



Communication Challenges Reported by UX Designers on Social Media: An Analysis of Subreddit Discussions

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ABSTRACT

The rise of UX design as a profession has been marked by an influx of new practitioners and an increase in dedicated educational programs. Despite research focusing on UX methods and practices, less attention has been paid to the real-world challenges faced by design professionals. Even less attention has been given to communication challenges in design practice. This study analyzes communication challenges in UX design by analyzing posts from two subreddits: r/userexperience and r/UXDesign. Key findings highlight prevalent issues such as misalignment of expectations with stakeholders, difficulties in idea conveyance, and complexities in negotiation and collaboration within teams. The research echoes previous findings on the critical role of effective communication in design practice and suggests a gap in UX education concerning real-world communication challenges.

CCS CONCEPTS

- **Human-centered computing** → *Empirical studies in HCI; HCI theory, concepts and models.*

KEYWORDS

Design practice, UX design, design complexity, Reddit analysis

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1 INTRODUCTION

In recent years, designers have been receiving increased recognition within teams, paralleled by a growth in their responsibilities [39]. Their role extends far beyond just ‘designing a thing’ [47].

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UX designers, as vital team members, are increasingly tasked with guiding companies in envisioning their future products and contributing to decisions about ‘the right thing to design’ [47]. In this context, the success of a UX designer is not dependent only on their ability to tackle design problems, but also hinges on factors like communication, collaboration, and negotiation with various teams and stakeholders [39, 40, 54, 55]. Such inter-team interaction introduces additional complexities and challenges to their role. While past design research has investigated the complexities arising in design situations and designerly ways of approaching them [41, 45], not much attention has been given to the challenges designers face in communicating and negotiating their work with various stakeholders (see [15, 30, 40, 43] for some notable exceptions).

In this late-breaking work, we investigate how UX practitioners perceive and confront communication complexities in their everyday professional practice. As a starting point, we have analyzed the top 1000 posts from two subreddits, r/userexperience and r/UXDesign, each boasting a membership of over 110,000 people. We specifically focus on posts where practitioners share communication challenges with stakeholders. We highlight the communication challenges, which include the misalignment of expectations between designers and stakeholders, the miscommunication of ideas and requirements, and issues in negotiating and prioritizing team goals.

2 BACKGROUND

2.1 Design Complexity

Design is widely recognized to be challenging and complex—for example, design situations are typically characterized by uncertainty, ambiguity, constraints, openness, dynamism, interdependence, and uniqueness [8, 38, 41]. Furthermore, design problems typically have no definitive solutions and no stopping rule [38]; they are interconnected and dynamic [8]; they exhibit figural complexity, where changes in one element can change the whole design proposal [46]; they are often fundamentally unique [41]; they are often underspecified at the outset, and the problem specification evolves with the solution generation [9]; and, for the above reasons and more, there is no way to completely predict the outcomes of design processes [46]. In addition to the nature of design problems per se, the contemporary settings in which design is professionally practiced present further sources of complexity—e.g., managing multiple

projects, negotiating with clients, managing organizational constraints and pressures, dealing with potentially infinite sources of information, and handling conflicting or changing goals [35, 45].

2.2 Complexity Relating to Organization and Communication

Studies in organizational psychology and communication have highlighted communication challenges that professionals frequently encounter in their daily work environments [1, 2, 44]. Effective communication is critical for team success, and miscommunication can lead to significant challenges in professional settings [1, 3, 29]. Brewer and Holmes [5] highlight how miscommunication can result in poor performance, hurt feelings, and decreased motivation to engage in future tasks. Furthermore, citing [19, 21, 27] Brewer and Holmes [5] discussed the reasons for such miscommunication, highlighting that it can arise from different ‘worldviews,’ the use of equivocal language, varying interpretations of meaning and context, as well as visual ambiguities. Klunder et al. [23] pointed out that project success could be jeopardized due to insufficient information flow, with social conflict being one of the reasons. Furthermore, they demonstrated a correlation between factors such as social conflict, moods, and the choice of communication channel. Additionally, studies [2, 4] have highlighted that communication challenges are particularly pronounced in internationally dispersed and virtual teams, which require different communication media compared to traditional face-to-face interactions. Siakas et. al [44] attributed these challenges to time zone differences, different cultural impediments, and lack of informal communication.

3 PRACTICE-FOCUSED RESEARCH

Several HCI scholars have emphasized the need for practice-focused inquiry if research is to effectively influence design practice [14, 18, 26, 45]. Much of the existing literature has focused on designerly ways of confronting the complexity inherent in design problems, including what methods and processes practitioners use [18, 36, 50], how they frame design problems [8, 24], make judgments [17, 34, 37], and generate creative ideas [7, 9], among other topics relating to design as a distinct profession with its own epistemological commitments [35, 41]. Other sources of complexity, relating more to professional situations than to design problems per se, have not received as much focus. For instance, issues pertaining to communication, collaboration, presentation, and persuasion and negotiation with the stakeholders are less studied (see [11, 15, 20, 30] for some relevant examples). MacDonald et al. [30], in a segment of a larger study on UX practices, examined the communication practices of 60 UX designers, dedicating a portion of each interview to explore their communication goals and methods. While this study shed light on designers’ communication practices, it didn’t specifically focus on the communication challenges faced by UX practitioners.

In this study, we aim to answer the following research question:

- What are UX practitioners’ perceptions of communication challenges in their daily professional practice?

While there are strong theoretical descriptions of design complexity (e.g., [35, 41]), empirical accounts are not as comprehensive. One such starting point for this exploration is the analysis of social

media platforms, where UX practitioners actively share their concerns and challenges within a community of peers. Previous scholarship has used Reddit, in particular, to examine the perspectives of design practitioners on various topics, largely oriented towards ethics [16, 25]. In our study, we analyze posts from subreddits to gain initial insights into the numerous communication-related challenges in design practice. Subreddit posts offer a way for extended discussions on specific topics, allowing users to engage in in-depth conversations. Additionally, they enable participants to endorse others’ perspectives by upvoting their posts or comments. This paper presents the preliminary results of our study, highlighting the perceived challenges that practitioners face due to communication issues.

4 METHOD

We conducted a content analysis of the *r/userexperience* and *r/UXDesign* subreddits to foreground and characterize the ways UX practitioners perceive and engage with complexities related to communication in their everyday practice. We selected these two subreddits because they are the top two communities dedicated to UX Design, each boasting memberships exceeding 110K. We began the study by joining the *r/userexperience* and *r/UXDesign* subreddits to situate and sensitize ourselves to the conversations within those communities.

We approach this study as exploratory, laying groundwork for a larger study that can more deeply investigate the types and nature of complexities encountered in everyday practice. Our objective for conducting this study is to investigate communication related complexities designers face in practice, using their own words as a lens to capture their frustrations, pain points, and other real-world ‘messiness’ they encounter navigating this complexity. While other methods allow for richer data collection from a smaller set of participants, social media analysis can provide a wider range of perspectives that serve an exploratory agenda well.

4.1 Data Collection

We collected data via the Reddit API, using the PRAW library. Our data collection focused on the *r/userexperience* and *r/UXDesign* subreddits from September 2018 to September 2023. We collected the top 1000 posts from each subreddit, based on upvotes, totaling 2000 posts. We then selected the 500 posts with the most comments, totalling 1000 posts. We focused on posts with high upvotes and comments, as they represent instances of shared concerns and interests within these communities. Through this approach, we collected a total of 1000 posts and 43598 comments. Next, we stored these datasets in a database in preparation for data analysis. We focused our analysis on only posts discussing communication-related challenges designers face in their practice. These included challenges in effectively sharing information and achieving a shared understanding among designers and other stakeholders. This narrowing left us with 71 posts and 3468 comments.

4.2 Data Analysis

We employed hybrid thematic analysis [12], blending both inductive coding derived from the data and a deductive, top-down approach informed by existing literature [30] on communication challenges.

This process involved three researchers conducting independent analyses and engaging in regular discussions to refine and agree upon the final coding structure.

Three PhD students participated in this analysis process, supervised by the Principal Investigator. All the students have received graduate coursework in qualitative research and have significant experience participating in qualitative and content analysis research projects. Above all, our interest in supporting designers in their professional practice motivated us to conduct this research. We endeavored to follow the best practices to ensure rigor and trustworthiness, including sensitizing ourselves to the dataset and using open coding and reflexive interpretation of our codebook and research data to draw the insights we report in this study.

5 FINDINGS

Our analysis revealed that designers frequently face diverse communication challenges in their daily practice. These challenges range from misaligned expectations between designers and stakeholders to difficulties in conveying ideas and requirements, exercising judiciousness in communication, and complexities in negotiating and persuading stakeholders.

5.1 Misalignment of Stakeholder and Designer Expectations

Misalignment of expectations between designers and stakeholders is one of the important themes we identified in our analysis. These misalignments manifest in different dimensions, including conflicts around prioritizing usage metrics over user experience, dilemmas over focusing on business objectives versus fostering ethical outcomes, and misunderstandings about the designer's role within the organization, among other areas of misalignment. A sample quote R7 captures this conflict between business goals and ethical principles: *"It doesn't matter what you're doing, it all comes back to the business goals. So many designers get hung up on artistic integrity or whatever and never comprehend that they're doing what they do to sell more widgets."* - 51 upvotes. The emotional toll of advocating for users is discussed in R11, where one comment suggests a change in approach: *"Yes, it is exhausting. What I think helps is to start talking to stakeholders from the perspective of what they care about [...] I talk about metrics: engagement metrics, retention metrics, conversion metrics, workflow efficiency, and so on. This is all they care about."* - 54 upvotes. Another angle is the problematic focus on process over substance, as one comment with 66 upvotes indicates: *"Process flows and step-by-step methodologies are overly relied upon."* R26 brings up the performative nature of UX processes in some organizations: *"UX processes in many organizations these days amount to little more than UX theater, creating the appearance of due diligence and a patina of legitimacy that's just enough to look like a robust design process."* - 195 upvotes. The confusion about what UX actually entails is highlighted in R38: *"Companies hear the 'UX' buzzword and think 'Oh, we should get one of those!' but have no idea what that UX person will come in expecting [...] because most companies just think it's a fancy way of saying graphic designer."* - 33 upvotes.

5.2 Non-communication, Miscommunication and Unsolicited Communication

Effective communication is vital in several aspects of the design field. Whether it is conveying ideas to team members or clients, defending design choices, or presenting oneself in interviews or design reviews, the ability to articulate clearly is a challenge designers may struggle to navigate. One comment from R1 exemplifies the repression of not being able to communicate, stating, *"If you can't communicate your idea or stand your ground, you won't go far and will always struggle."* - 12 upvotes. To that another commenter responds: *"Here's my experience: Communicate; Over Communicate; Read 'How to Win Friends and Influence People'; Manage perception and expectations."* - 28 upvotes. Further, a comment from R6 emphasizes the critical aspect of clear communication with stakeholders: *"Making sure the developers can understand your spec. So many designers just want to wrap it up and move to the next project, so rush the hand-off and then moan when the devs didn't dev it as they wished."* - 54 upvotes. Finally, in some cases designers have to listen to uninvited advice, as noted by a commenter on R16: *"everyone at a company thinks they are a designer, so you'll get unsolicited feedback from everyone, from your developer teammates to your CEO. Learning when to listen to people and when to ignore them is a valuable skill"* - 41 upvotes.

5.3 Persuasion, Negotiation and Collaboration with Stakeholders

Convincing the team members and stakeholders and having them on board is one of the major challenges that was discussed on the subreddits. On a post by R1, a comment gets straight to the point: *"90% of the work is selling other people on the work you plan to do, or have already done."* - 44 upvotes. This highlights how pivotal persuasion is in the field. The same commenter adds, *"100% of working with clients is making your great idea seem like theirs."* - 44 upvotes, emphasizing the necessity of subtle manipulation in client interactions. From R10 comes a cautionary tale: *"Biggest failures: inability to articulate my decisions and sell them to the primary stakeholder. Derailed the entire project. Lesson learned."* - 89 upvotes. This comment drives home the point that being persuasive is not a supplementary skill but an essential one. A researcher in another comment points out the dual nature of their role: *"As a researcher, only half of my job is research. The other half is convincing my team to do something based on my research, or explaining to them why I'm NOT going to research particular topics because it's not needed or we already have similar findings."* - 16 upvotes. This showcases how persuasion can be critical even in research-focused roles. A contributor in R36 discusses the role of prototypes in negotiation: *"A prototype is worth a thousand meetings. Hell yes. I'm overly tired of speaking designer to people who only speak developer. Visuals help discussion."* - 36 upvotes. The comment highlights how tangible assets can aid in negotiating design ideas, especially across different skill sets. In a conversation about survival skills in UX design (R2), one comment notes, *"Knowing how to talk to and collaborate with developers is a very important skill."* - 65 upvotes. Another adds, *"Great designers aren't the ones that create the best designs; they are the ones that can sell the best designs to the rest of the team after taking into account all the restraints."* - 35 upvotes. These insights call

attention to the interplay of persuasion and collaboration. Finally, from P37, two comments zero in on the struggle designers face when dealing with higher-ups. One argues, “*It’s not designers or developers wanting to add those things in, it’s from marketing or higher-ups [...] wanting to increase lead/ad money so insist on jamming more in.*” - 161 upvotes. Another adds, “*This is a result of UX not pushing back with research... It is a UX professional’s job to show them why something needs to be slimmed down.*” - 78 upvotes.

6 DISCUSSION

In our preliminary findings, we observed practitioners on subreddits discussing a broad range of challenges relating to misalignment of expectations, non-communication, miscommunication, unsolicited communication, persuasion, negotiation, and collaboration with stakeholders. Some of these challenges echo previous discussions and research. For instance, Mironov [32] highlights how each team views things from their unique lens, influenced by their specific wants and needs, and has different expectations about the product. Similarly, Gray [15] noted the importance of designers’ persuasion skills. Further, MacDonald et al. [30] highlight alignment, persuasion, and collaboration as three of the five commonly cited communication goals practitioners shared, with the other two being feedback and peer review, and sharing research insights. Our findings, however, reveal that practitioners face challenges in executing these three communication goals.

6.1 Implications for Design Education

UX education programs are nowadays adapting to align more closely with industry practices. This includes the introduction of socially relevant projects [42], the inclusion of client-based projects [49], and the mixing of design and development courses [33], among others. In their exploration of communication goals and strategies, MacDonald et al. [30] advocated for incorporating elements of agile development into education to bolster students’ proficiency in communication. Reflecting on our findings and the prevalent focus in subreddit dialogues on challenges in communication, including alignment, persuasion, and collaboration, we propose the development of educational scenarios that not only cover the fundamentals of communication but also emphasize the management of specific issues such as miscommunication, negotiation, and collaboration. This additional focus is important, considering the varying levels of difficulty associated with mastering different communication objectives.

6.2 Strategic Communication in Design Practice

Our analysis reveals that one major issue is the misalignment of designers’ and stakeholders’ expectations, leading to a failure in developing a shared mental model, which is essential for team success [6, 22, 31]. Researchers have noted clear communication to be key for the development of shared mental models [28]. However, clarity in communication may not be a one-stop solution in design practice. Some studies, including [10, 13, 48, 51], argue that ambiguity might be useful for fostering creativity. We can take inspiration from Eisenberg’s [10] concept of strategic ambiguity and deliberately use it when it serves a purpose in design practice, e.g., during early stage brainstorming sessions. We argue for strategically creating a

balance between ambiguity and clear communication depending on the stakeholders and the stages of the design process. Another facet of strategic communication and negotiation, as described by Wong [53], is referred to as ‘soft resistance’, which can serve as a tactic to subtly change existing practices and structures towards more values-conscious ends and shaping organizational practices (see also the types of tensions designers grapple with in enacting their personal design philosophies in practice [52]). In conclusion, the balance between clear communication and strategic ambiguity, complemented by ‘soft resistance’, illustrates the complex dynamics of design practice communication.

7 LIMITATIONS

This study’s reliance on UX-specific subreddit data presents limitations, as it reflects only the self-reported perspectives of UX practitioners. The anonymity and format of Reddit may encourage open sharing of challenges, yet there is no assurance that all contributors are genuine UX designers. Also, sourcing data exclusively from Reddit might not offer a comprehensive view. The study’s geographical representation is limited, as practitioners from regions where Reddit is less prevalent are not included. Additionally, by focusing on the top 1000 posts from two UX-related subreddits, we may have overlooked less popular but relevant challenges that received fewer upvotes or comments.

8 CONCLUSION

In conclusion, our study highlights the multifaceted communication challenges faced by UX designers as reported on two prominent subreddits. Designers often grapple with misaligned expectations between themselves and stakeholders. These misalignments manifest in various ways, including some that put business goals and designer values into conflict. Additionally, challenges in effectively communicating ideas, managing unsolicited feedback, and the critical need for persuasion, negotiation, and collaboration skills were selected as significant themes. Our findings not only mirror previous research on team dynamics and the role of communication in design practice, but also emphasize the complexity of executing effective communication strategies. We highlight the importance of UX educational programs closely aligning with current communication-related practices in the industry, and advocate for educational scenarios that go beyond basic communication principles, focusing on managing specific issues like miscommunication, negotiation, and collaboration.

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REFERENCES

- [1] Mohammad Alsharo, Dawn Gregg, and Ronald Ramirez. 2017. Virtual team effectiveness: The role of knowledge sharing and trust. *Information & Management* 54, 4 (June 2017), 479–490. <https://doi.org/10.1016/j.im.2016.10.005>
- [2] Yehia Alzoubi and Asif Gill. 2021. The Critical Communication Challenges Between Geographically Distributed Agile Development Teams: Empirical Findings. *IEEE Transactions on Professional Communication* 64, 4 (Dec. 2021), 322–337. <https://doi.org/10.1109/TPC.2021.3110396>
- [3] Linda Argote and Paul Ingram. 2000. Knowledge Transfer: A Basis for Competitive Advantage in Firms. *Organizational Behavior and Human Decision Processes* 82, 1 (May 2000), 150–169. <https://doi.org/10.1006/obhd.2000.2893>

[4] Torbjørn Bjorvatn and Andreas Wald. 2019. Complexity as a Driver of Media Choice: A Comparative Study of Domestic and International Teams. *International Journal of Business Communication* (Sept. 2019), 232948841987436. <https://doi.org/10.1177/232948841987436>

[5] Edward C. Brewer and Terence L. Holmes. 2016. Better Communication = Better Teams: A Communication Exercise to Improve Team Performance. *IEEE Transactions on Professional Communication* 59, 3 (Sept. 2016), 288–298. <https://doi.org/10.1109/TPC.2016.2590018>

[6] J. A. Cannon-Bowers, E. Salas, and S. Converse. 1993. Shared mental models in expert team decision making. *Lawrence Erlbaum Associates, Inc.* In N. J. Castellan, Jr. (Ed.), *Individual and group decision making: Current issues* (1993), (pp. 221–246).

[7] Nathan Crilly. 2019. Creativity and fixation in the real world: A literature review of case study research. *Design Studies* 64 (Sept. 2019), 154–168. <https://doi.org/10.1016/j.destud.2019.07.002>

[8] Kees Dorst. 2015. *Frame innovation: create new thinking by design*. The MIT Press, Cambridge, Massachusetts.

[9] Kees Dorst and Nigel Cross. 2001. Creativity in the design process: co-evolution of problem–solution. *Design Studies* 22, 5 (Sept. 2001), 425–437. [https://doi.org/10.1016/S0142-694X\(01\)00009-6](https://doi.org/10.1016/S0142-694X(01)00009-6)

[10] Eric M. Eisenberg. 1984. Ambiguity as strategy in organizational communication. *Communication Monographs* 51, 3 (Sept. 1984), 227–242. <https://doi.org/10.1080/03637758409390197>

[11] K. J. Kevin Feng, Tony W Li, and Amy X. Zhang. 2023. Understanding Collaborative Practices and Tools of Professional UX Practitioners in Software Organizations. In *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*. ACM, Hamburg Germany, 1–20. <https://doi.org/10.1145/3544548.3581273>

[12] Jennifer Fereday and Eimear Muir-Cochrane. 2006. Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. *International Journal of Qualitative Methods* 5, 1 (March 2006), 80–92. <https://doi.org/10.1177/160940690600500107> Publisher: SAGE Publications Inc.

[13] William W Gaver, Jacob Beaver, and Steve Benford. 2003. Ambiguity as a Resource for Design. *NEW HORIZONS* 5 (2003).

[14] Elizabeth Goodman, Erik Stolterman, and Ron Wakkary. 2011. Understanding interaction design practices. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Vancouver BC Canada, 1061–1070. <https://doi.org/10.1145/1978942.1979100>

[15] Colin M. Gray. 2016. "It's More of a Mindset Than a Method": UX Practitioners' Conception of Design Methods. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems*. ACM, San Jose California USA, 4044–4055. <https://doi.org/10.1145/2858036.2858410>

[16] Colin M. Gray, Shruthi Sai Chivukula, and Ahreum Lee. 2020. What Kind of Work Do "Asshole Designers" Create? Describing Properties of Ethical Concern on Reddit. In *Proceedings of the 2020 ACM Designing Interactive Systems Conference*. ACM, Eindhoven Netherlands, 61–73. <https://doi.org/10.1145/3357236.3395486>

[17] Colin M. Gray, Cesur Dagli, Muruvvet Demirali-Uzan, Funda Ergulc, Verily Tan, Abdullah A. Altuwairji, Khendum Gyabak, Megan Hilligoss, Remzi Kizilboga, Kei Tomita, and Elizabeth Boling. 2015. Judgment and Instructional Design: How ID Practitioners Work In Practice. *Performance Improvement Quarterly* 28, 3 (2015), 25–49. <https://doi.org/10.1002/piq.21198> _eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/piq.21198>

[18] Colin M. Gray, Erik Stolterman, and Martin A. Siegel. 2014. Reprioritizing the relationship between HCI research and practice: bubble-up and trickle-down effects. In *Proceedings of the 2014 conference on Designing interactive systems*. ACM, Vancouver BC Canada, 725–734. <https://doi.org/10.1145/2598510.2598595>

[19] Sarah L. Haywood, Martin J. Pickering, and Holly P. Branigan. 2005. Do Speakers Avoid Ambiguities During Dialogue? *Psychological Science* 16, 5 (May 2005), 362–366. <https://doi.org/10.1111/j.0956-7976.2005.01541.x>

[20] Yavuz Inal, Torkil Clemmensen, Dorina Rajanen, Netta Iivari, Kerem Rizvanoglu, and Ashok Sivaji. 2020. Positive Developments but Challenges Still Ahead: A Survey Study on UX Professionals' Work Practices. 15, 4 (2020).

[21] Karol Janicki. 2002. A hindrance to communication: the use of difficult and incomprehensible language. *International Journal of Applied Linguistics* 12, 2 (2002), 194–217. <https://doi.org/10.1111/1473-4192.00031> _eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1111/1473-4192.00031>

[22] Deanna M. Kennedy and Sara A. McComb. 2010. Merging internal and external processes: examining the mental model convergence process through team communication. *Theoretical Issues in Ergonomics Science* 11, 4 (July 2010), 340–358. <https://doi.org/10.1080/14639221003729193>

[23] Jil Klündter, Kurt Schneider, Fabian Kortum, Julia Straube, Lisa Handke, and Simone Kauffeld. 2016. Communication in Teams - An Expression of Social Conflicts. In *Human-Centered and Error-Resilient Systems Development*. Cristian Bogdan, Jan Gulliksen, Stefan Sauer, Peter Forbrig, Marco Winckler, Chris Johnson, Philippe Palanque, Regina Bernhaupt, and Filip Kis (Eds.). Vol. 9856. Springer International Publishing, Cham, 111–129. https://doi.org/10.1007/978-3-319-44902-9_8 Series Title: Lecture Notes in Computer Science.

[24] Jon Kolko. 2010. Sensemaking and Framing: A Theoretical Reflection on Perspective in Design Synthesis. (2010).

[25] Yubo Kou, Colin M. Gray, Austin L. Toombs, and Robin S. Adams. 2018. Understanding Social Roles in an Online Community of Volatile Practice: A Study of User Experience Practitioners on Reddit. *ACM Transactions on Social Computing* 1, 4 (Dec. 2018), 1–22. <https://doi.org/10.1145/3283827>

[26] Kari Kuutti and Liam J. Bannon. 2014. The turn to practice in HCI: towards a research agenda. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. ACM, Toronto Ontario Canada, 3543–3552. <https://doi.org/10.1145/2556288.2557111>

[27] Gregory S Larson. 2003. A "Worldview" of Disaster: Organizational Sensemaking in a Wildland Firefighting Tragedy. *National Emergency Training Center*. (2003).

[28] Lauri L. Levesque, Jeanne M. Wilson, and Douglas R. Whaley. 2001. Cognitive divergence and shared mental models in software development project teams. *Journal of Organizational Behavior* 22, 2 (2001), 135–144. <https://doi.org/10.1002/job.87> _eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.1002/job.87>

[29] Frank Lindner and Andreas Wald. 2011. Success factors of knowledge management in temporary organizations. *International Journal of Project Management* 29, 7 (Oct. 2011), 877–888. <https://doi.org/10.1016/j.ijproman.2010.09.003>

[30] Craig M. MacDonald, Emma J. Rose, and Cynthia Putnam. 2022. How, Why, and with Whom Do User Experience (UX) Practitioners Communicate? Implications for HCI Education. *International Journal of Human–Computer Interaction* 38, 15 (Sept. 2022), 1422–1439. <https://doi.org/10.1080/10447318.2021.2002050>

[31] John E Mathieu, Gerald F Goodwin, and Tonia S Heffner. 2000. The Influence of Shared Mental Models on Team Process and Performance. (2000).

[32] Rich Mironov. 2021. Managing misaligned stakeholders. <https://www.mindtheproduct.com/managing-misaligned-stakeholders-by-rich-mironov/>

[33] Ilya Musabirov, Denis Bulygin, Alena Suvorova, and Pavel Okopnyi. 2020. Co-aligning UX & Development Courses: The Case of MSc in Information Systems and HCI. In *Proceedings of EduCHI '20* (2020).

[34] H Nelson and E Stolterman. 2002. Design judgment: decision making in the 'real' world. *Common Ground* (2002).

[35] Harold G. Nelson and Erik Stolterman. 2012. *The design way: intentional change in an unpredictable world* (second edition ed.). The MIT Press, Cambridge, Massachusetts; London, England.

[36] Paul Parsons, Ali Baigelenov, Ya-Hsin Hung, and Connor Schrank. 2020. What Design Methods do DataVis Practitioners Know and Use? In *Extended Abstracts of the 2020 CHI Conference on Human Factors in Computing Systems*. ACM, Honolulu HI USA, 1–8. <https://doi.org/10.1145/334480.3383048>

[37] Paul Parsons, Colin M. Gray, Ali Baigelenov, and Ian Carr. 2020. Design Judgment in Data Visualization Practice. <http://arxiv.org/abs/2009.02628> arXiv:2009.02628 [cs].

[38] Horst WJ Rittel and Melvin M. Webber. 1973. Dilemmas in a general theory of planning. *Policy sciences* 4, 2 (1973), 155–169. https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/article/10.1007/bf01405730&casa_token=bItznqBOt-0AAAAAA-TsDKePSc5XIfQkeqILPOTACXNMcOD7VlyKkUOxt0YiLDBhGm-ql0YSMwJyJAWjFgiDVNLyV06xSLFgMjmGk Publisher: Springer.

[39] Maria Rosala and Rachel Krause. 2020. User Experience Careers What a Career in UX Looks Like Today. <https://www.nngroup.com/reports/user-experience-careers/>

[40] Emma J. Rose, Cynthia Putnam, and Craig M. MacDonald. 2020. Preparing Future UX Professionals: Human Skills, Technical Skills, and Dispositions. In *Proceedings of the 38th ACM International Conference on Design of Communication*. ACM, Denton TX USA, 1–8. <https://doi.org/10.1145/3380851.3416774>

[41] Donald A. Schön. 1983. *The reflective practitioner: how professionals think in action*. Basic Books, New York.

[42] Ben Shneiderman, Ann Bishop, Batya Friedman, Jonathan Lazar, Gary Marsden, and Cliff Nass. 2006. Making a difference: integrating socially relevant projects into HCI teaching. In *CHI '06 Extended Abstracts on Human Factors in Computing Systems*. ACM, Montréal Québec Canada, 41–44. <https://doi.org/10.1145/1125451.1125463>

[43] Prakash Chandra Shukla and Paul C Parsons. 2023. *How visualization designers' assumptions can mislead in communicating with visualizations*. preprint. Open Science Framework. <https://doi.org/10.31219/osf.io/h5f3p>

[44] Errikos Siakas, Harjinder Raham, Elli Georgiadou, and Kerstin Siakas. 2021. Towards Reducing Communication Gaps in Multicultural and Global Requirements Elicitation. In *Systems, Software and Services Process Improvement*. Murat Yilmaz, Paul Clarke, Richard Messnarz, and Michael Reiner (Eds.). Vol. 1442. Springer International Publishing, Cham, 257–277. https://doi.org/10.1007/978-3-030-85521-5_17 Series Title: Communications in Computer and Information Science.

[45] Erik Stolterman. 2008. The Nature of Design Practice and Implications for Interaction Design Research. *International Journal of Design* (2008), 55–65.

[46] Erik Stolterman. 2021. The Challenge of Improving Designing. 15, 1 (2021).

[47] Jane Fulton Suri. 2003. The Experience of Evolution: Developments in Design Practice. *The Design Journal* 6, 2 (July 2003), 39–48. <https://doi.org/10.2752/146069203789355471>

- [48] Vanna Savina Torrisi and Ashley Hall. 2013. MISSING MISCOMMUNICATIONS IN INTERDISCIPLINARY DESIGN PRACTICE. *DS 76: Proceedings of E&PDE 2013, the 15th International Conference on Engineering and Product Design Education, Dublin, Ireland* (2013), 581–586.
- [49] Mihaela Vorvoreanu, Colin M. Gray, Paul Parsons, and Nancy Rasche. 2017. Advancing UX Education: A Model for Integrated Studio Pedagogy. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems*. ACM, Denver Colorado USA, 1441–1446. <https://doi.org/10.1145/3025453.3025726>
- [50] Karel Vredenburg, Ji-Ye Mao, Paul W Smith, and Tom Carey. 2002. A Survey of User-Centered Design Practice. 1 (2002).
- [51] Shuhong Wang, Xiaomeng Zhang, and Joseph Martocchio. 2011. Thinking Outside of the Box When the Box Is Missing: Role Ambiguity and Its Linkage to Creativity. *Creativity Research Journal* 23, 3 (July 2011), 211–221. <https://doi.org/10.1080/10400419.2011.595661>
- [52] Christopher Rhys Watkins, Colin M. Gray, Austin L. Toombs, and Paul Parsons. 2020. Tensions in Enacting a Design Philosophy in UX Practice. In *Proceedings of the 2020 ACM Designing Interactive Systems Conference*. ACM, Eindhoven Netherlands, 2107–2118. <https://doi.org/10.1145/3357236.3395505>
- [53] Richmond Y. Wong. 2021. Tactics of Soft Resistance in User Experience Professionals' Values Work. *Proceedings of the ACM on Human-Computer Interaction* 5, CSCW2 (Oct. 2021), 1–28. <https://doi.org/10.1145/3479499>
- [54] Qian Yang, Alex Scuito, John Zimmerman, Jodi Forlizzi, and Aaron Steinfeld. 2018. Investigating How Experienced UX Designers Effectively Work with Machine Learning. In *Proceedings of the 2018 Designing Interactive Systems Conference*. ACM, Hong Kong China, 585–596. <https://doi.org/10.1145/3196709.3196730>
- [55] Luciana A.M. Zaina, Helen Sharp, and Leonor Barroca. 2021. UX information in the daily work of an agile team: A distributed cognition analysis. *International Journal of Human-Computer Studies* 147 (March 2021), 102574. <https://doi.org/10.1016/j.ijhcs.2020.102574>