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## To Speak up or Shut up? Revealing the Drivers of Crowdworker Voice Behaviors in Crowdsourcing Work Environments

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## Accepted Manuscript

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## To Speak up or Shut up? Revealing the Drivers of Crowdworker Voice Behaviors in Crowdsourcing Work Environments

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### Abstract:

The study examines worker voice behaviors in the microtask crowdsourcing work environment (CSWE) where voice channels are absent. Informed by employee voice research, this study adopts the revealed causal mapping method to analyze detailed narratives of 60 workers from Amazon Mechanical Turk. Our data analysis shows that the crowdworkers did engage in voice behaviors, but their voices were not always heard, depending on recipients. The crowdworker voice was directed to three different recipients (worker community, job requester, and platform) and influenced by six antecedents (duty orientation, efficacy judgment, workgroup identification, anger/frustration, futility, and achievement orientation). Based on the findings, we propose a model of worker voice antecedents and moderator in the CSWE. This study extends employee voice research by presenting a moderator perspective in the CSWE. Moreover, our study provides a nuanced understanding about crowdworker voice behaviors from two major aspects – antecedent and recipient – contributing to the crowdsourcing research.

**Keywords:** Crowdsourcing, Worker Voice, Voice Antecedent, Voice Recipient; Revealed Causal Mapping.

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## 1 Introduction

Advancements in digital technologies have given rise to crowdsourcing on (through) digital labor platforms such as Uber, Instacart and Amazon Mechanical Turk (MTurk) that enable companies to tap into the human resources from the general public, transforming how work is organized, assigned and executed. Crowdsourcing of the digitalized microwork has grown into a convenient form for organizations to source work to the public such that people from all walks of life can take on small jobs and earn income on the digital platforms (Di Gangi, Howard, Goh, & Thatcher, 2023). We refer to the new work environment on (through) digital platforms as crowdsourcing work environment (CSWE). This kind of CSWE has six essential characteristics, including on-demand virtual labor, open access to work, Internet access to join the crowd, three stakeholders, human tasks, and modular technical architecture (See Deng & Joshi 2016 for more details). One important stakeholder in CSWE is crowdworker, individuals who participates in the CSWE to complete tasks for monetary remuneration.

Crowdsourcing work environments have presented both opportunities and challenges for crowdworkers. CSWEs provide open, easy, and free access to crowdsourced work (Howe, 2006). In crowdsourcing work, crowdworkers enjoy considerable autonomy, flexibility, and work/life balance (e.g., Deng & Joshi, 2016). However, researchers have raised increasing concerns about unfair treatment and lack of worker protections on microwork crowdsourcing. For example, workers on MTurk were found at a risk of being exploited and marginalized during completing the piecework (Deng, Joshi, & Galliers, 2016) and they are not protected by social insurance (Bieber & Moggia, 2021). Moreover, these workplaces marginalize workers as they have little or no voice in defining, designing, and controlling the terms of work engagements (Deng et al., 2016). Crowdworkers lack effective representation, employment status and collective bargaining power and thus mostly operate with limited regulatory protections (Williard, 2017). As a result, they are the least powerful and most vulnerable group within these work environments (Barratt, Goods, & Veen, 2020; Deng et al., 2016; Durward, Blohm, & Leimeister, 2020).

Perplexingly, despite these work vulnerabilities, the popularity of CSWEs among the crowdworkers has not waned; rather it is steadily growing. For example, by 2018, the increasing number of workers competing on the platforms reduced the total amount of work available (e.g., Semuels, 2018). Crowdworkers are freelancers enabled by the digital labor platforms. According to the projection in a recent Statista research report, in 2027, 86.5 million people in the United States will be freelancing, making up 50.9 percent of the total U.S. workforce. Given crowdworkers don't seem to be exiting the CSWEs, it appears that they are finding ways to engage in voice behavior, which is allowing them to endure these digital workplaces. Voice behaviors are ways through which workers engage with others in their employment relations (Mowbray, Wilkinson, & Tse, 2015), including employees' expression of challenging but constructive opinions, concerns, or ideas about work-related issues such as production and efficiency in organizations (van Dyne, Ang, & Botero, 2003; van Dyne & LePine, 1998). In traditional workplaces, voice often acts as an alternative to exit behavior for those dissatisfied employees (Hirschman, 1970).

We postulate that crowdworkers find ways to be included: to survive and thrive in a work environment where formal voice channels and structures are absent, the crowdworkers find other ways to be heard. Yet it remains unclear how they do that when the platforms are actively engaging in silencing them (Deng et al., 2016; Pasquale, 2016). Therefore, in this study we examine the following two research questions: *How do crowdworkers find ways to be heard in crowdsourcing work environments? What factors influence their voice behaviors?*

Understanding worker voice behaviors in the new context of crowdsourcing is crucial because of the following three reasons. *First*, voice often acts as an alternative to exit behaviors among dissatisfied employees in traditional work context. In contrast, the notion of entry and exit is fluid and more flexible in CSWEs. On crowdwork platforms, workers freely register an account and accept/reject work posted by diverse employers (organizations or individuals) where the notion of a fixed, long-term employer (organization) does not exist. Rather, entry and exit become the norm at workers' fingertips on the computer keyboard as they decide to take one job request and decline another. *Second*, the notion of work contract and subsequently the social contract takes on different meanings. The contractual work agreement is first and foremost with the platform where all workers sign the same service level contract when they register. Workers are governed by the platform policies, procedures, managerial algorithms, and information technology (IT) functionality while the requestors provide the work requirement,

evaluation, and compensation. Therefore, the traditional channels for voice such as line managers or union representations do not exist (or take on different forms) in CSWEs. *Third*, crowdwork is conducted on or through a digital platform with little or no in-person interactions between crowdworkers and their job requesters such that forms and channels of prosocial behaviors to improve work processes and facilitate organizational innovations are unclear in CSWEs. Given these differences, it is unclear to what extent the findings of employee voice studies are applicable in CSWEs. As the dynamics of workforce management increasingly involve digital platforms, developing a broader understanding of worker experiences in relation to voice behaviors is warranted. We propose that further examining these questions will expand our understanding of the growing ecosystems within CSWEs.

In this study, we focus on the microtask crowdsourcing work environment, where individual workers complete micro, cognitive tasks online in exchange for monetary remuneration in the digitally enabled workplace. We select microtask crowdsourcing as this study's context because, unlike Uber and Lyft<sup>1</sup>, the microtask platform owners, such as Amazon, are not yet seeking to listen, let alone amplify the voices of their crowdworkers. In the microtask CSWE, such as MTurk, the work is fully digitized and has no physical and geographic task boundaries (unlike those uniting the workers involved in Prop 22 in the US state of California or other regulatory interventions). CSWEs differ in the degree to which the work elements are digitized, i.e., programmed and codified on the platform (e.g., digitization of tasks, assets, governance, and support services). As such, prior research calls for our attention to account for digital variability in our study of CSWE (Joshi, Taylor, & Deng, 2022). The extent to which work elements are digitized impacts the balance of power and privilege among the three stakeholders. On the fully digitized platform of MTurk, the greater digitization shifts the locus of power and control more towards the platform owner (Deng et al., 2016). Workers in the microtask CSWE are still struggling to get their voices heard. These workers face significant impediments to effectively express their concerns and voice their opinions or ideas about CSWE work conditions and performance (Deng et al., 2016; Pasquale, 2016).

This research is exploratory (e.g., exploration of the crowdworking space) and qualitative. This study is informed by employee voice studies (van Dyne et al., 2003; van Dyne & LePine, 1998) with the premise that voice behaviors improve or impede work processes and innovations in organizations. We adopt the revealed causal mapping (RCM) method, a subcategory of cognitive mapping that entails an inductive process of evoking constructs and linkages from respondents' statements (Narayanan & Armstrong, 2005). We believe that the RCM method is appropriate for identifying key constructs and linkages associated with the motivations and enactment of worker voice behaviors in the microtask CSWE.

## 2 Literature Review

### 2.1 Crowdsourcing and Worker Behavior

Crowdsourcing research includes a wide range of concepts from crowdfunding and large-scale ideation, to contests for addressing specific business needs. However, in this study we focus on the microtask crowdsourcing work environment, where workers are financially compensated for completing small, digitized jobs such as categorizing images, cleaning data files, and transcribing audio clips. Questions are emerging regarding the duality of worker perceptions regarding both the benefits and the challenges of worker participation in the microtask CSWE (Deng et al., 2016). Crowdwork has been identified as means to provide more inclusive employment access to individuals from populations underrepresented in the technical workforce (Taylor & Joshi, 2019), but the distributed nature of work could enable exploitation of workers (Schlagwein, Cecez - Kecmanovic, & Hanckel, 2019). Economic and legal researchers have noted potentially competing narratives regarding how the CSWE should be perceived and evaluated (Pasquale, 2016). The ability to engage workers in microtasks has been celebrated for reducing barriers to entrepreneurial activity (Friedman, 2014), but the structure of contracts has been noted as an obstacle to future collective bargaining (Johnston & Land-Kazlauskas, 2018).

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<sup>1</sup>One set of recent legislative fights in the US state of California exemplify the importance of worker voice. Specifically, it demonstrates how the voice of the gig workers who work for App-based ride-hailing companies and food delivery companies was germane to the fight against the law (AB 5) that threatened the autonomy and flexibility that gig workers are seeking in their work. The passing of AB 5 prompted companies such as Uber to reach out to the gig workers to listen to and amplify their voices. This united front from all the key stakeholders was influential in bringing about and passing the new legislature, i.e., Prop 22, which exempts App-based transportation and delivery companies from AB 5. Prop 22 advanced the collective interest by altering the legislative course, which permitted one segment of the platform-based industry to escape the negative impact of AB 5 in California, United States.

CSWEs generally use programming routines to oversee work (Möhlmann et al., 2020) in ways that remove human oversight and interaction from the work assignment and approval process. As these programming routines are built upon historical data and biases, scholars have noted that automated routines for management may reinforce discriminatory behavior and result in the exclusion of marginalized communities (Barzilay, 2018). Digital capabilities provided by the platforms are often designed in ways to limit direct interaction between platform participants (Taylor & Joshi, 2019). As platforms seek to reduce the risk of disintermediation by participants, opportunities for voice may be purposefully limited, leading to isolation of worker behavior both on and off the platforms (Guo, Li, & Zeng, 2019).

As crowdworkers continue to represent a growing share of the workforce, we propose that scholars should identify means by which CSWEs may become more inclusive. One factor that has been identified as a measure of worker inclusion is the use of voice within the work environment (Naqvi, 2020). However, how voice is used in the context of multiple stakeholders of workers, platforms and clients is not clearly described in the literature. A significant body of the CSWE literature has extensively explored the motivations behind individuals joining these the work environments (e.g., Deng & Joshi, 2016; Jabagi, Croteau, Audebrand, & Marsan, 2019; Jiang, Wagner, & Chen, 2021; Zheng, Li, & Hou, 2011). However, to our best knowledge, no studies have been conducted to comprehensively elucidate the factors influencing voice behaviors once individuals have become a part of such work environments. Additionally, it is important to note that the conventional channels for expressing voice, such as line managers or union representations, either do not exist or manifest in different forms within CSWEs. Instead, alternative structures such as digital platforms, job requestors, and digital communities where workers congregate and express their voices have taken their place. Consequently, it becomes clear that the findings derived from research on voice behaviors in traditional work environments cannot be directly extrapolated or applied to the context of CSWEs.

Although use of voice within the work environment contributes to worker inclusion (Naqvi, 2020), our understanding of worker voice in the crowdsourcing work environment remains limited. Hence, in this study we focus on understanding the presence (absence) of worker voice and its drivers as well as barriers in the microtask CSWE. Next, we refer to employee voice literature for insights.

## 2.2 Employee Voice

The concept of voice was first developed by Hirschman (1970), which refers employee voice as “any attempt at all to change, rather than escape from an objectionable state of affairs” (Hirschman, 1970, p.30). Hirschman proposes that voice can act as an alternative to exit behavior for those dissatisfied employees and develops the framework of the exit/voice/loyalty (EVL) for analyzing employee behaviors in organizations. Scholars in Organization Behavior (OB) extend beyond the potential for voice behaviors to reduce turnover. Van Dyne and LePine (1998) view employee voice as promotive behavior that emphasizes expression of constructive comments intended to improve organizational performance rather than criticizing, make innovative suggestions for change, and recommend modifications to standard procedures even when others disagree (van Dyne & LePine, 1998, p.109). To build on this viewpoint, van Dyne, Ang, and Bostero (2003) define voice as employees’ expression of challenging but constructive opinions, concerns, or ideas about work-related issues such as production and efficiency within the confines of their organization. Overall, the voice conceptions in the field share three key elements: an act of verbal expression; discretionary behavior (a choice affected by a variety of factors); and being constructive in intent (Morrison, 2011, p. 375).

While OB studies often view voice as contributing to improvement at workplace and thus adding value to the organization, studies in the Industrial Relations (IR) field adopt a different perspective, i.e., focus on worker protection and employment relations. To IR scholars, voice is viewed as a mechanism to satisfy the collective interest of employees in influencing organizational decision making (Dundon et al., 2004; Millward, Bryson, & Forth, 2000). Wilkinson, Barry, and Morrison (2020) point out the key differences between the two streams of voice studies, including the level and focus of analysis as well as voice enablers and inhibitors. In particular, voice research in IR focuses on collective-level structures and systems and view voice as occurring via formal mechanisms such as unions and works councils. In contrast, OB studies concern the individual-level behavioral act of speaking up and view voice as occurring via informal interactions with supervisors and co-workers. Due to these differences, IR research has emphasized the voice enablers and inhibitors at the structural level while OB research highlighted factors at the individual level (e.g., attitudes, perceptions) and contextual level (e.g., supervisor behavior, team climate). Given its historical roots, IR research concerns about the interests and benefits of

nonmanagerial and generally low-skilled employees at the bottom of the organizational power hierarchy, and the means by which such employees can communicate their interests and grievances to management through collective efforts (Wilkinson et al. 2020).

Regardless of the disciplines, scholars have commonly accepted that voice can be articulated through a variety of channels. Two major types of channels have been adopted by employees to express their complaints and desire to participate in an organization's decision making. One channel is internal, direct - by employee communications with management (upward problem-solving techniques) such as employee expression of complaints to managers (Dundon et al., 2004), direct involvement (Millward et al., 2000). The other channel is external, indirect – through trade union membership (Millward et al., 2000) or joint consultative committees and work councils (Dundon et al., 2004). The dichotomous channels are the main categories of voice channels as they are rooted in the different conceptualization of voice in the OB and IR disciplines (Wilkinson et al. 2020). OB research focuses on interactions that employees engage to share suggestions, ideas, opinions, information about problems and believes that employees have control over their voice. However, IR research adopts the collective as primary level of analysis while voice in OB is considered individual behavior. As a result of this difference in conceptualization, IR scholars consider collective mechanisms (such as union) as the primary means for workers to express their interests and grievances and management has control over the worker voice (Wilkinson et al. 2020). In addition to the means through which voice occurs, scholars have also proposed a contingency effect of voice purpose on voice channel. According to the analytical framework by Dundon and colleagues (2004), when the purpose of employee voice is to rectify a problem with management or prevent deterioration in relations, employees convey their dissatisfaction through complaining to line managers or following the grievance procedure in an organization. However, when the purpose of employee voice is to seek improvements in work, work quality and productivity, they use the channels of suggestion schemes or attitude surveys.

Researchers have paid close attention to the drivers to employ voice behaviors. Extant research has revealed a variety of factors that motivated employees to speak up in organizations. The antecedents of employee voice fall under five categories: (1) dispositional (relational), (2) psychological factors (such as emotions, beliefs), (3) supervisor and leader behavior, (4) organizational and job attitude and perceptions, and (5) formal voice mechanisms. The common antecedents and references are summarized in Table 1.

**Table 1. Summary of Literature Review on Voice Antecedents**

Category	Antecedents of Voice & References
(1) Dispositional (Relational) antecedents	(Extraversion, conscientiousness, and proactive personality were associated with voice presence (Grant, Kim & Wang, 2011; Liu, Tangirala, & Ramanujam, 2013); Duty orientation motivates voice while achievement orientation inhibits voice (Tangirala et al. 2013)
(2) Psychological antecedents (emotions, beliefs)	The two psychological forces, high psychological safety and high felt obligation for constructive change, represent nonparallel and unique pathways to voice (Liang, Farh, & Farh, 2012); Anger may affect whether employees speak up or remain silent: anger has been argued to increase the likelihood of whistle blowing (Edwards et al., 2009).
(3) Supervisor and Leader Behavior	Supervisor and leader behavior are a critical influencer of voice: employee perceptions that one's supervisor is open to input and fair (e.g., Detert & Trevino 2010); employee perceptions that one has a positive and supportive relationship with one's supervisor (e.g., Tangirala & Ramanujam 2012); to perceptions that one's supervisor is a transformational or ethical leader (e.g., Detert & Burris 2007).
(4) Organizational Attitudes and Perceptions	Employee voice behavior is affected by one's attitudes toward and perceptions of one's organization and job such as identification, felt obligation for constructive change, satisfaction, and control (e.g., Liang et al. 2012)
(5) Formal Voice Mechanisms	Employee voice behavior is affected by the presence of formal voice mechanisms (Morrison & Milliken 2000; Pinder & Harlos 2001).

In the crowdwork context, workers register with a crowdsourcing platform and accept/reject micro work posted by diverse employers (organizations of individuals). Thus, the crowdwork environment has no clear organizational boundary: a worker engages in microwork with multiple requesters (employers) while a requester hires multiple workers on the task basis. Moreover, digital platforms enjoy broad influence over the work opportunities of CSWE participants and the abstract nature of algorithmic management may be a

barrier to the use of voice (Möhlmann et al., 2020). As crowdsourcing is transforming the form and context of work and creates potential barriers to worker inclusion (Barzilay, 2018), we argue that use of voice is a demonstrated measure of inclusion (Naqvi, 2020) and consequently we need to re-examine the motivational factors of employee voicing in the microtask CSWE to assess whether we need to revise/extend the employee voice perspectives to explain the psychology of crowdsourcing.

To inform our investigation on the drivers of worker voice behaviors in the microtask CSWE, we adopt the OB scholars' conceptualization of employee voice as a promotive behavior in expressing challenging but constructive opinions, concerns, or ideas about work-related issues (van Dyne et al., 2003; van Dyne & LePine, 1998). We consider crowdsourcing voice as workers' discretionary communication of suggestions, opinions, concerns, and problems related to improving their work engagements in the microtask CSWE.

### 3 Research Methodology

The RCM approach, suitable for an exploratory study, is employed to uncover voice forms exercised by crowdsourcing workers in the CSWE. This approach allows us to interpret the respondents' statements to open-ended and semi-structured questions and make inferences about human actors' (crowdsourcing workers) work experiences in the crowdsourcing work environments. To reveal voice behaviors and factors that shape them, we collect rich qualitative data from MTurk, one of the largest platforms that offer access to large numbers of job requesters and crowdsourcing workers to engage in a variety of microtasks. MTurk provided us an ideal context: it allowed us to observe first-hand the motivation and effects of worker voice behaviors in the microtask CSWE. We adopt revealed causal mapping method, a cognitive mapping that entails an inductive process of evoking constructs and linkages from respondents' statements (Narayanan & Armstrong, 2005). RCM allows researchers to make inferences about the true motivations and cognitions instigating actions through the linkages between observed causes and effects among the participants (Fahey & Narayanan, 1989). When conducting RCM analysis, researchers first identify and collect their data, then identify raw causal relationships within informant responses to create initial causal maps, then validate the causal maps in relation to theoretical categories, and finally conduct analysis of the theoretically informed RCM constructs (Fahey & Narayanan, 1989). In the information systems (IS) field, scholars have utilized this method to study research topics on IS maintenance expertise (Nelson, et al., 2000), crowdsourcing motivation (Deng & Joshi, 2016), IT crowdsourcing career (Taylor & Joshi, 2019), and IS professional identity (Riemenschneider & Armstrong, 2021).

#### 3.1 Research Site and Data Collection

MTurk provides free access to crowdsourcing workers to register with the microtask crowdsourcing platform, to select and perform microtasks for monetary reward. According to self-reported statistics, MTurk has more than 500,000 registered workers and posted 400,000 microtasks at any given time. The microtasks, referred to as "Human Intelligence Tasks" (HITs), typically involve simple cognitive tasks, such as data cleaning, video and audio transcription, classification, and document categorization. The MTurk website allows workers to search for HITs using a predefined set of criteria and allows requesters to create and publish microtasks by using a web service-based interface. The FAQs posted on the website provide general guidelines and MTurk policies (<https://requester.mturk.com/help/faq>). As the focus of our study is the experience of CSWE workers, MTurk provides informants well suited to examine the phenomena of interest in our study.

We collected data from MTurk workers via an online survey in February 2019. Our research objective is to understand how crowdsourcing workers find ways to be heard in crowdsourcing work environments and what factors influence their voice behaviors. Given the inductive nature of our research methodology, we used open-ended questions to collect workers' narratives on their experiences by using voice literature as the sensitizing lens. We asked open-ended questions to collect qualitative data and develop the conceptualization of worker voice behaviors, including nature/motive (why), channel (how), and subject/content (what). To elicit respondents' narratives more effectively, we used open-ended questions to ask crowdsourcing workers about their work encounters on the MTurk digital platform, including their experiences – both pleasant and frustrating – and how they managed those work-related issues. Examples of the questions are: "Can you share with us a pleasant, good experience you've had on MTurk?" "Have you ever expressed your suggestions/opinions to others (e.g., Amazon, online forums, etc)? What happened?" "When you have complaints or feel unfairly treated on MTurk, how and to whom do you express your complaints?" "Do you find the above-mentioned communication approach of expressing complaints helpful? Why or why not?" Respondents were asked to provide an example when answering



the questions. The design of the questions was informed by voice conceptualization (van Dyne et al., 2003; van Dyne & LePine, 1998) and by microtask crowdsourcing studies (Deng et al., 2016; Pasquale, 2016).

The survey also included questions about MTurk work tenure (how long they had been working on MTurk), participation (weekly hours on MTurk), and their demographics (e.g., gender, age, marital status, education, employment status, and household income). In addition, we asked them if they depended on MTurk income as their family's major income source (i.e., at least 90%). To control global complexity in the online labor market we focused on specific populations of MTurk workers. Participants of the study met three criteria: Location in the U.S., HIT approval rate >70%, and number of HITS approved >500. These specifications allowed us to focus on U.S.-based crowdworkers who have accumulated work experience on MTurk. We did not require "Master" worker status as we intended to listen to voices of a wide range of workers. In total, we collected survey responses from 60 MTurk workers.

### 3.2 Sample Characteristics

Our data sample includes 60 individual responses by U.S.— based MTurk workers with a range of MTurk tenure, from those veterans who started MTurk work in July 2009 to those novices who joined recently (e.g., November 2018) by the time of the data collection. The sample represents diverse employment types, including full-time employed, part-time employed, unemployed, self-employed, and others (e.g., retired, students, and stay-at-home mom). In our employment classification we requested that the respondents not to consider their work on MTurk when responding to the employment status question, because some crowdworkers may consider their MTurk engagement as their full-time employment and career (e.g., Deng et al., 2016).

Table 2 summarizes the distribution of the data sample by different demographics factors. Except the distribution of age group (30-39 years), the sample demographics is consistent with that of MTurk workers in prior studies (e.g., Deng & Joshi, 2016; Goodman, Cryder, & Cheema, 2013).

**Table 2. Distribution of Sample by Demographics Background (n=60)**

Demographic Factors	Sample Distribution
Gender	Male (63.3%); Female (36.7%)
Education	High school (20%); Some college (18.3%); Associate degree (16.7%); Bachelor's degree (41.7%); Graduate degree (3.3%).
Employment Status	Employed full-time (56.7%); Self-employed (18.3%); Employed part-time (6.7%); Not employed (10%); Others (8.3%)
Marital Status	Single (46.7%); Married (41.7%); Other (11.7%)
Household Income	\$0-\$24,999 (18.3%); \$25,000-\$49,999 (30%); \$50,000-\$74,999 (20%); \$75,000-\$99,999 (15%); \$100,000 and up (16.7%)
Ethnic Background	Asian or Pacific islander (5%); Black or African American (8.3%); Hispanic or Latino (8.3%); Other (1.7%); White/Caucasian (76.7%)
Age Group	21-29 years (31.7%); 30-39 years (50%); 40-49 years (13.3%); 50-59 years (3.3%); 60 or older (1.7%).

Our sample size is similar to that in prior IS studies using the RCM method (e.g., Deng & Joshi, 2016; Nelson et al., 2000; Riemenschneider & Armstrong, 2021; Taylor & Joshi, 2019). In studies based on the RCM method, the point-of-redundancy concept is frequently used to calculate the adequacy of sampling (Narayanan & Armstrong, 2005). As researchers do not know the point of redundancy until they construct RCMs, the number of required respondents is a judgment call. In this study, we adopted a sample size consistent with Nelson et al. (2000), which interviewed 50 experts in the IS maintenance context.

### 3.3 Data Analysis: Revealed Causal Mapping Approach

We followed the RCM guidelines described by Narayanan and Armstrong (2005) to analyze data. Revealed causal mapping approach involves a four-step process: (1) data elicitation, (2) construction of causal maps, (3) validation of the causal maps, and (4) analysis. In Step 1 (data elicitation), we collected data from informants who were identified to have insight regarding the research questions. We used open-ended questions to elicit a breadth of feedback from informants. Our online survey gave respondents the opportunity to anonymously provide text responses, which were then analyzed to identify cause and effect

relationships. Questions in the survey were designed to highlight cause-effect relationships, and key phrases in the text, such as “if”, “then” or “since” were identified to describe relationships.

Step 2 (construction of causal maps) is an iterative process. We first identified the key constructs from the narratives of the study participants. Two researchers independently worked on the data coding of key constructs and concepts by following the same coding scheme informed by prior voice literature (Table 3 lists the definition and coding examples of the constructs). In total, the researchers revealed seven constructs associated with crowdsourcing work in the crowdsourcing work environment.

**Table 3. Constructs of Voice Behavior and Influencing Factors**

Construct	Definition	Example
Voice	A crowd worker’s expression of concern about work practices, incidents, or behaviors that he or she regards as unfair, unjust, or potentially harmful, to the crowd workforce, or communication of suggestions or ideas for how to improve the work practices and processes. (Modified from Morrison, 2011)	“I would go to the forums and especially TurkOpticon to report the problems with hits and/or surveys to warn others.” (Worker #36)  “I have expressed my opinions on Reddit/mturk. I suggested that certain scripts remain free to use so some workers don’t get an unfair advantage over others. Many agreed with me on the topic.” (Worker #07)
Efficacy judgement	The perception that engaging in voice is effective in achieving the desired outcome for the crowd worker. (Modified from Morrison, 2014)	“It [voicing to a requester] is effective, because some requesters don’t realize what a rejection is/does.” (Worker #23)
Duty orientation	Orientation of those workers who tend to prioritize the interest of the crowd worker community (modified from Tangirala et al., 2013)	“I do reviews about a bad requester. It helps because it can prevent others from also having the same issue with a requester.” (Worker #04)
Achievement orientation	Orientation of those workers who tend to focus on the consequences for the self (modified from Tangirala et al., 2013)	“In general, I don’t like to make posts or complain. I take my licks and move on. Time is money and time spent on talking and discussing is time wasted.” (worker #28)
Futility	Feeling the voicing is useless, futile (Morrison, 2014)	“No, it (voicing to MTurk) seems futile to me. I don’t think anything will change.” (worker #06)
Workgroup identification	Individual identification with a workgroup such that a highly identified individuals perceive a strong connection between the group and their sense of self, and define themselves in terms of group membership (Morrison et al., 2011)	“Yes, I have expressed opinions on the forum. It is nice to have people who understand and can commiserate.” (Worker #36)
Anger and frustration	Personal emotion of anger and the desire to release personal frustration (modified from Edwards, Ashkanasy, & Gardner, 2009).	“When I am angry about unfair rejection of my work, I post on forum (i.e., TurkerView). It relieves the stress and help me cope with unfairness from some requesters.” (Worker #10)
Supervisor and Leader Behavior	Individual perceptions about one’s supervisor being open to input, fair, positive, and supportive and ethical (Detert & Trevino 2010; Tangirala & Ramanujam, 2012)	Not present in the study data sample
Organizational Attitudes and Perceptions	Individual attitudes toward and perceptions of one’s organization and job such as identification, felt obligation for constructive change, satisfaction, and control (e.g., Liang et al. 2012)	Not present in the study data sample
Formal Voice Mechanisms	The presence of formal voice mechanisms such as grievance processes, one-to-one meetings, attitude surveys, and trade union membership (Dundon et al. 2004; Pinder & Harlos 2001).	Not present in the study data sample

As a result of identifying the constructs and concepts, we revealed the causal-effect linkages between the constructs and concepts by the study participants. After identifying the cause-effect relationships, we constructed causal maps to highlight the most frequent cause-effect relationships across from participants revealed from the data. These causal maps highlight the underlying motivations that are associated with crowdworkers’ voice behaviors. We then used the causal concepts identified in the first wave of analysis to create construct-level causal maps that identify the frequency of themes across all participants. In

completing the analysis, raw causal relationships identified in informant quotes were aggregated to 2nd order concepts that reflected common themes across informants. An example of the five-step procedure for constructing causal maps is provided in the Appendix (See Table A). At each stage of the data analysis, both coders compared results to evaluate the consistency of the coded values. The aggregated causal map (Figure 1) shows the frequency of each observed relationship between crowdworker voice and influencing factors. The revealed causal map is based on 189 linkages associated with worker voice behavior identified from 60 MTurk workers. The number associated with a linkage reflects the percentage of that linkage over all the linkages identified related to the constructs of voice.

### Overall Revealed Causal Map Data

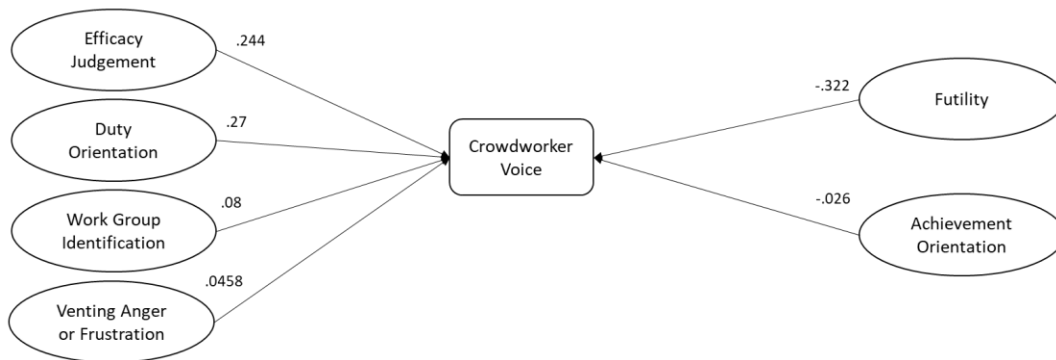


Figure 1. The Aggregated Causal Map of Factors Influencing Crowdworker Voice in the Microtask CSWE

The final two steps of the RCM approach involve validation of the causal maps (Step 3) and analysis (Step 4). In Step 3, two researchers independently reviewed the results (Figure 1) to validate interpretations of the content. We reviewed the employee voice literature (e.g., Morrison, 2011, 2014; Tangirala et al., 2013) to validate the concepts and constructs identified in the RCMs. Consistent with Nelson et al. (2000), we used the point of redundancy to evaluate the convergence of concepts elicited from the responses. In our analysis, the seven concepts converged at the 25th respondent, which means that we found no new concept in the map of the 26th respondent or beyond, which indicates the sufficiency of our sample size of 60 respondents. In Step 4, we examined the key constructs and linkages uncovered in the map (see Figure 1). The constructs and their associations demonstrate important drivers for workers' voice in the CSWE.

In addition, we looked up the voice recipient of each revealed relationship and found that the frequency of influencing factors differed by the type of voice recipient. The distribution of the influencing factors among the identified 189 instances are: futility (60; 31.7%); duty orientation (51; 27%); efficacy judgment (46; 24.3%); workgroup identification (15; 7.9%); anger (11; 5.8%); and achievement orientation (6; 3.2%). However, the type of recipients mattered in relation to the influencing factors. For example, majority (68.6%) of this duty orientation-driven voices and 100% of workgroup identity related voice were directed to worker community. By contrast, majority of efficacy-driven (80.4%) were directed to job requesters. The interplay between the voice antecedents and voice recipients are summarized in Table 4.

Table 4. The Interplay Between Voice Antecedents and Voice Recipient in the Microtask CSWE

Antecedent\Recipient	Community	Job Requester	Platform	Total
(1)-Duty orientation	68.6%	15.7%	15.7%	100%
(2)-Efficacy judgement	6.5%	80.4%	13.0%	100%
(3)-Workgroup identification	100%	0%	0%	100%
(4)-Anger\Frustration	90.9%	9.1%	0%	100%
(5)-Futility	20%	10%	70%	100%
(6)-Achievement orientation	50%	33.3%	16.7%	100%
Total	41.3%	28.6%	30.2%	100%

As our survey questions specifically asked to whom voice was directed, we analyzed the voice behavior by the recipients (e.g., platform, job requester, and online community). Referring to Table 4, we presented selected samples of crowdworker narratives on the highlighted (bold) antecedent-recipient linkages to contextualize the moderator of voice recipient in the crowdworker voice (Appendix Table B).

## 4 Findings

Our data analysis reveals seven constructs that shape the crowdworkers' behaviors in the CSWE. The seven constructs include one behavior (crowdworker voice) and its six antecedents - duty orientation, efficacy judgement, workgroup identification, anger/frustration, futility, and achievement orientation. We define crowdworker voice as a crowdworker's expression of concern about work practices, incidents, or behaviors that a worker regards as unfair, unjust, or potentially harmful, to the platform workforce, as well as suggestions or ideas for how to improve the work practices and processes in the microtask CSWE. This definition is consistent with the definition in extant voice literature (Morrison, 2011). In some cases, workers sought solutions to problems and attempted to avoid negative effects on their performance. In some other cases, workers offered suggestions to their job requesters to improve work-related processes. These are reflected in the two workers' remarks below:

*My first reject was from a researcher at the University of xxx. I communicated directly to the requester. I know I did the work correctly, but she insisted that she never received the data. We went back and forth via email several times. (Worker #46)*

*I have been bonused by requesters for giving them suggestions about how to make their workflow on Mturk easier (for themselves and for workers), at least a dozen other times. (Worker #39)*

Although a total of six factors were found influencing crowdworker voice behaviors in the microtask CSWE, the associations between the factors and crowdworker voice behavior have demonstrated different patterns. While four factors –duty orientation, efficacy judgement, workgroup identification, and anger/frustration–motivated the crowdworkers to speak up, the remaining two factors –futility and achievement orientation – discouraged their voice behaviors. The linkages between the six factors and the voice behaviors are depicted in the revealed overall causal map in Figure 1.

Moreover, crowdworker voice behaviors were found directing to different recipients. In the CSWE, there are three major stakeholders - worker community, job requesters, and platform – to which crowdworkers could direct their voice to. Each of the six voice antecedents and their associations with the three voice recipients are elaborated below.

### 4.1 Duty Orientation

The first motivator is duty orientation, which refers to an employee's disposition in prioritizing the interest of the group and focus on the consequence for others (Tangirala et al., 2013). In the CSWE, there are three major stakeholders: crowdworkers, job requester, and the platform. In our data sample workers were found expressing concerns or sharing information in online forums of crowdworkers to benefit others in the community. Influenced by such individual disposition, the crowdworkers were found sharing tips and ideas to help other workers to improve their work performance or warning the community to avoid problems. For example, one worker (worker #5) took pride in sharing his expertise with others on the forum, as he explained, "I created an AutoHotkey script for a batch and shared it in the forum. People were thankful for me creating that script." In this case, the crowdworker prioritized the interest of the community and brought a positive impact on other workers through his voice behavior. Overall, the workers directed majority of their voice behaviors toward their online communities and such behaviors were motivated by workers' individual disposition of duty orientation.

The worker's enactment of voice demonstrated a pro-community behavior, an attempt to help others in the community. In addition, through their speaking up, some crowdworkers were hoping to make a positive change in job requesters' behaviors in the CSWE. Such a desire for change motivated the voice behavior, as one worker explained,

*I almost never complain, I usually just shrug and write it off as a loss, but I have gotten rejections reversed by complaining to an IRB so I guess that was a positive. It is more of a positive for the people who come after me, though. I don't care about a rejection over a measly \$1, for instance, but I want requesters to be more fair in the future to other workers. (Worker #39)*

In the remark above, the worker raised his complaint to the institutional review board (IRB), the committee at a researcher's institution that governs ethical behaviors in scholarly work, hoping to change the future work practices of job requesters for the benefits of other crowdworkers.

Prior research has suggested that an employee's duty orientation reflects employee desire to repay his or her workgroup in an organization by acting for work environment improvement and change (Liang et al., 2012). In our study, workers have shown a similar desire. However, unlike in the traditional organizational setting, the crowdworkers in the microtask CSWE demonstrated their duty orientation more with other crowdworkers than they did with the platform or job requesters.

## 4.2 Efficacy Judgement

Workers' efficacy judgment emerged as another important motivator of work voice behavior. We define efficacy judgment as a crowdworker's perception about whether engaging in voice will be effective in bringing about the desired result, consistent with prior research (Morrison, 2014). In our data analysis, voice driven by efficacy judgment was found mostly toward job requesters. In the CSWE, work rejection is one common problem that the crowdworkers encountered; it occurred when a worker completed a HIT but the requester refused to pay for the completed work. Crowdworkers spoke up when they believed that voicing to requesters would be effective in resolving the work reject issue, such as overturning rejected work. Under the circumstance, the worker often contacted the requester directly to ask for clarification or to make a request for reversing the rejection decision. One worker explained why he decided to complain directly to a requester, *"It can be helpful, [as] most requesters do operate in good faith and can be reasoned with or will at least give a reason for why work was denied"* (Worker #48).

Workers also made suggestions to job requesters, hoping to improve the efficiency of MTurk processes. Hence, the worker's voice behaviors were driven by a worker's belief that the suggestions would be heard and accepted by a requester. For example, a worker recalled his suggestions to a requester regarding a MTurk workflow improvement, *"I find it (sharing suggestions on workflow) helpful and it's nice to see a requester getting into the site and improving efficiency for everyone involved, because it means happier workers and happier requesters"* (Worker #39). In this case, the worker's voice behavior brought positive outcomes to both the worker and requester, including improvement on workflow efficiency.

However, not all the voices to requesters resulted in a positive outcome: not all requesters responded to workers' inquiries and complaints. When that happened, the crowdworkers had to engage in a different kind of voice behavior, such as posting in an online forum. As one worker noted, *"If it (complaining to the requester) wasn't helpful, that's that. I can do nothing to fix the problem rather than leave a poor review on TO (Turkopticon)"* (Worker #40).

Occasionally, the crowdworkers targeted their voice to the platform MTurk when they initially perceived such voice engagement would be effective. But they soon realized that voicing to MTurk did not help as they expected. Workers' disappointment and frustration with MTurk were clearly shown as a worker recalled such a frustrating experience,

*Talking to Amazon was just a waste of time. I wrote to them when I've been scammed that time, and they said 'hey, we cannot do anything, write to the requester'. Seriously?! Oh, thank you for telling me to write to the scammer, I really couldn't have thought about it.* (Worker #41)

Similarly, lack of perceived efficacy judgment eventually inhibited the workers' expression of suggestions to MTurk. One worker elaborated on his decision of not voicing:

*I have not really expressed my suggestions to Amazon as nothing gets done. We can send suggestions to Amazon but we almost never receive a reply and suggestions how to improve the platform are ignored in lieu of things to make the interface more flashy or more idiot-proof.* (Worker #59)

As shown above, a crowdworker was less likely to voice when he/she perceived low judgments of efficacy in speaking up to the MTurk platform. In human resource literature, efficacy judgment is one of the key motivating factors for employee upward voice in organizations (Morrison & Milliken, 2000). However, in the open and boundaryless CSWE, multiple recipients exist for crowdworkers' voice. Workers' efficacy judgment was found motivating their voice when recipients were job requesters, not the platform. MTurk considers itself a platform provider and acting as an intermediary in the online labor marketplace: it states that it does not involve disputes between workers and requesters. Therefore, it's not surprising that the judgment efficacy appeared to be a more pronounced motivator in crowdworkers' voice to requesters than to the MTurk platform.

### 4.3 Workgroup Identification

The third factor motivating crowdworkers to voice is workgroup identification, which is defined as individual identification with a work group such that highly identified individuals perceive a strong connection between the group and their sense of self (Morrison, 2011). Our data shows that the crowdworkers participated in the online forums such as Turkopticon, MTurk Crowd, MTurk Forum, and TurkerView to share information and to support each other. Sharing opinions or voicing problems on the forums allowed the workers to build a sense of belongings, as a worker (Worker #29) explained, *“Whenever I have expressed my opinions to others, they have always either been supportive or at least friendly about it. Nobody ever blows up on you for expressing your opinion and it's awesome.”* As shown in this remark, the worker appreciated the sense of comradeship from the members of an online community. In addition to gaining the sense of belonging to the community, the crowdworkers were found engaging in the community for a shared vision. One worker explained,

*Yes, I have expressed my opinions on Reddit/mturk. Many of the people I expressed my opinions to agreed with what I had to say and offered their own viewpoints. I suggested that certain scripts remain free to use so some workers don't get an unfair advantage over others. Many agreed with me on the topic. (Worker #7)*

In the CSWE, the workers relied on the community for support to solve work-related problems. Due to the nature of individual assignment and digitized work process on platforms, the support from their “invisible” peers was especially appreciated by those crowdworkers who were new to the CSWE. When asked about their voice behaviors in online forums, a worker (Worker #36) explained that *“It is nice to have people who understand and can commiserate.”* This sentiment is shared by another worker (Worker #29) who found the Forum helpful because *“you have a handful of people who have been turking for a very long time and therefore are almost always able to help with problems.”*

As a crowdworker's workgroup identification increased, he/she was more likely to engage in voice behavior in the online communities. Although crowdsourcing presented a boundaryless work environment, workers formed their groups online and shared their work experiences through online forums. In the traditional organizational environment, employees voiced to be aligned with group goals and sense of belonging and achieved workgroup identification (Morrison, 2014). Similarly, the crowdworkers in the CSWE were found voicing in online forums to seek information, solutions, and support from others, which further strengthened their attachment to the virtual communities of crowdworkers.

### 4.4 Anger and Frustration

Crowdworkers' voice behaviors were also influenced by their anger and frustration. This worker emotion is a personal emotion of anger and the desire to release personal frustration (Edwards et al., 2009). In the CSWE, workers' frustration with the platform or job requesters drove them to vent their anger and frustration in the online forums. For example, one worker (Worker #10) explained, *“It relieves the stress and help me cope with unfairness from some requesters.”* Another worker (Worker #03) elaborated, *“I usually leave a review on Turkopticon. I do that because I need to vent first and foremost and so that others can avoid the same troubles I went through.”* As shown in both workers' remarks, the emotion-driven voice could bring different benefits. In the first instance, venting frustration about job requesters' unfairness helped the worker “relieve the stress.” However, in the second instance, venting through leaving a review on Turkopticon could also benefit others in the community. These suggest that voice actions driven by the same emotion can bring different outcomes, from enhancing personal wellbeing to benefiting others.

In addition, the workers found online forums a convenient venue for voicing problems and making complaints. As one worker (worker #56) admitted, *“Yes, I posted in the online forum to share my views because it is an easy way for me to vent my frustrations sometimes.”*

As a crowdworker's emotion of anger and frustration increased, he/she was more likely to engage in voice behavior in the online communities. Extant voice literature has shown that emotion of anger can motivate employee internal voice in organizations (Morrison, 2014). However, in the CSWE, our data shows that such emotion-driven voice behaviors were demonstrated in online communities of crowdworkers, external of the platform or requesters, the causes to the workers' anger and frustration.

As discussed above, the crowdworkers had concerns, ideas and perspectives that were relevant to the crowd work process and environment. However, some workers did not voice; they chose to withhold their

concerns and suggestions from the three recipients in the CSWE. Our data analysis reveals a total of 66 instances and reveals two antecedents — futility and achievement orientation — that negatively impacted crowdworkers' voice.

#### 4.5 Futility

Futility emerged as an important factor influencing the crowdworkers' voice. Unlike the above four motivating factors, a worker's belief of futility was found inhibiting worker voice. Futility refers to the worker feeling that voicing is useless. In the CSWE, the crowdworkers' overwhelming sense of futility toward the platform was a major factor preventing them from speaking up in face of problems. The sentiment was common among the crowdworkers. For example, one worker (Worker #55) explained, "*All complaint emails are sent into a black hole where they are ignored and not responded back to. No, this is not helpful because Amazon makes no effort to helping their workers.*" The sense of futility led workers to keep their mouth shut, as the other worker (Worker #39) noted, "*I won't complain to Amazon because they don't listen or care. I don't complain to requesters because I have found the best way to get what I want is to be nice... I take my licks and move on.*"

Similarly, the perception of futility also led to crowdworkers' withholding of their work-related ideas. When asked about why they withheld their suggestions to MTurk, the crowdworkers frequently mentioned "pointless" or "nothing gets done." As one elaborated:

*I don't find it helpful to make suggestions, either to Amazon or the community. One won't listen, and the other can't do anything but agree with me. Sadly it doesn't get anything done either way.* (Worker #32)

As shown in the remarks above, the workers' feeling of powerlessness might be rooted in the lack of communication channels on the platform, or lack of empathy from the platform owner. The sense of futility also contributed to the workers' reluctance to voice not only toward the MTurk platform but also to requesters and the forums. The crowdworkers decided to shut up to all three recipients, when they felt useless in expressing suggestions to a recipient.

As in traditional employment relations, workers' hesitation to engage in voice behaviors were observed in the microtask CSWE. Our data analysis has shown that crowdworkers chose to withhold their concerns and suggestions mainly because of the feeling of futility, and their decision to disengage was mainly oriented toward the MTurk platform. While many workers expressed identity with other workers in the CSWE through their online communities, the MTurk platform itself did not appear be a source for establishing and solidifying their organizational identity. To some extent, the crowdworkers were forced to shut up, due to lack of channels on the platform for workers to voice and lack of responses from the platform owner.

#### 4.6 Achievement Orientation

Achievement orientation is another factor inhibiting worker voice behavior. This individual disposition is defined as the orientation of those workers who are more likely to focus on the consequences for the self, consistent with prior study (Tangirala et al., 2013). Driven by self-interest and focus, a worker withheld his/her suggestions for changes or improvement in the CSWE. As one worker (Worker #39) explained, "*In general, I don't complain. Time is money and time spent having to describe a distressing situation and maybe not even getting a resolution to that situation is time wasted.*"

As a crowdworker's achievement orientation increased, he/she was less likely to engage in voice behavior in the CSWE, regardless of the voice recipients. Although only a very small percentage (2.6%) of the revealed linkages was associated with the factor of achievement orientation (see Figure 1), it's worth noting that such an individual disposition may increase a crowdworker's isolation in a digitized, boundaryless work environment. When workers focused more on the interest and benefits for the self, they were more likely to withhold suggestions that may have benefited their crowdworker community.

In summary, our data analysis has provided evidence to show the presence of worker voice behaviors in the microtask CSWE, but the crowdworker voice was directed to three different recipients and influenced by six factors. The workers were willing to speak up when they were motivated by their duty orientation, efficacy judgment, workgroup identification, and anger/frustration emotion. Meanwhile, our data analysis has provided evidence to show that workers' voice was stifled in the CSWE due to workers' belief of futility and their individual disposition of achievement orientation. The workers were more likely to shut up, when

they felt their effort at voicing concerns and opinions were going to be futile, or they focused on self-interests. The revealed six factors allowed us to understand the factors motivating and inhibiting worker voice in the microtask crowdsourcing work environment.

## 5 Discussion: Emerging Research Themes

The objective of this research was to examine the nature of crowdworker voice behaviors in the microtask CSWE. We found that, despite the absence of voice channels and formal structures, crowdworkers successfully coped and survived, instead of exit, in their digital work environments by finding ways to make their voices heard. Yet, the factors that prompted these coping mechanisms varied across different contexts. The RCM analysis of 60 crowdworkers' narratives revealed the key constructs and their linkages related to workers' voice behaviors in the new digital workplace of the microtask CSWE (refer to Figure 1).

### 5.1 Understanding Crowdworker Behaviors from Two Major Aspects: Antecedent and Recipient

Our data analysis has shown that the crowdworker voice behaviors were affected by six factors: duty orientation, efficacy judgment, workgroup identification, anger/frustration emotion, futility and achievement orientation. Specifically, the six antecedents were found affecting the crowdworkers' voice behavior differently. While duty orientation, efficacy judgment, workgroup identification, and anger/frustration emotion were found driving worker voice, worker belief of futility and achievement orientation were found hindering worker voice. Moreover, the prominence of the six factors has demonstrated different patterns. Among the four positive factors of voice, efficacy judgment was frequently cited by the crowdworkers when the recipient of voice was job requesters as they believed the effectiveness of voice for reaching a desired outcome (i.e., overturning a work rejection). When their motivations were to benefit other workers, to vent the frustration, or to identify themselves to their worker community, the crowdworkers were found voicing their concerns and opinions more in the online forums for workers. In this regard, our study has provided a nuanced understanding about such crowdworker behaviors from two major aspects – antecedent and recipient – contribution to the crowdsourcing research.

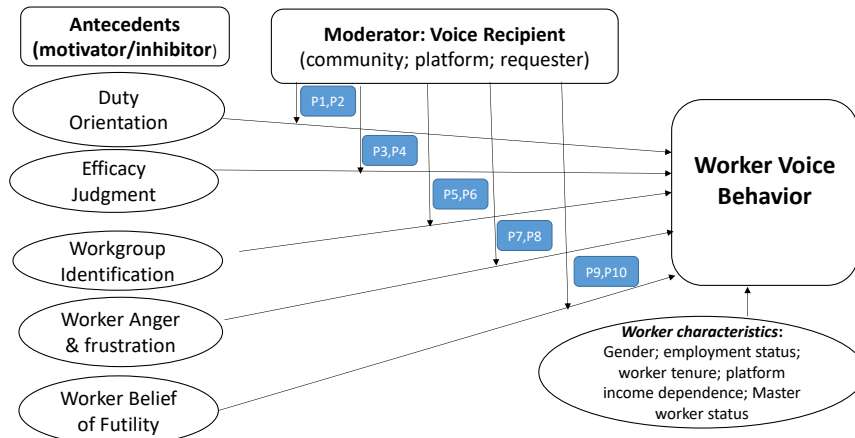
Unlike traditional employment relations, the CSWE relations are composed of multitude of triadic worker-job requestor- platform owner relationships that are configured dynamically for a short duration around each micro task. Although three recipients of voice were present in the CSWE, limited voice was targeted toward the platform, highlighting an important difference in the crowdworker voice behaviors when compared to employee voice in traditional organizations. The limited worker voicing behavior toward the platform was partly due to the constraint of the voice channel, as there were limited channels on the platform for workers to report complaints or to make suggestions. By the technical design features on the platform, the platform owner has created an imbalance power among the dyadic relationships between platform, job requesters, and workers. This is consistent with prior research that platform favored requesters over workers in its settings and policies, i.e., requesters can rate workers but no equivalent feedback mechanism is available to workers (Fieseler, Bucher, & Hoffmann, 2019).

Fostering inclusive voice forms in this dynamic and fluid work engagement is complicated and requires further investigation. Achieving true work inclusion depends on platform's authentic commitment to information flow among all three players, i.e., workers, job requesters, and platform. Understanding how the role of voice differs in platform environments may prove critical to developing effective mechanisms to ensure equitable CSWEs. While workers may be able to exit platforms, the distributed nature of the work may make trade unions or location-based regulators infeasible for promoting worker protections (Taylor et al., 2020). We propose that developing an effective understanding of the ways in which voice behaviors are demonstrated requires recognizing the three recipients: worker community, platforms, and requesters.

### 5.2 Extending Voice Theory: A Moderator Perspective in the CSWE

Based on our findings, we propose a model of antecedents for crowdworker voice in the CSWE, which incorporates the five categories of voice antecedents, worker voice behavior, and the moderator of voice recipient, as shown in Figure 2.





**Figure 2. A model of worker voice antecedents and moderator in the crowdsourcing work environment**

### Figure 2. A Model of Worker Voice Antecedents and Moderator in the Crowdsourcing Work Environment

As shown in Figure 2, our model consists of ten propositions: five propositions focus on the main effect and the other five propositions on the moderating effect. The first set of propositions are concerned about individual disposition of duty orientation and voice behavior. The crowdworkers in our study have participated in online communities of crowdworkers and considered those communities sources of support. They were more likely to share suggestions and problem-related information in the online forums when they showed the tendency to prioritize the interests of the communities. For example, one worker warned the online community to avoid the same bad situations that he/she encountered and made the remark: “*When I was treated unfairly, the first thing I do is to post a bad review in Turkerview.com, talk with my friends in the online community and warn them about the situation*” (Worker #10).

Majority (68.6%) of the revealed voice instances driven by duty orientation were targeted to community, compared to 15.7% to job requesters and 15.7% to the platform (See Table 4). This antecedent of worker voice is consistent in prior studies of employee voice towards management and supervisors in traditional organizations (i.e., Morrison, 2014). Unlike in a confined organizational boundary, the worker-supervisor relationship does not exist in the context of CSWE: the workers are considered independent contractors on the platforms. Nevertheless, they spoke up in their online communities to express their concerns and make work-related suggestions because they felt an obligation to stop the unfair treatments and for promoting a constructive change in the crowd work environment. As the crowdworker’s duty orientation increased, he/she was more likely to engage in voice behavior in their online communities, hoping to benefit their worker communities and bringing positive change to the CSWE. Based on our finding and reasoning, we propose:

**Proposition 1:** Workers’ duty orientation is positively related to their voice in the CSWE.

**Proposition 2:** Voice recipient moderates the positive relationship between duty orientation and worker voice: The relationship is stronger when voice recipient is *community*, compared to other types of recipients.

The second set of propositions focuses on the voice antecedent of efficacy judgment. In our data sample, crowd workers have expressed a perception that engaging in voice is effective in achieving their desired outcomes (i.e., revert a HIT reject), and such perception encouraged them to report problems to job requesters and seek solutions directly from them. As a crowdworker’s efficacy judgment increased, he/she was more likely to engage in voice behavior, especially in their communications with job requesters. This is reflected in a worker’s remark that expressing concerns to job requesters “*usually works out well. Requesters in general are fair and fix any problems that aren’t my fault*” (Worker #22). Moreover, majority (80.4%) of voice instances with efficacy judgment motive were directed to job requester, compared to 13% to the platform and 6.5% to job requesters (See Table 4). In traditional organizations, workers’ judgement of such positive consequence will motivate their upward voicing

behavior (Morrison, 2014). Similarly, in the context of CSWE, such perception driven voice was present, especially when the voice recipients are job requesters. Therefore, we propose:

**Proposition 3:** Workers' efficacy judgment is positively related to their voice in the CSWE.

**Proposition 4:** Voice recipient moderates the relationship between efficacy judgment and worker voice: The relationship is stronger when voice recipient is *job requester*, compared to other types of recipients.

The third set of propositions is related to the influencing factor of workgroup identification, which refers to individual identification with a workgroup such that a highly identified individuals perceive a strong connection between the group and their sense of self and define themselves in terms of group membership. As shown in Tale 4, all the voice instances motivated by workgroup identification were found in the crowdworkers' communications in the online community. In traditional organizations, employees define themselves in terms of their employers (Morrison, 2014). However, our data shows that in the CSWE, the crowdworkers identify themselves with their online community of workers, not the platform nor job requesters. For example, a worker explained that "*I also go to my mturk community message board to see if anybody else has a similar complaint or can help me resolve my issue.*" (Worker #33). When they felt a stronger connection with their community, they were more likely to share information and problems about their crowdwork experience in their online worker communities. In the long run, crowdworkers' active participation in online communities would have a persistent mitigating effect on their desires to exit the crowdsourcing environment (Ma, Khansa, & Kim, 2018). Therefore, we propose:

**Proposition 5:** Workgroup identification is positively related to a worker's voice in the CSWE.

**Proposition 6:** Voice recipient moderates the relationship between workgroup identification and worker voice: The relationship is stronger when voice recipient is *community*, compared to other types of recipients.

The fourth set of propositions is related to individual emotions of anger and frustration. In employee voice studies, the voice was directed upward to managers and supervisors (Morrison, 2014). However, in the CSWE, crowd workers were motivated to voice because of their desire to vent anger and frustration. To vent anger and frustration, the crowdworkers found online forums a convenient venue external of the MTurk platform. Venting on the forum was helpful to relieve their stress. One worker explained, "*When I had complaints about mturk or if I am treated badly I usually leave a review on Turkopticon. It is helpful because there exists some tool to help us with communicating our thoughts.*" (Worker #03). Another worker elaborated, "*It does feel good to vent my immense frustration with the platform to friends, so I'd say it's helpful in letting me get it off my chest.*" (Worker #32). In the CSWE, worker voice behaviors driven by their anger and frustration were found mostly in the context of their online communities, as evidenced by 90.9% of all the anger/frustration driven voices (Table 4). Therefore, our finding and the reasoning led us to propose:

**Proposition 7:** Worker anger/frustration is positively related to their voice in the CSWE.

**Proposition 8:** Voice recipient moderates the relationship between worker anger/frustration and worker voice: The relationship is stronger when voice recipient is *community*, compared to other types of recipients.

The fifth set of propositions concern the voice antecedent of worker belief of futility. Unlike the four factors above that positively influence voice behaviors, this worker belief is found exerting a negative effect on the crowdworker voice. Crowdworkers were less likely to voice when they believed that voice won't help them achieve their desired results, i.e., recipient heard their voices and took actions. When asked about their communications with MTurk to report problems or express opinions, one worker responded that "*it seems futile to me. I don't think anything will change.*" (Worker #06). Another worker further explained, "*there's no real ability to communicate to Amazon and they have clearly shown over the last decade that they absolutely don't care about workers, so it's kind of pointless.*" (Worker #26). In traditional organizations where such sense of usefulness was related to managers and supervisors (Morrison, 2014). However, in the CSWE, such experience was often associated with the platform, as evidenced by 70% of futility associated voices behaviors were related to the Mturk platform (Table 4). Based on our finding and the reasoning, we propose:

**Proposition 9:** Futility is negatively related to worker voice in the CSWE.

**Proposition 10:** Voice recipient moderates the relationship between worker belief of futility and worker voice: The relationship is stronger when voice recipient is *platform*, compared to other types of recipients.

While employee voice has been well studied by organization researchers (see Morrison, 2014), the emerging technology mediated CSWE presents new work context and worker characteristics that challenge the validity of the prior employee voice research and findings. Our study presents a conceptual model to capture the antecedents and moderator of worker voice in the new workplace of microtask crowdsourcing. By doing so, we respond to researchers' call to theorize worker voice in the CSWE, as digital work platforms pose challenges for employee voice and participation, "*which has yet to be theorised let alone researched empirically*" (Wilkinson, Gollan, & Kalfa, 2018; p. 721).

### 5.3 Contextual Factors and Crowdworker Voice

The CSWE differs from traditional organizational setting (Deng & Joshi, 2016). As a result, prior findings on the effect of work context on employee voicing behavior (Morrison, 2014) may become inapplicable in the CSWE. For example, the contextual factors such as employee-supervisor structure in traditional organizations do not exist in the CSWE, which explains why our data sample did not report the influencing factors of supervisor and leader behavior on worker voice (Detert & Trevino 2010; Tangirala & Ramanujam, 2012). Likewise, the lack of organizational boundary and formal employee management structure in the CSWE makes the antecedents of organizational attitudes and perceptions (e.g., Liang et al. 2012) and voice mechanisms (Dundon et al. 2004; Pinder & Harlos 2001) irrelevant in the voice behavior of the crowdworkers.

Different from employee voice studies, our data analysis has revealed that worker-oriented factors, such as degree of income reliance and elite worker status, influenced a crowdworker's decision to speak up or shut up. First, we found that the degree of a worker's dependence on crowdwork income affected their voice behavior. Among all workers who depended on MTurk income, majority of them (83.3%) chose to voice their problems and complaints, while only 16.7% of them chose to not voice their dissatisfaction. When the content of voice was about suggestions and opinions, workers who relied on MTurk income were more likely to voice their suggestions than those workers who did not rely on the income, as shown by 53.6% and 46.3% respectively. This suggests that as workers' participation in the CSWE increases, such as increasing dependence on the MTurk income, they are more motivated to invest time and effort into expressing voices that will help improve the crowd work environment.

Another worker characteristic that affected their voice behavior is their elite status of Master worker. On the MTurk platform, the Master status often provided a crowdworker with access to more and better paid microtasks so it's likely that crowdworkers of different status - Master vs. regular worker – may behave differently (Deng et al., 2016). Our data analysis revealed that those Master workers were slightly more likely to make their voices about problems and complaints than those regular workers, at 81.3% and 74.6% respectively. Similarly, the Master workers were found more likely to express suggestions and opinions than their counterparts, at 59.4% and 42% respectively. In this regard, the Master worker status may be associated with high work self-esteem, thus motivating them to speak up and seek remedies for the mistreatments or unfair treatment they received (Harlos, 2010).

## 6 Contributions and Implications

### 6.1 Theoretical Contributions

Our study makes three important theoretical contributions. First, by revealing a comprehensive list of barriers and facilitators of voice behaviors in the CSWE, this study offers a framework to organize behavioral drivers that can be explored in future research. By examining the applicability of a theory developed in traditional organizational settings to emerging work structures, we develop an analytical generalization of work behaviors in the new form and context of work. Such theoretical extensions of known behaviors that improve or impede workplace equity and inclusion lay a strong foundation for studying such behaviors in new and novel ways.

In addition, our study reveals the power dynamics and locus of control in the CSWE by uncovering the interplay between workers' voice behaviors with platform, task requestors and worker community. In the traditional organizations with hierarchical or matrix structures, employees' reporting lines are reasonably static. In contrast, such reporting lines are fuzzy in the CSWE where multiple fluid and dynamic

relationship configurations among crowdworkers, platforms, and job requestors are a norm. Our findings show that such contextual differences operate as contingencies and are crucial to understanding crowdworker voice behaviors that are targeted toward three different stakeholders (See Table 4 and Appendix Table B).

Finally, by engaging the IT artifact (i.e., digital work platforms) with the extant voice literature, we extend the theory that originated in the OB/HR literature. Our study reveals the antecedents of voice behaviors at crowdwork, which is digitized and conducted through a digital medium. In doing so, our study offers a way to theoretically engage with the IT artifact that can help uncover important properties of technologies that drive voice behaviors in the CSWE. Information systems scholars (e.g., Leonardi & Kallinikos, 2012; Robey, Raymond, & Anderson, 2012) encourage greater and deeper engagement with IT's materiality by granting IT artifacts a clear theoretical status. Specifically, Robey et al. (2012) offer two strategies for theorizing materiality: extend theories that nominally address IT or extend theories established before the advent of IT artifacts and, thus, "ignore" IT. Our research has employed the second strategy by engaging voice theoretical streams established before CSWE became popular and thus "ignored" the role of IT to advance our understanding of how crowd workers find ways to be heard in digital work environments. Furthermore, scholars have called for more theory-driven empirical investigation of voice in digital space (Wilkinson et al., 2018). Our study is responding to this call. In the CSWE, organizations (job requestors) broadcast open calls to tap into the large-scale, on-demand virtual labor while workers conduct tasks on digital modular platforms in exchange for monetary remuneration that is governed by the platform. The workplace properties of the CSWE change how the voices of the crowdworkers can be heard. For instance, in the CSWE, work contracts are designed as service level agreements with the platform while the task contracts are designed for task requirements with the job requestors. Both collectively mitigate the effects of voice motivators that are relevant and pronounced within the traditional organizational context, such as organizational identification, organizational support, leadership, leader influence, and hierarchical structure.

## 6.2 Practical Implications

Our paper also offers useful practical implications for crowdworkers and policymakers. First, this paper contributes to the practice of crowdsourcing. Practically, understanding the worker behaviors unfolding in the new and emerging virtual work environments could provide practical guidelines to those organizations employing on-demand digital workforce. Designing practices and procedures that allow crowdworkers to voice productively could help enhance loyalty and commitment to digital work and work environment. Workers who participate in the CSWE lack traditional outlets for voice, such as managers or union representatives. Our research highlights the needs and interests of crowdworkers from the workers' perspective and demonstrates the value of providing these workers an outlet for voice. Crowdworkers are a growing share of the labor force. Future research must continue to identify ways in which regulators, platforms and clients effectively engage the voice of workers in identifying both problems and suggestions necessary to promote shared prosperity as the nature of work changes.

Second, our study's findings have implications for policymakers. Our work informs national and international discourse regarding re-formulation of regulations through collective bargaining and extension mechanisms to influence the future of work in hopes of retaining the values and preferences that we choose as societies (Johnston & Land-Kazlauskas, 2018). As recent regulatory challenges exposed within the US state of California demonstrate that digital platforms that transform work arrangements through modular tasks (Benlian et al., 2018), algorithmic management (Möhlmann et al, 2020) and IT functionality (Taylor & Joshi, 2019) need thoughtful and novel solutions. We believe that broadening our understanding of voice forms present and absent within these new work environments is critical to the discourse that will inform future labor policies for the gig economy.

## 7 Concluding Remarks

In this study, we examined the voice behaviors of crowdworkers in the microtask CSWE. Our study reveals a total of six factors that influenced a worker's voice and shows how the influence of each factor is contingent upon the type of voice recipients (community, platform, or job requester). Unlike the internal, upward voice in traditional employment context, worker voice in the CSWE is external, multi-directional, given the unique characteristics of the boundaryless digital work environments. While our study extends the employee voice theory and offers practical implications, our results should be interpreted with caution. First, we derived our results and the conceptual model from the crowdworkers from a single

crowdsourcing platform that focuses on micro tasks. Other forms of crowdwork, such as professional IT jobs (such as Upwork.com) may present different task characteristics or different worker behaviors. In addition, this study adopts the crowdworker perspective. Future studies focusing on job requesters and platform owners in the crowdworking arrangement may provide different insights.

Worker motivation for participating in microtask crowdsourcing work, both initially (Deng & Joshi, 2016) and continuously (Jiang et al., 2021), may be linked to their voice behaviors. Research has shown that voice serves as a mechanism for sharing frustrations within the work environment (Harlos, 2010). Motivations such as job autonomy, workplace flexibility, and financial needs that drive individuals to enter and persist in CSWEs could be germane to their inclination to voice concerns or remain silent. This interplay between the motivation to join crowd work and the motivation to express concerns may explain why CSWEs remain popular among crowdworkers despite work vulnerabilities, with their popularity steadily growing. Exploring the relationship between crowdworker motivation to stay in CSWEs and their inclination to engage in voice behaviors holds significant potential for generating valuable insights in this research field.

Other directions of future research include investigating the degree and level of crowdworker engagement in voice. Although organizational hierarchy is absent in the CSWE, the degree of the crowdworker voice may exist. According to employee voice researchers, employee voice is affected by the degree of employee participation – from information, communication, consultation, co-determination, to control – and level of employee voice participation (the reach of participation), and affecting decisions and processes on a task level, department level, firm level, or corporate level (Wilkinson, Townsend, & Burgess, 2013).

Finally, CSWEs are primarily asocial as they were created using work-design perspectives of task simplification based on Taylor's (1911) principles of scientific management (Deng & Joshi, 2016). The lack of sociality purposefully designed into the CSWE make engaging in voice behaviors particularly arduous. To offset the lack of avenues for prosocial behaviors in the CSWEs, workers seek and provide support to their fellow crowdworkers by posting on community forums that exist outside the boundaries of a CSWE. Given the influence of the CSWE's design on voice behaviors, future research needs to offer ways to redesign CSWEs that encourage productive and prosocial work behaviors (Gegenhuber, Ellmer, & Schüßler, 2020). This study moves us a little further in that direction, by understanding the factors germane to sapping the crowdworkers' motivation to act in promotive behaviors in the new form of crowdworking.

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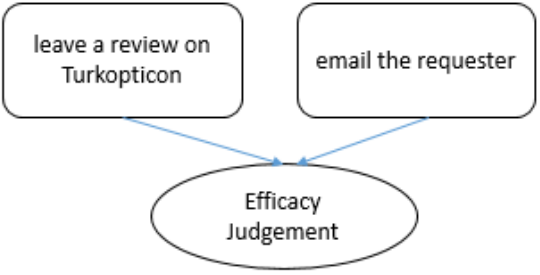
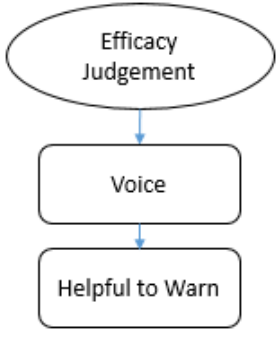
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## Appendix A: Five-Step Procedure for Constructing a Causal Map

<p>Step 1: Identify causal statements</p>	<p>Example of causal statement in response to question #2, When you have complaints or feel unfairly treated on MTurk, how and to whom do you express your complaints? Please provide an example. <i>"I message the requester and also leave a review on TurkOpticon or Turkerview"</i> (Worker #12)</p>
<p>Step 2: Construct raw casual maps</p>	<p>Cause: (1) having complaints about Mturk; (2) being treated badly by a requester; : platform. Effect: Futility</p>
<p>Step 3: Code responses</p>	<p>Raw Phase (Coded Concept) having complaints about Mturk (email the requester) being treated badly by a requester (leave a review on Turkopticon) Raw coding validating by comparing results across researchers</p>
<p>Step 4: Recast raw causal maps into 2<sup>nd</sup> order level factors to create revealed causal maps</p>	<div style="text-align: center;">  <p>The diagram shows two rounded rectangular boxes at the top: "leave a review on Turkopticon" on the left and "email the requester" on the right. Blue arrows from both boxes point downwards to a central oval labeled "Efficacy Judgement".</p> </div> <p>Concept level revealed causal map</p>
<p>Step 5: Create construct-level revealed causal maps</p>	<div style="text-align: center;">  <p>The diagram shows a vertical flow of three elements. At the top is an oval labeled "Efficacy Judgement". A blue arrow points down from it to a rounded rectangular box labeled "Voice". Another blue arrow points down from "Voice" to a second rounded rectangular box labeled "Helpful to Warn".</p> </div> <p>Construct-level revealed causal map</p>

## APPENDIX B: Selected Samples of Crowdworker Narratives on Voice Antecedent and Recipient

Voice Recipient	Voice Antecedent	Example of Worker Narratives
Job Requester	Efficacy judgement	<p>"Expressing concerns to job requesters usually works out well. Requesters in general are fair and fix any problems that aren't my fault" (Worker #22).</p> <p>"I find it (sharing suggestions on workflow) helpful and it's nice to see a requester getting into the site and improving efficiency for everyone involved, because it means happier workers and happier requesters" (Worker #39).</p>
Worker Community	Duty orientation	<p>"I created an AutoHotkey script for a batch and shared it in the forum. People were thankful for me creating that script." (Worker #5)</p> <p>"When I was treated unfairly, the first thing I do is to post a bad review in Turkerview.com, talk with my friends in the online community and warn them about the situation" (Worker #10).</p>
Worker Community	Workgroup identification	<p>"Yes, I have expressed my opinions on Reddit/mturk. Many of the people I expressed my opinions to agreed with what I had to say and offered their own viewpoints." (Worker #7)</p> <p>"I also go to my mturk community message board to see if anybody else has a similar complaint or can help me resolve my issue. It is very helpful because the community members are very knowledgeable and can often times help me resolve my complaint without having to go to amazon directly." (Worker #33).</p>
Worker Community	Anger\Frustration	<p>"When I had complaints about mturk or if I am treated badly I usually leave a review on Turkopticon. It is helpful because there exists some tool to help us with communicating our thoughts." (Worker #03).</p> <p>"Yes, I posted in the online forum to share my views because it is an easy way for me to vent my frustrations sometimes." (Worker #56)</p>
Worker Community	Achievement orientation	<p>"In general, I don't like to make posts or complain. I take my licks and move on. Time is money and time spent on talking and discussing is time wasted." (Worker #28)</p>
Platform	Futility	<p>"There's no real ability to communicate to Amazon and they have clearly shown over the last decade that they absolutely don't care about workers, so it's kind of pointless." (Worker #26).</p> <p>"I won't complain to Amazon because they don't listen or care. I don't complain to requesters because I have found the best way to get what I want is to be nice... I take my licks and move on." (Worker #39)</p>

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