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Navigating Skill Development in the Gig Economy: Informal Learning Strategies for Gig Workers

By

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Abstract

In the context of intelligent digital technologies progressively supplementing traditional work tasks, the expansion of the gig economy has accentuated the phenomenon of job polarisation and redefined workers' need for skills. This transformation is primarily evidenced by the growing demand among gig workers for emerging employment opportunities and the corresponding professional skills, thereby posing new challenges to the development of vocational skills. Consequently, re-evaluating the avenues through which gig workers acquire training and learning becomes crucial at this stage of the gig economy's robust development. This research focuses on the mechanisms of informal learning, aiming to analyse the characteristics of gig workers' participation in training, learning, and development, as well as to examine the shifts in skill demands within the gig market.

Keywords: Gig Economy, Informal Learning, Learning and Development, Self-Determination Theory

Word count: 2012

1 Introduction

The emergence of digital labour platforms has reshaped skill development patterns in gig economies. While platform-driven flexibility and algorithmic management reduce employers' investment in formal training (Herrmann et al., 2023; Wheelahan and Moodie, 2022), they simultaneously create new demands for adaptive skill acquisition. This tension reflects a broader decline in employer-sponsored upskilling initiatives, exacerbated by the fragmented nature of gig work (Stewart and Stanford, 2017). In response, workers increasingly adopt self-directed learning strategies that blend deliberate skill development with incidental learning through platform interactions (Aroonsri and Crocco, 2024), extending framework of informal learning.

Grounded in Ryan and Deci (2000) Self-Determination Theory (SDT), this study examines how gig workers' motivation influences their engagement in informal learning. We analyse the interaction between intrinsic drivers (e.g., professional growth aspirations) and extrinsic factors shaped by platform metrics and reputation systems. Crucially, we investigate how workers' fulfilment of three psychological needs – task autonomy, skill application competence, and digital community connections – may moderate the effectiveness of their learning strategies.

This research advances theoretical understanding by integrating SDT with platform work dynamics. Our analysis reveals that modern labour markets simultaneously constrain traditional career development paths while enabling alternative skill acquisition channels. This dual perspective addresses current literature's tendency to either position informal learning as compensation for inadequate training systems or overstate its role in workforce flexibility. Practical applications focus on developing learning frameworks that balance platform efficiency with equitable upskilling opportunities.

2 Literature Review and the Conceptual Framework

The gig economy predominantly relies on independent contractors and freelancers to complete project-based, short-term tasks (Meijerink et al., 2021; Wood et al., 2019; Jabagi et al., 2019). Unlike employees working for a single employer, gig and freelance workers typically operate independently, taking on professional roles that require skills and knowledge (Cappelli and Keller, 2013). In contrast, traditional employment sectors often provide employees with opportunities to develop work-related professional skills, offering a more favourable environment for career development (De Vos et al., 2011). However, gig workers face a quandary, needing to secure job opportunities to develop and enhance their professional skills while simultaneously requiring these skills to gain additional work opportunities. O'Mahony and Bechky (2006) have termed this phenomenon the 'career development paradox.' If gig workers cannot overcome this barrier, their career development may quickly stagnate, limiting their professional prospects (Lee and Gargiulo, 2022). This challenge, coupled with the need for gig workers to access different skill development resources compared to long-term workers (Duggan et al., 2020), underscores the importance of scrutinising the learning and development needs of high-skilled gig workers and proposing practical solutions to address these needs. With the gig economy experiencing rapid growth, particularly in populous countries like China and India, in response to the increasing global workforce, it is projected that by 2036, China's gig workforce will reach 400 million (Cheng and Tian, 2023). Bridging this knowledge gap is of high significance for designing more effective labour policies to

adapt to changes in the labour market structure and avoid exacerbating social disparities caused by skills shortages.

In the gig economy, individuals must self-manage their learning process to stay competitive, necessitating a continuous search for new learning opportunities and projects. However, the dynamic and varied nature of gig work means that traditional training methods often fail to meet these needs, due to their structured and predetermined nature, lacking the necessary flexibility to swiftly adapt to changes in skill demands and personalised learning paths (Salas et al., 2012). Thus, as the nature of work evolves, the limitations of traditional learning methods become particularly apparent. Against this backdrop, the role of informal learning becomes increasingly prominent, enabling individuals to continually enhance their knowledge and skills through seeking assistance from colleagues, self-reflection, and learning from non-interpersonal resources (Cerasoli et al., 2018). In contrast, the flexibility and practicality of this learning mode are particularly suited to the dynamic and varied nature of gig work, offering individuals a way of learning that is more synchronised with their working environment. For those engaged in gig work, this type of learning promotes the cultivation of professional expertise and versatility, thereby enhancing their employability (Bednall and Sanders, 2017). Research indicates that informal learning accounts for approximately 70% to 90% of workplace learning (Cerasoli et al., 2018). Through informal learning, individuals can acquire knowledge and skills in a more meaningful way than through formal training and development. Current research on the relationship between gig workers and informal learning is still in its early stages, with most studies focusing on specific domains or platforms. However, increasing evidence suggests that informal learning plays a crucial role in helping gig workers navigate the challenges and uncertainties of their work environment (Lehdonvirta et al., 2019). It enables them to develop the necessary skills and adaptability to succeed in a rapidly changing labour market, and as the gig economy continues to evolve, the importance of informal learning is likely to become even more significant (Herrmann et al., 2023).

Through the aforementioned exploration of the gig work model and its nature, we observe that individuals can effectively control their work and enhance their personal capabilities by autonomously selecting projects, flexibly arranging their working hours, and challenging themselves with a diversity of work tasks, while also fostering deep connections with others in the process of engaging in gig work. This phenomenon is closely linked to the core concepts of Self-Determination Theory. SDT posits that significantly enhancing the intrinsic motivation behind individual behaviours can be achieved by satisfying three universal psychological needs: competence, autonomy, and relatedness. Within the context of informal learning, SDT provides a comprehensive perspective to understand how gig workers actively seek and utilise learning opportunities to meet their profound psychological needs for growth, autonomy, and social interaction. Ryan and Deci (2000) emphasise that the experience of freedom in the decision-making process can enhance motivation and fulfil these psychological needs upon task completion. The need for autonomy, the intrinsic drive individuals perceive when they feel in control of their choices and future, is considered a key attribute of gig work (Ryu and Moon, 2019). Additionally, the need for a sense of competence becomes particularly prominent when individuals strive to enhance their skills and abilities and try new things in specific contexts. This drives individuals to engage in additional learning resources to achieve personal goals (Ryan and Deci, 2017), further highlighting the importance of fostering a sense of competence (Deci and Ryan, 1985). Research suggests that workers' motivations to join the gig economy may stem from external motivations

such as economic incentives or the pursuit of a high degree of work autonomy, and when an individual's psychological needs are satisfied, their intrinsic motivation is also ignited (Kuhn and Galloway, 2019). Autonomy not only positively affects employees' enthusiasm (Ryan and Deci, 2017) but also means that as gig workers gradually recognise their capabilities, their engagement and commitment will grow over time. Therefore, self-determination significantly shapes the work motivation and performance of gig workers. Given the various intrinsic and extrinsic motivations influencing workers, this study posits that SDT provides a solid theoretical framework for analysing the motivations of gig workers. Through the lens of SDT, we can deeply understand how gig work meets workers' fundamental psychological needs, thereby exploring the profound impact of this work model on workers' skill development and performance.

3 Methodology

This longitudinal investigation uses a time-lagged design to examine the interplay between motivational orientations, informal learning behaviours, and job performance outcomes among gig workers. The study addresses critical gaps in understanding how informal learning processes operate within algorithmically managed work environments, where skill development occurs through non-traditional pathways. Methodological strengths include rigorous validation of measurement instruments and appropriate temporal spacing between waves to capture meaningful behavioural changes. Data collection occurred across two waves: baseline measurements (T1) with 499 valid responses, and follow-up assessments (T2) scheduled for March 2025, maintaining a four-month interval to capture temporal dynamics.

Preliminary analysis of T1 data demonstrates robust psychometric properties across measurement instruments. The sample ($N = 499$) exhibited strong internal consistency (Cronbach's $\alpha = 0.877\text{--}0.935$) and satisfactory convergent validity ($AVE \geq 0.53$). Confirmatory factor analysis confirmed measurement model adequacy ($\chi^2/df = 1.771$, $RMSEA = 0.039$, $CFI = 0.939$, $TLI = 0.936$). Structural equation modelling revealed differential motivational pathways: intrinsic motivation exerted stronger influence on informal learning engagement ($\beta = 0.329$, $p < 0.001$) than extrinsic motivation ($\beta = 0.200$, $p < 0.001$). Subsequent mediation analysis through bootstrapping demonstrated partial mediation effects, with informal learning accounting for 44.44% of intrinsic motivation's total effect on performance outcomes, compared to 7.66% for extrinsic motivation.

- Initial sample: $N = 517$
- Valid responses: $N = 499$ (after excluding outliers and failed attention checks)
- Reliability indices:
 - Cronbach's $\alpha \in [0.877, 0.935]$
 - Composite reliability (CR) ≥ 0.82
- Validity assessment:
 - KMO measure ≥ 0.884
 - Average variance extracted (AVE) ≥ 0.53

Measurement Model Fit

$$\begin{aligned}\chi^2/\text{df} &= 1.771 \\ \text{RMSEA} &= 0.039 \quad (90\% \text{ CI } [0.035, 0.043]) \\ \text{CFI} &= 0.939 \\ \text{TLI} &= 0.936\end{aligned}\tag{1}$$

Path Coefficient Estimates

- Intrinsic motivation $\rightarrow$ Informal learning:

$$\beta = 0.329^{***} \quad (SE=0.042, p < 0.001)$$

- Extrinsic motivation $\rightarrow$ Informal learning:

$$\beta = 0.200^{***} \quad (SE=0.038, p < 0.001)$$

- Informal learning $\rightarrow$ Job performance:

$$\beta = 0.096^* \quad (SE=0.046, p = 0.037)$$

Mediation Effect Analysis

Path	Indirect effect	95% CI	Proportion mediated
Intrinsic $\rightarrow$ Learning $\rightarrow$ Performance	0.032	[0.001, 0.062]	44.44%
Extrinsic $\rightarrow$ Learning $\rightarrow$ Performance	0.019	[-0.001, 0.039]	7.66%

Table 1: Bootstrap analysis results (5,000 resamples)

The temporal dimension of this research design enables forthcoming examinations of reciprocal relationships through cross-lagged panel modelling with anticipated 80% retention ($N \geq 400$) at T2. Subsequent analyses will evaluate the stability of observed effects, potential reciprocal causation between learning engagement and performance outcomes, and longitudinal mediation patterns. These findings offer preliminary evidence that intrinsic motivation serves as a primary driver of skill acquisition in platform work environments, while extrinsic incentives demonstrate limited capacity to stimulate performance-enhancing learning behaviours.

Longitudinal Study Design

- **Time points:**

T2 data collection: March 2025 (4-month interval)

Tracking target: $N \geq 400$ (80% retention rate)

- **Cross-lagged panel model specification:**

$$\begin{aligned}\text{IL}_{T2} &= \beta_1 \text{IM}_{T1} + \beta_2 \text{IL}_{T1} + \varepsilon \\ \text{Perf}_{T2} &= \beta_3 \text{IL}_{T1} + \beta_4 \text{Perf}_{T1} + \varepsilon\end{aligned}\tag{2}$$

- **Moderation analysis:**

$$\Delta R^2 = \frac{\text{SSR}_{\text{full}} - \text{SSR}_{\text{reduced}}}{\text{SST}}\tag{3}$$

4 Conclusion

This study mainly explores the potential of the informal learning environment in enhancing skills in the gig economy based on the theory of self-determination. The theory suggests that in learning settings driven by autonomy, individuals have the potential to improve their engagement, creativity, and performance, especially when they experience a high level of autonomy, competence, and relatedness. The research aims to investigate how supporting L&D, providing appropriate resources, and building meaningful communities can positively impact the long-term growth of gig workers. Informal learning is a form of education and a strategic adaptation, which provides the possibility for workers in the gig economy to adjust their learning preferences and career development paths under changing market conditions. By examining this mode of learning, this study seeks to offer a new direction for supporting the development of personal skills and the enhancement of performance. This provides fresh insights for designing effective informal learning strategies and interventions. In summary, this research explores the applicability of informal learning in the gig environment and offers guidance on how to foster the development of gig workers, particularly in a societal context that highly values autonomy and personal growth.

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