



To routinize or not to routinize? Employee task routinization, situational motivation, and creativity

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We addressed previous mixed findings regarding the effects of task routinization on employee creativity. We proposed that task routinization is not a single dimensional construct but that it has 2 dimensions, namely, content and process, which have different motivation and performance implications. Participants were 240 employees from various industries in South Korea. Results of structural equation modeling analyses confirmed that task content routinization had a negative effect on employee creativity by causing amotivation and reducing intrinsic motivation. By contrast, task process routinization enhanced employee creativity by increasing intrinsic motivation. Our findings clarify the effects of task routinization on employee creativity by identifying the 2 dimensions that lead to different situational motivation and creativity results, and we discuss the implications of these findings.

Keywords

employee creativity; task routinization; situational motivation; situational amotivation; intrinsic motivation

Employee creativity refers to the generation of novel and useful ideas, procedures, and products (Zhou & Shalley, 2003). In an era characterized by turbulent business environments, employee creativity has become vital for organizational survival and prosperity (Anderson, Potočnik, & Zhou, 2014). However, and ironically, heightened task pressures from fast-changing technological and market environments, and consequent demands for continuous accommodation of such changes have deprived employees of the time and energy to initiate creative action (Ohly, Göritz, & Schmitt, 2017). This has made it difficult for employees to be creative and flexible in solving problems that are beyond their cognitive processes (Parker, Williams, & Turner, 2006). For this reason, researchers have explored the beneficial effects on creativity of the “mindless” state of employees who perform low cognitive difficulty tasks with nonwork-related thoughts (e.g., Dane, 2011; Sonenshein, 2016). Task structures that can save employees’ mental resources, especially task routinization, have gained attention as a potential positive predictor of creativity (Chae & Choi, 2019; Ohly et al., 2017).

Task routinization refers to automaticity in task behavior (Ohly, Sonnentag, & Pluntke, 2006). Employees perform routine tasks with unintentionality and a lack of awareness (Ohly et al., 2017) in an effortless way that does not require a large amount of cognitive resources (Chae & Choi, 2019). However, researchers have not reached a consensus on the crucial role of task routinization in relation to creativity, and especially on the underlying mechanisms of the relationship between task routinization and employee creativity.

On the one hand, task routinization can impede employees’ creativity because it restricts their behavior in a familiar setting (Ford & Gioia, 2000). Hence, researchers have proposed in most job design theories that

complex rather than routine tasks can stimulate and challenge employees to develop new strategies and ideas to manage various situational demands (Hackman & Oldham, 1980; Tierney & Farmer, 2002). On the other hand, researchers with an emerging perspective on task routinization have emphasized that routine tasks save time and cognitive resources, thereby supplying employees with extra resources needed to initiate creative action (Ohly et al., 2006). For instance, Chae and Choi (2019) found that task routinization is positively related to supervisor-rated employee creativity, which is mediated by free cognitive resources that can be mobilized for extra creative endeavor. Chae and Choi also reported that such positive effects of task routinization are pronounced, particularly when employees' learning orientation is high and when their supervisors support creativity. Because of the taxing nature of creative action, employees have to make an extra effort and take extra time to perform this action (Parker et al., 2006). Researchers suggest from this perspective that task routinization can stimulate creativity by generating mental slack or by boosting cognitive flexibility.

Our aim in this study was to clarify the relationship between task routinization and employee creativity. First, we addressed the previous mixed findings regarding the effects of task routinization on employee creativity by identifying two distinct dimensions of task routinization and their different impacts on creativity. We adopted the job characteristics model (Hackman & Oldham, 1980) and resource allocation theory (Kanfer & Ackerman, 1989), and posited that each task routinization dimension would be connected to employee creativity through different mechanisms.

Second, we identified situational motivation as a mediating mechanism underlying the relationship between task routinization and employee creativity. In comparison to trait-based motivation, *situational motivation* captures the situation-specific motivation that individuals experience at a given point of time when they are involved in a specific task (Vallerand & Losier, 1999). In this study we focused on the here-and-now state-dependent type of situational motivation because we investigated employees' situation-specific reactions when they perceive the presence of each task routinization dimension (Guay, Vallerand, & Blanchard, 2000). On the basis of self-determination theory (Ryan & Deci, 2000), we explored the mediating roles of situational motivation (i.e., intrinsic motivation and amotivation) to enhance understanding of employees' self-regulatory processes following task routinization.

Finally, we investigated the task routinization–creativity relationship using a field sample, which is vital for this research model because the effects of task routinization tend to develop over time (Chae & Choi, 2019).

Literature Review and Hypothesis Development

Content and Process Dimensions of Task Routinization and Employee Creativity

Our focus in this study was on task-level rather than job-level routinization. At the job level, routinization is more stable and constitutes an occupation's defining and inherent nature (Ohly et al., 2017). We proposed that each individual performing the same job in the same profession can experience different levels of routinization, and that the same task may provide multiple properties or layers of routinization. Grant, Fried, and Juillerat (2011) also suggested that researchers have largely overlooked the multidimensionality of a job characteristic, and that focusing on molecular units of jobs, such as tasks, can enhance understanding of the effects of job design on performance. Therefore, we examined task routinization based on work content and operating procedures.

First, as a task can be routinized regarding its content, this possibly constitutes the opposite of the task complexity construct. We defined *task content routinization* by the following characteristics: (a) lack of new events in daily task performance; (b) limited use of, or necessity for, diverse skills in performance; and (c) deficient autonomy in the selection of skills to perform tasks. Thus, task content routinization is perceived by employees as the absence of newness or unexpected challenges in work content and/or the minimal need to use various skills to address task challenges.

Second, a task can also be routinized in relation to its implementation procedure. We characterized task process routinization using the following properties: (a) explicit operating procedures, (b) clear protocols for the addressing of task situations or problems, and (c) automatic approval of a chosen task procedure based on the task manual. Thus, task process routinization does not affect the inherent content of a task. Instead, it prescribes the procedure by providing clear guidelines, thereby increasing predictability in employees' task performance and saving their time and cognitive energy in completing the task (Ohly et al., 2017). Task process routinization can increase employees' convenience and sense of security as it provides simple, consistent, and efficient ways to address task-related problems.

Content and Process Routinization and Employee Creativity

We proposed that each task routinization dimension would have a different impact on employee creativity through different mechanisms. We expected that task content routinization would decrease employees' creative actions because the lack of new events and challenging situations would deprive them of stimuli for creativity in the workplace. According to the job characteristics model (Hackman & Oldham, 1980), the challenging and complex content of a task signals that such a task is significant to the organization. Conversely, task content routinization is likely to evoke employees' perception of task insignificance, because of the feeling of boredom, which inhibits creativity. Tasks that require a wide range of skills help employees "to explore and manipulate their environments and to gain a sense of efficacy by testing and using their skills" (Hackman & Oldham, 1980, p. 78). In contrast, tasks with routine content may constrain employee attention and obviate task-related exploration that is based on diverse and flexible points of view (Grant & Berry, 2011). As creativity involves a series of problem-solving processes and a search for variation or deviation from current methods, we expected that task content routinization with repetitive and unchallenging task features would discourage employee creativity. Thus, we proposed the following hypothesis:

Hypothesis 1: Task content routinization will be negatively related to employee creativity.

By contrast, we expected that task process routinization would improve employee creativity. Process routinization enhances well-practiced approaches and procedures to prevent unnecessary or redundant work efforts. When the rules and procedures have a component of automaticity, employees can perform their tasks faster and more easily, proceeding with the duplicated process in a safe and predetermined way (Ohly et al., 2006). This will conserve employees' cognitive resources. The time and effort required for completion of the entire task are predictable with task process routinization, which enables employees to perceive their task as within their control, consequently creating interest in their task. According to cognitive evaluation theory and self-determination theory, employees' sense of control over their work is a prerequisite to intrinsic motivation and creativity (Ryan & Deci, 2000). When they perceive that their tasks are within their internal control and not constrained by external forces, employees are likely to feel supported and encouraged, which ultimately enhances their creative performance (Shalley, Zhou, & Oldham, 2004). Task process routinization can help employees perform the given task on time to the expected quality standard, thereby generating more free time and extra cognitive resources that can be directed to developing new ideas (Chae & Choi, 2019; Kanfer & Ackerman, 1989) or addressing deficiencies (Ohly et al., 2006). Thus, we proposed the following hypothesis:

Hypothesis 2: Task process routinization will be positively related to employee creativity.

Mediating Effects of Situational Motivation

We predicted that employee motivation would function as a mediator to connect the two task routinization dimensions to employee creativity. Thus, we adopted state-based motivation (situational motivation) rather than trait-based motivation. *Situational motivation* involves the here-and-now motivation that refers to employee engagement in a specific task at a given time (Vallerand & Losier, 1999). Therefore, situational motivation provides a more thorough understanding of motivational processes (Gillet, Vallerand, Amoura,

& Baldes, 2010) than does trait-based motivation, especially in an investigation of the effects of task-level characteristics.

Ryan and Deci (2000) posited in their self-determination theory that individual motivation exists in diverse forms and directions, including intrinsic motivation, extrinsic motivation, and amotivation. Empirical findings indicate that social factors induce individual psychological reactions and then either reinforce or undermine situation-specific motivation (Gillet et al., 2010; Guay et al., 2000). Subsequently, individual motivation influences employees' creative performance by channeling or regulating their attention and efforts, inducing them to devote resources to creative problem-solving behavior.

When social conditions, such as task characteristics, involve autonomous motivation, they facilitate employees' proactive behavior. In this respect, the perceived meaningfulness of the task deteriorates when task content is routinized and limited possibilities are provided for personal development and exploration, thereby diminishing intrinsic motivation for the task. A work environment that is lacking in stimulation and new events makes employees perceive their work tasks as monotonous, which, in turn, causes low arousal, inattention, and diminished task involvement. This results in low intrinsic motivation and a subsequent lack of creativity (Loukidou, Loan-Clarke, & Daniels, 2009). Intrinsically motivated employees "expend effort based on interest, curiosity, and a desire to learn. Intrinsic motivation is thought to enhance creativity by increasing positive affect, cognitive flexibility, risk taking, and persistence" (Grant & Berry, 2011, p. 73).

In contrast, when the task involves controlling motivation or a lack of motivation (amotivation), employees' proactivity and performance are undermined (Gagné & Deci, 2005). In their self-determination theory, Ryan and Deci (2000) conceptualized amotivation as a lack of intention in, or absence of motivation toward, a task. As amotivation reduces employees' active task engagement, these employees are less likely than those with motivation to improve or to feel responsible for developing new ideas to solve task-related issues. Amotivated employees are precluded from experimenting and exploring with diverse solutions in the workplace. As lack of motivation also pushes employees toward a negative work experience, this has a further impact on their energy levels (Saavedra & Kwun, 2000). Therefore, we proposed the following hypothesis:

Hypothesis 3: Situational intrinsic motivation and amotivation will mediate the negative relationship between task content routinization and employee creativity.

Task process routinization is related to employees' effective or efficient management of their tasks on the basis of predictable procedures, sequence, or time frame. Thus, process routinization stimulates employees' perception that the task is under their control (Parker & Wall, 1998). In addition, when the process is routinized, employees can experience increased cognitive flexibility in regard to the task, resulting from a sense of self-determination (Grant & Berry, 2011). Therefore, we expected that task process routinization would be linked significantly to situational intrinsic motivation, which is a representative type of autonomous motivation. In turn, intrinsic motivation may function as a positive predictor of employee creativity (Oldham & Cummings, 1996). As intrinsically motivated employees find their tasks interesting and enjoyable, they engage in a task for its own sake, are excited and passionate about their tasks, and are likely to voluntarily explore innovative pathways to solve task-related issues by taking more risks (Shalley et al., 2004). Therefore, we proposed the following hypothesis:

Hypothesis 4: Situational intrinsic motivation will mediate the positive relationship between task process routinization and employee creativity.

Method

Participants and Procedure

We conducted this research in accordance with the ethical guidelines provided by the National Research Foundation of Korea, and with the ethics protocol of the authors' affiliated institutions in our design and

data collection.

We collected multisectional data from employees of research institutes and business organizations in the electronics, chemical, and automotive industries in South Korea. After contacting employees in 12 companies through their human resources departments, we distributed the surveys to 310 employees, who filled out the survey forms voluntarily and were informed that their responses would be processed confidentially. Each employee was paired with a coworker in the same team. The coworkers were requested to provide a peer evaluation of the target employee's creativity. As the team members spent most of their working hours together in the same office, coworkers had opportunities to witness, experience, and closely observe the target employees' creative actions. We confirmed that the peer evaluations were solely for research purposes and we guaranteed anonymity of the results. When the target employees and their coworkers had completed the surveys, they were instructed to seal their survey form in the individually prepared envelope that we had given them.

Of the 310 employee–coworker dyads, 265 returned their responses separately to the researchers, and 240 provided usable data for analysis (response rate = 77.4%). Participants' average age was 32 years ($SD = 6.16$), the average tenure was 5.6 years ($SD = 5.60$), and 26% were women. The largest occupational group consisted of those who performed clerical work (43.8%), with research and development workers (42.5%) comprising the second largest group. The remaining participants were in production (5.4%), sales (3.3%), professional services (2.5%), and other groups (2.5%).

Measures

Participants rated all items using a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). All measures were drawn from previously published scales that were originally written in English, and had acceptable validity. We translated the measures into Korean following the translation–back-translation procedure (Brislin, 1986).

Task content routinization and task process routinization. To measure task content and task process routinization, we used items from each three-item scale used by Choi, Anderson, and Veillette (2009). A sample item for task content routinization ($\alpha = .71$) is “For almost every task I do, there is something new happening almost every day” (reverse coded). A sample item for task process routinization ($\alpha = .81$) is “We have clear procedures here for most work situations.”

Situational motivation. We adopted eight items from the Situational Motivation Scale (Guay et al., 2000) to measure situational intrinsic motivation (four items) and amotivation (four items). Although extrinsic motivation was not included in our hypotheses, we controlled for its effect by assessing situational extrinsic motivation with four items ($\alpha = .72$). Sample items are “I am currently engaged in the task in my company because this task is interesting” (intrinsic motivation, $\alpha = .94$), “I don't know; I don't see what this task brings me” (amotivation, $\alpha = .87$), and “I am engaged in the current task because I can get rewards” (extrinsic motivation, $\alpha = .72$).

Employee creativity. We adopted five ($\alpha = .94$) of the 13 items developed by Zhou and George (2001) to measure employee creativity. Coworkers evaluated participants' creativity. Sample items are “This person comes up with new and practical ideas to improve performance” and “This person often has a fresh approach to problems.”

Control variables. We controlled for participants' demographic characteristics that may have influenced their creativity. The control variables included age (in years), gender (0 = male, 1 = female), education level (1 = high school, 2 = two-year college, 3 = four-year college, and 4 = graduate school), and organizational tenure (in years of work for the current employer).

Results

We first conducted a confirmatory factor analysis (CFA) to verify that the measures used to assess the study variables were empirically distinct. The six-factor, 26-item model provided a reasonably good fit to the data: $\chi^2(df = 215) = 468.67, p < .001$; comparative fit index (CFI) = .93, root mean square error of approximation (RMSEA) = .070. The hypothesized six-factor model fit the data significantly better than the alternative four- or five-factor models (all $ps < .001$; CFI < .83, RMSEA > .09). In the six-factor model, the chi-square difference tests were all significant at $p < .01$, and all indicators showed significant factor loadings on their corresponding latent variables ($p < .001$). The CFA results indicated satisfactory discriminant and convergent validity of our scales. Descriptive statistics, correlations, and reliability coefficients among the study variables are reported in Table 1.

Table 1. Means, Standard Deviations, and Correlations Among Study Variables

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Task content routinization	3.69	0.96	(.71)					
2. Task process routinization	4.06	0.88	.07	(.81)				
3. Intrinsic motivation	3.64	1.06	-.26***	.15*	(.94)			
4. Extrinsic motivation	3.82	0.88	-.05	.10	.19**	(.72)		
5. Amotivation	2.37	1.03	.20**	-.02	-.38***	.07	(.87)	
6. Employee creativity	4.20	0.94	-.11	.18**	.20**	.13*	-.15**	(.94)

Note. $N = 240$. Cronbach's alpha reliability coefficients are shown in parentheses on the diagonal.

* $p < .05$, ** $p < .01$, *** $p < .001$.

Hypothesis Testing

We performed a series of structural equation modeling (SEM) analyses to test our hypotheses and the results suggested the presence of causal relationships involving multiple mediating variables. As our focus was on the indirect effects of the two task routinization dimensions on employee creativity through situational motivation, we did not include the direct paths between task routinization and employee creativity in the hypothesized model. In the relationships between the task routinization dimensions and situational motivation we included all six possible paths to control for the effects of other situational motivation when testing the hypothesized mediation by specific situational motivation. Our hypothesized structural model exhibited an acceptable fit with the current data: $\chi^2(df = 220) = 510.90, p < .001$; CFI = .92, RMSEA = .074.

Following the SEM procedure, we compared the hypothesized full mediation model with the alternative partial mediation models because task content and process routinization could directly predict employee creativity, in addition to examining their indirect effects through situational motivation. This alternative partial mediation model also showed good model fit: $\chi^2(df = 218) = 506.92, p < .001$; CFI = .92, RMSEA = .074. Nevertheless, the addition of the two direct effect paths from routinization to creativity did not significantly improve the fit of the hypothesized model: $\Delta\chi^2(\Delta df = 2) = 3.98, p = .14$. In this alternative model, the direct effect of task process routinization on employee creativity was marginally significant, but the direct effect task of content routinization was nonsignificant ($\beta = .14, p = .053$ and $\beta = .06, p = .45$, respectively).

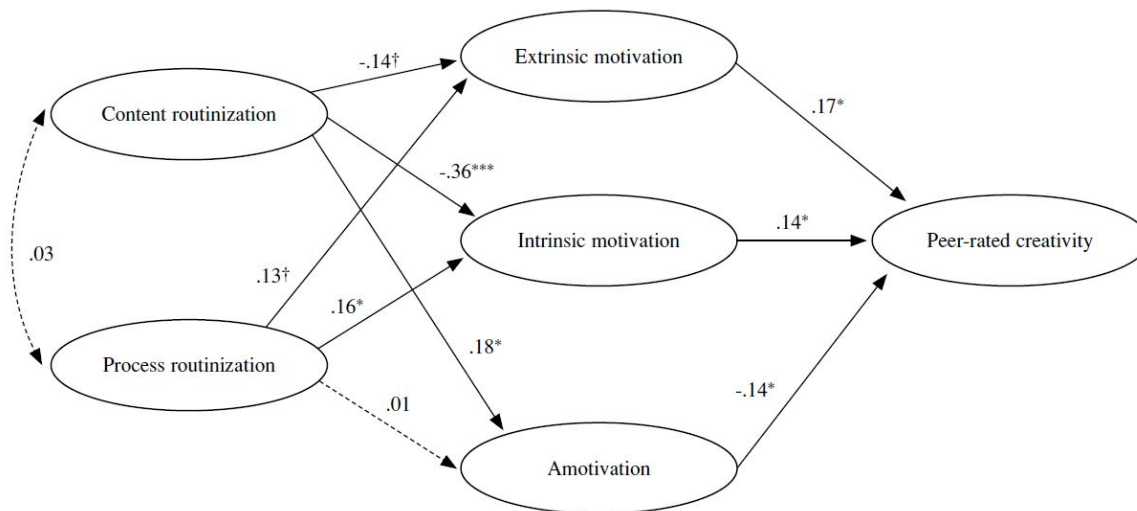


Figure 1. The hypothesized research model.
N = 240. † *p* < .10, * *p* < .05, *** *p* < .001.

To test the direct effects of task content and task process routinization on employee creativity we added the direct paths connecting task routinization to employee creativity and eliminated the links between situational motivation and employee creativity in the hypothesized model. This modified structural model contained task content and task process routinization as the main predictors of employee creativity. As expected, the results showed that task content routinization was negatively related to employee creativity ($\beta = -.16, p = .03$), and that task process routinization was positively related to creativity ($\beta = .18, p = .012$). Thus, Hypotheses 1 and 2 were supported.

We used bootstrapping for testing the indirect mediation effects (Preacher & Hayes, 2004) of routinization on creativity via situational motivation, using 5,000 bootstrapping resamples with a 95% confidence interval (CI). The results demonstrated that task content routinization had a significant negative indirect effect on employee creativity through amotivation, $b = -.03, 95\% \text{ CI } [-0.06, -0.002]$, and intrinsic motivation, $b = -.05, 95\% \text{ CI } [-0.09, -0.01]$. Thus, Hypothesis 3 was supported. In addition, task process routinization had a significant positive indirect effect on employee creativity through intrinsic motivation, $b = .03, 95\% \text{ CI } [0.001, 0.06]$. Hypothesis 4 was, thus, supported.

Discussion

We incorporated job characteristics theory (Hackman & Oldham, 1980) and self-determination theory (Ryan & Deci, 2000) to investigate the two-dimensionality of task routinization, its effects on employee creativity, and the involvement of situational motivation as a mediator of these relationships. The analytical results demonstrated that task content routinization was negatively associated with employee creativity, whereas task process routinization was positively related to employee creativity. Situational amotivation and intrinsic motivation provided underlying mediating mechanisms in these relationships. Notably, we identified two dimensions of task routinization, that is, content and process, with different motivational and performance implications.

Theoretical Implications

We differentiated between the roles of task content and task process routinization to explain the

routinization–creativity relationship. Our results showed that the effects of the content and process dimensions of task routinization on employee creativity were significantly negative and significantly positive, respectively. These findings offer a plausible explanation regarding the inconsistency of prior results for the effects of routine tasks on creativity (Chae & Choi, 2019; Loukidou et al., 2009).

Our findings are in line with those reported by Ohly et al. (2017), who concluded that a fine-grained understanding of task routinization is necessary when practitioners design task and job structures to facilitate employee creativity. Specifically, task process routinization, which is related to clear task procedures and protocols that address task problems, is beneficial for employee creativity, whereas task content routinization—or the mere presence of routinization, which is associated with boredom or no new situations or challenges—stifles creative endeavor.

We also revealed the underlying motivational mechanisms that account for the effects of the two task routinization dimensions on employee creativity. We went beyond the intrinsic/extrinsic motivation dichotomy by adopting the situational motivation continuum based on the extent to which individuals perceive self-determination regarding their tasks (Guay et al., 2000; Ryan & Deci, 2000). The execution of a task by an employee following a given routine without the need to secure supervisor approval may have implications for creativity through mechanisms that are different from a task engagement requiring monotonous skills or automatic application of a limited set of skills. Our results demonstrated that task content routinization exerted a negative indirect effect on employee creativity through increased amotivation and decreased intrinsic motivation. Task process routinization, in contrast, indirectly promoted employee creativity by enhancing intrinsic motivation.

Our findings are based on field data, offering compelling and ecologically valid evidence for how each task routinization dimension affects employee creativity. Task routinization consists, by definition, of the engagement in tasks over a certain period of time, which is needed for individuals to obtain or perceive automaticity and routinization of their tasks. Thus, it is desirable to test the implications of task routinization in organizational settings rather than by instructing participants in a laboratory setting to perform short tasks that usually take over 10–20 minutes.

Limitations and Directions for Future Research

There are several limitations in the research design of our study. First, although our analysis was based on a multisource dataset, data on all variables were collected at the same time point. Thus, causal directions among the study variables cannot be clearly ascertained, although our theoretical propositions are consistent with prevailing theoretical models, such as job design and motivation theories (Gagné & Deci, 2005; Grant et al., 2011; Guay et al., 2000). Nevertheless, it may take some time before the effects of the causal relationships on routinization emerge. Therefore, if future researchers use longitudinal panel data, they can further clarify these causal relationships involving different types of routinization.

Second, employee creativity, the dependent variable in this study, was evaluated by the coworkers of a target employee. As this creativity evaluation is subjective in comparison with objective measures such as the number of patents or submitted suggestions, there is uncertainty regarding the extent to which the current measure captures the actual level of employee creativity. Although the empirical patterns from subjective ratings of creativity are reportedly similar to those of objective indicators (Tierney, Farmer, & Graen, 1999), future researchers could replicate our propositions using objective indicators of creativity.

Finally, our focus in the operationalization and measurement of the two task routinization dimensions was on employees' perceptions of such routines, instead of on objective and tangible components of task routines. For example, Baba and Jamal (1991), in their study of Canadian nurses, measured layers of task routinization with the objective measure of either permanent fixed time shifts or rotational shifts that were determined by hospital policies. Future researchers could further examine the potential alternative

operationalization of task routinization dimensions and explore the boundary conditions that can amplify or differentiate our empirical results regarding task routinization in the workplace.

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