = \beta_0 + \beta_1 G_{MW} \times \beta_2 A_Y \quad (3)$$

In Eq. 2, T_D is the test duration in minutes, G_{MW} is the gender of the participant (man or woman), and A_Y is the age in years of the participant. In Eq. 3, Q_R is the question rate in questions per minute.

An analysis of variance based on our fitted model in Eq. 2 indicated that *age* had a significant effect on *test duration* ($F(1,32)=6.64$, $p<.05$). By contrast, *gender* ($F(1,32)=1.44$, *n.s.*) and *gender* × *age* did not ($F(1, 32)=1.74$, *n.s.*). Thus, age alone explains the significant difference in test duration for men and women. Older individuals, regardless of gender, took longer to complete the tasks.

An analysis of variance based on our fitted model in Eq. 3 indicated a marginal effect of *gender* on *question rate* ($F(1,32)=3.17$, $p=.084$). Neither *age* ($F(1,32)=0.07$, *n.s.*) nor *gender* × *age* ($F(1,32)=0.22$, *n.s.*) had a significant effect on *question rate*. Thus, age does not appear to be confounding the analysis of gender differences for *question rate*. Men did indeed ask significantly fewer questions per minute compared to women.

The Effects of Gender Role Attitudes and Other Variables on Help Seeking Behavior

An analysis of variance based on the multiple regression models of Eq. 1 showed that *self-efficacy* had a significant effect on *total questions asked* when all other variables were held constant ($\chi^2(1,N=36)=7.36$, $p<.01$). We did a correlation analysis to understand the extent to which *self-efficacy* was correlated with *total questions*. A Spearman's rank correlation analysis indicated a significant moderate negative correlation between participants' self-efficacy scores and the total questions asked while completing tasks ($\rho=-.42$, $p<.05$). So, the lower a participant's technology self-efficacy, the more questions they asked the researcher.

There were no statistically significant effects of *gender role attitudes*, *technology use frequency*, or *impression management* on any of the dependent variables.

Interview Results

In this subsection, we report the results of our interviews, namely participants' descriptions of their help seeking behaviors and their perceptions of gender differences in help seeking and technology use within their age cohort. We chose participant identifiers to reflect participants' gender identities (*e.g.*, W3=Woman 3).

Participants' Help Seeking Behavior

Overcoming technical challenges: There was no gender group difference in the first steps participants would take to overcome technical challenges: eight men and eight women said they would use trial-and-error first, while seven men and seven women said they would ask a family member or friend as their second resort. Participants used trial-and-error before asking for help because it was "*more expedient*" (M33), they "*want to put some effort into it before bothering somebody*" (M4), or they lived alone (M19).

How often participants asked for help: Only two participants said they would not ask another person for technology help. The remaining 17 women and 17 men indicated they would ask for help. There was no gender difference in how often participants indicated they asked for help with computing technology: the most common answer was "not often" that they asked for help (men: n=4; women: n=4).

Participants' Perceptions towards Gender Differences

Perceived gender differences in help seeking: Seventeen participants indicated that they perceived a difference in how men and women in their generation ask for technology help, and this was the most common response to the question, "do you think there is a gender difference in how people in your generation seek technology help?" When asked what the difference was, only 14 participants gave an answer: older men ask for help less or are less likely to ask for help than older women. The three participants who had no response did not know what the difference was.

Several participants mentioned that the stereotype that men are less likely to ask for directions also applies to technology: "*The old expression is that guys don't ask for directions. Is that true? Yeah, probably*" (W6). W7 believed that unwillingness to help was due to gender socialization: "*You know it's a classic joke that men don't ask for directions, they don't read the instruction manuals, it's just part of the socialization around manliness*" (W7). W11 believed that not asking for technology help negatively impacted men's ability to learn: "*Yeah the men don't ask for help. They don't ask for directions either, so I think it's cultural to some degree. Does it impact their ability to learn? I think it impacts their frustration levels, so I would say yes. Negatively*" (W11). M21 believed that stubbornness was part of the reason men are less willing to ask for help: "*There's this thing with men: 'I'm gonna solve it myself', 'I'm not gonna ask for directions.' So, women may be more open to it and men are just more stubborn*" (M21).

A few participants indicated that men are less willing to ask for help due to gender socialization and generational norms: "*I grew up in a time when men would never stop to—my father would never stop to ask for directions. Whereas my mother would be like, 'there's a gas station there, honey, why don't we pull over and ask or see if we can look at a map?' [He would say,] 'Oh, I'll find it'*" (M12). W7 perceived that men were socialized to believe that seeking help was associated with dependence: "*I think men are strongly*

socialized to think that they should be independent and not ask for help" (W7). W10 explained that help seeking signaled weakness for men: "*It's [help seeking is] a sign of weakness, you know, like I can't figure this out myself or having to go to another guy and ask them*" (W10).

However, W13 explained that she identified with masculine help seeking behavior: "*They're [men are] unwilling to show that they don't know. And I think that women are more willing. I'm not, but most women are [laughs]. Why? Not being seen capable is anathema to me. So therefore, if I'm asking for help, I'm not capable*" (W13). Therefore, regardless of gender identity, gender seems to be related to help seeking and technology learning.

DISCUSSION

While participants seemed to be stereotyping men as being reluctant to seek technology help during the interview, this stereotype did not fully emerge in our experiment. Yet, women *did* ask for help at a higher rate than men, at 1.0 question/minute versus 0.7 questions/minute. But individual differences in age and self-efficacy also explained some differences in help seeking behavior: older participants took longer to complete tasks, and those with lower self-efficacy asked more questions overall. Self-efficacy scores were, on average, very close for the two participant groups, and indeed the women's scores were slightly higher. This result might suggest that women asked questions at a higher rate than men, independent of self-efficacy. Interestingly, participants' self-reports of their own help seeking behavior aligned with our experimental results: there were no gender differences between men and women in whether to ask another person for technology help (they would), how often to ask for help ("not often"), or how to overcome technical challenges (trial-and-error first, then ask someone they know for help). However, preference for trial-and-error relates to *minutes to first question*, which can explain that participants asked for help around 2.8 minutes into the tasks.

A critical finding is the relationship between self-efficacy and help seeking behavior: lower confidence and perceived ability could lead an individual to seek help, even if they do not need it. In our study, low frequency of technology use did not significantly predict participants' number of questions. Thus, researchers should avoid stereotyping older adults as having low digital literacy based on help seeking behavior because this is likely related to self-confidence rather than actual familiarity with technology [12,13,14].

Although there was only a minor difference in help seeking behavior between men and women (i.e., only on question rate in our study), older adults conceptualized aspects of technology use through a gendered lens. Therefore, gender was important in how participants perceived their own and others' use of technology. Stereotypes inform how individuals, including researchers, organize reality. This study suggests that although these stereotypes exist (e.g., that men are reluctant to seek help, that older adults have low digital literacy), they might not be grounded in measurable behavior. In other words, gender does impact help-seeking (in terms of question rate), but not as much as older adults in the study believed. As a result, we encourage HCI researchers studying older adults to use mixed methods to compare perceptions and measurable behaviors related to technology use, adoption, and learning. Perceptions and behaviors might not always align.

While social research shows common differences between perceptions (how we see the world) and actions (how we act) [1], differences between gender-based perceptions and actions might also relate to this cohort's life course trajectories, particularly in terms of more traditional assumptions and practices around gender. Additionally, we can hypothesize that since older adults were not socialized with digital technology, gender might not emerge as a substantial predictive factor in how they learn and use these technologies. These are some tentative hypotheses that would have to be properly investigated in future research.

LIMITATIONS

This research applies to a US, Western cultural context and we would expect to see differences in other contexts. Our study treated gender as a binary factor for analysis because all participants identified as either a man or a woman in response to an open-ended question about gender. The combination of demographics in our study (Caucasian, highly educated, high income, smart device owners) is non-representative of many older adults living in North America. All participants already owned a smart device, yet research suggests that when older adults adopt technology, gender differences are less pronounced [4,34], suggesting that there could be a gender difference with older adults who are non-adopters. A statistical power analysis [7] suggests that gender had a medium effect size (Cohen's d>0.5) for all dependent variables in the single-factor analysis. Therefore, 33 participants would be sufficient to detect a significant medium effect (d=0.5) with a power of 0.80. As we had 36 participants, we are confident that we would have seen an effect had one been present within the single-factor analysis. However, our sample size was only sufficient to include four independent variables in our multiple regression analysis, which means that we were not able to detect potentially subtle effects related to gender in that analysis.

CONCLUSION

This study suggests that there are differences in how older men and women seek help when learning new technology, but not as much as older adults in this study believed. Although many older adults stereotyped older men as being less willing to ask for technology-related help, age, self-efficacy, and gender all appeared to play some role, even if the effect of gender on help seeking behavior is minor. Researchers should avoid stereotyping older adults' technology use, even if older adults stereotype themselves. It is our hope that this research will challenge the stereotypes that men are reluctant to seek help when using new technologies or that all older adults have low digital literacy.

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REFERENCES

[1] Jeffrey C. Alexander. 2003. *The Meanings of Social Life: A Cultural Sociology*. New York: Oxford University Press.

[2] Kristine M. Baber and Corinna Jenkins Tucker. 2006. The social roles questionnaire: A new approach to measuring attitudes toward gender. *Sex Roles 54* (7–8), 459–467. DOI: 10.1007/s11199-006-9018-y

[3] Laura Beckwith, Margaret Burnett, Valentina Grigoreanu, and Susan Wiedenbeck. 2006. Gender HCI: What about the software? *Computer 39* (11), 97–101. DOI: 10.1109/MC.2006.382

[4] Namkee G. Choi and Diana M. Dinitto. 2013. Internet use among older adults: Association with health needs, psychological capital, and social capital. *Journal of Medical Internet Research 15* (5), 1–27. DOI: 10.2196/jmir.2333

[5] Siew Lian Chua, Der Thanq Chen, and Angela F. L. Wong. 1999. Computer anxiety and its correlates: A meta-analysis. *Computers in Human Behavior 15* (5), 609–623. DOI: 10.1016/S0747-5632(99)00039-4

[6] Teresa Ciabattari. 2001. Changes in men's conservative gender ideologies: Cohort and period influences. *Gender & Society 15* (4), 574–591. DOI: 10.1177/089124301015004005

[7] Jacob Cohen. 1988. *Statistical Power Analysis for the Behavioral Sciences*. New York: Routledge. DOI: 10.4324/9780203771587

[8] Anne M. Colley, Matthew T. Gale, and Teri A. Harris. 1994. Effects of gender role identity and experience on computer attitude components. *Journal of Educational Computing Research 10* (2), 129–137. DOI: doi.org/10.2190/8NA7-DAEY-GM8P-EUN5

[9] Joel Cooper. 2006. The digital divide: The special case of gender. *Journal of Computer Assisted Learning 22* (5), 320–334. DOI: 10.1111/j.1365-2729.2006.00185.x

[10] Alexander J.A.M. van Deursen and Ellen J. Helsper. 2015. A nuanced understanding of Internet use and non-use among the elderly. *European Journal of Communication 30* (2), 171–187. DOI: 10.1177/0267323115578059

[11] Glen H. Elder Jr. and Richard C. Rockwell. 1979. The life-course and human development: An ecological perspective. *International Journal of Behavioral Development 2* (1), 1–21. DOI: 10.1177/016502547900200101

[12] Rachel L. Franz, Ron Baecker, and Khai N. Truong. 2018. "I knew that, I was just testing you": Understanding older adults' impression management tactics during usability studies. *ACM Transactions on Accessible Computing 11* (3), 1-23. DOI: 10.1145/3226115

[13] Rachel L. Franz and Barbara Barbosa Neves. 2019. Usability is ageless: Conducting usability tests with older adults. In Barbara Barbosa Neves and Frank Vetere (eds.), *Ageing and Digital Technology: Designing and Evaluating Emerging Technologies for Older Adults*. Singapore: Springer. DOI: 10.1007/978-981-13-3693-5

[14] Rachel L. Franz, Barbara Barbosa Neves, Carrie Demmans Epp, Ron Baecker, and Jacob O. Wobbrock. 2019. Why and How Think-Alouds with Frail Older Adults Fail: Recommendations from a Study and Expert Interviews. In Sergio Sayago (ed.), *Perspectives on Human-Computer Interaction Research With Older People*. Springer. DOI: 10.1007/978-3-030-06076-3

[15] Erving Goffman. 1959. *The Presentation of Self in Everyday Life*. New York: Anchor Books. ISBN: 978-0-14-013571-8

[16] Nancy Gourash. 1978. Help-seeking: A review of the literature. *American Journal of Community Psychology 6* (5), 413–423. DOI: 10.1007/BF00941418

[17] Claire M. Hart, Timothy D. Ritchie, Erica G. Hepper, and Jochen E. Gebauer. 2015. The Balanced Inventory of Desirable Responding Short Form (BIDR-16). *SAGE Open 5* (4). DOI: 10.1177/2158244015621113

[18] Baqar A. Husaini, Stephen T. Moore, and Van A. Cain. 1994. Psychiatric symptoms and help-seeking behavior among the elderly: An analysis of racial and gender differences. *Journal of Gerontological Social Work 21* (3–4), 177–196. DOI: 10.1300/J083V21N03_12

[19] Os Keyes. 2018. The Misgendering Machines: Trans/HCI Implications of Automatic Gender Recognition. *Proceedings of the ACM on Human-Computer Interaction - CSCW* (2), 1–22. DOI: 10.1145/3274357

[20] Jeehoon Kim, Hee Yun Lee, M. Candace Christensen, and Joseph R. Merighi. 2017. Technology access and use, and their associations with social engagement among older adults: Do women and men differ? *Journals of Gerontology - Series B Psychological Sciences and Social Sciences 72* (5), 836–845. DOI: 10.1093/geronb/gbw123

[21] Kate Laver, Stacey George, Julie Ratcliffe, and Maria Crotty. 2012. Measuring technology self efficacy: Reliability and construct validity of a modified computer self efficacy scale in a clinical rehabilitation setting. *Disability and Rehabilitation 34* (3), 220–227. DOI: 10.3109/09638288.2011.593682

[22] Eckhard Limpert, Werner A Stahel, and Markus Abbt. 2001. Log-normal distributions across the sciences: Keys and clues. *BioScience 51* (5), 341–352. DOI: 10.1641/0006-3568(2001)051[0341:LNDATS]2.0.CO;2

[23] Linda L. Lindsey. 2005. *Gender Roles: A Sociological Perspective*. New Jersey: Prentice Hall.

[24] Patricia Passuth Lynott and N. Jane McCandless. 2000. The impact of age vs. life experience on the gender role attitudes of women in different cohorts. *Journal of Women & Aging 12* (1–2), 5–21. DOI: 10.1300/J074v12n01_02

[25] Daniel L. Murman. 2015. The impact of age on cognition. *Seminars in Hearing 36* (3), 111–121. DOI: 10.1055/s-0035-1555115

[26] Sharon Nelson-Le Gall. 1985. Help-seeking behavior in learning. *Review of Research in Education 12*. 55–90. DOI: 10.2307/1167146

[27] Amy Ogan, Erin Walker, Ryan Baker, Maria Mercedes T. Rodrigo, Jose Carlo Soriano, and Maynor Jimenez Castro. 2015. Towards understanding how to assess help-seeking behavior across cultures. *International Journal of Artificial Intelligence in Education 25* (2), 229–248. DOI: 10.1007/s40593-014-0034-8

[28] Christine A. Padesky and Constance L. Hammen. 1981. Sex differences in depressive symptom expression and help-seeking among college students. *Sex Roles 7* (3), 309–320. DOI: 10.1007/BF00287545

[29] Barbara J. Risman and Georgiann Davis. 2013. From sex roles to gender structure. *Current Sociology 61* (5–6), 733–755. DOI: 10.1177/0011392113479315

[30] L.D. Rosen, K. Whaling, L.M. Carrier, N.A. Cheever, and J. Rokkum. 2013. The media and technology usage and attitudes scale: An empirical investigation. *Computers in Human Behavior 29* (6), 2501–2511. DOI: 10.1016/j.chb.2013.06.006

[31] J.C. van Swieten, P.J. Koudstaal, M.C. Visser, H.J.A. Schouten, and J. van Gijn. 1988. Interobserver agreement for the assessment of handicap in stroke patients. *Stroke 19* (5), 604–607.

[32] Fred Tudiver and Yves Talbot. 1999. Why don't men seek help? Family physicians' perspectives on help-seeking behavior in men. *The Journal of Family Practice 48* (1), 47–52.

[33] John Vines, Gary Pritchard, Peter Wright, Patrick Olivier, and Katie Brittain. 2015. An age-old problem: Examining the discourses of ageing in HCI and strategies for future research. *ACM Transactions on Computer-Human Interaction (TOCHI) 22* (1), 1–27. DOI: 10.1145/2696867

[34] Kerryellen G. Vroman, Sajay Arthanat, and Catherine Lysack. 2015. "Who over 65 is online?" Older adults' dispositions toward information communication technology. *Computers in Human Behavior 43.* 156–166. DOI: 10.1016/j.chb.2014.10.018

[35] Candace West and Don H. Zimmerman. 1987. Doing Gender. *Gender 1* (2), 125–151. DOI: 10.1177/0891243287001002002

[36] World Health Organization. 2014. Gender, women and health: What do we mean by "sex" and "gender." *Geneva (CH): WHO*. https://www.who.int/gender-equity-rights/en/