

Understanding the opaque world of algorithmic control

A qualitative study into the role of algorithmic control in the experienced quality of working life of meal deliverers

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Abstract

The food delivery sector of platform work is rapidly expanding, and during the COVID-19 pandemic, this sector has flourished as never before. However, Wood et al. (2019) showed that freelancers working via these digital labor platforms encounter huge working life issues, such as having few autonomy and working unsocial hours. Algorithmic control is central to the operation of digital labor platforms. The objective of this research is to gain more insight, through qualitative research, into the role of six algorithmic mechanisms in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo, in order to contribute to literature in the field of algorithmic control. Drawing on online semi-structured interviews with meal deliverers working for Uber Eats and Deliveroo, this study shows that algorithmic control has an important directing role, mainly by algorithmic restricting, a moderately important evaluating role, mainly by algorithmic rating, and a slightly important disciplining role, entirely by algorithmic rewarding. This research contributes to literature in the field of algorithmic control by providing a more tangible picture of the role of algorithmic control in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo.

Keywords

Algorithmic control, quality of working life, algorithmic mechanism, meal deliverers, freelancers

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1. Introduction

1.1 Problem formulation

On July 23, 2018, twenty-year-old meal deliverer Sytze Ferwerda faces Deliveroo in court (Rechtspraak, 2018). The reason for this was that nine months earlier, Deliveroo announced that the company would no longer renew the temporary employment contracts. When the employment contracts of the meal deliverers expired, the company offered the deliverers to work as self-employed. Instead of being Deliveroo's employees and earning the minimum hourly wage, now the deliverers are freelancers and paid per order. The risk that no orders are received during work has therefore shifted to the meal deliverer. Deliveroo and Uber Eats, another major food delivery platform, work with a 'dynamic compensation': per order, the deliverer gets a fee based on the distance and time it takes to complete an order. With Deliveroo, distance and time are estimated in advance by an algorithmic system. If the delivery person arrives at the restaurant sooner than expected, or if the restaurant is busy or the cooking of orders is not timed, then the resulting extra waiting time is unpaid (Lieman, 2020). Sytze Ferwerda accepted the self-employed contract, but actually did not agree. He wanted the judge to rule that he was still employed by Deliveroo. The twenty-year-old meal deliverer lost the case. However, two important cases that trade union FNV had filed against Deliveroo followed, both on the same day. Trade union FNV stated that meal deliverers "are not certain of their income" and that deliverers should be protected against underpayment and excessively long working days (Lieman, 2020). By working with self-employed people, there is downward competition on the terms of employment, as self-employed people are not bound by collective labor agreements. This also puts the position of employees in these sectors under pressure. Moreover, there is no social safety net for people who are self-employed (SER, 2020). In the first court case, the judge ruled that the legal relationship between Deliveroo and its deliverers can be regarded as an employment contract, and in the second case the judge ruled that food delivery carried out by the deliverers for Deliveroo falls under the scope of the collective labor agreement (Rechtspraak, 2019). The FNV thinks these court decisions will also affect other food delivery platforms that work with self-employed people, such as Uber Eats (NOS, 2019). Deliveroo has appealed the court's rulings.

The underlying problems here are the huge working life issues freelancers on digital labor platforms (e.g., food delivery platforms) encounter. Freelancers have, for instance, few autonomy (Wood, Graham, Lehdonvirta & Hjorth, 2019), work unsocial hours (Wood et al., 2019) and do a load of unpaid work (Goods, Veen & Barrat, 2019). Digital labor platforms differ in the way they design and organize work (Ministerie van Sociale Zaken en Werkgelegenheid, 2019). For example, most, but not all platforms, use extensive digital monitoring and rating systems to guide the execution of work (Griesbach, Reich, Elliott-Negri & Milkman, 2019; Rosenblat & Stark, 2016). The automation of task allocation and performance management has contributed to a shift of managerial responsibilities from

humans to machines, giving rise to forms of algorithmic management (Aloisi, 2016), also called ‘algorithmic control’. Algorithmic control is central to the operation of digital labor platforms (Wood et al., 2019). Platforms use the algorithms to match supply and demand, while mediating and closely monitoring the work performed as well (Gandini, 2018). These platforms not only bring supply and demand together, but also collect data about searches, transactions and reviews, among other things, using algorithms. To guarantee an efficiently functioning system that allows platforms to expand, they require greater control over the workers (Rani & Furrer, 2021). This control is exercised through platforms’ design features and algorithms, “which are a set of rules and routines that are coded and programmed with a set of instructions on how to perform the tasks” (Rani & Furrer, 2021, p. 216). The algorithm can be used to allocate the tasks to the platform workers, monitor the process and evaluate the responses. Digital labor platforms have the potential to exercise enormous control with little or no human intervention (Rani & Furrer, 2021). According to Kellogg, Valentine and Christin (2020), platforms use algorithms to control workers through six mechanisms, the “6 Rs”. The use of algorithmic restricting, when only certain information is displayed and specific behaviors are allowed while other behavior is prevented, can make it difficult to make your own decisions, decreasing autonomy. Algorithmic recommending is another mechanism, and refers to platforms using algorithms to offer suggestions intended to prompt the targeted worker to make decisions preferred by the platform. Platforms could prompt workers to work during unsocial hours, such as evenings and weekends. Wood et al. (2019) showed that freelancers on these platforms encounter working life issues, such as having few autonomy and working unsocial hours. This indicates that algorithmic control might play a role in the experienced quality of working life of freelancers working for food delivery platforms. The use of algorithms may negatively affect freelancers’ quality of working life. According to Griesbach et al. (2019), all food delivery platforms use algorithmic management to assign and evaluate work, but they vary in the extent to which they constrain the freedoms over schedules and activities of the platform workers. Besides, clearly identifying the diversification of algorithmic control and their impact on the earnings and experiences of freelancers is critical for informing legal and political debates around the future of work (Griesbach et al., 2019). Policymakers should be aware of “the power of automated systems to incentivize, homogenize, and generally control how workers behave within the system despite claims to systematic freedom or flexibility” (Rosenblat & Stark, 2016, p. 3777).

1.2 Objective and research question

Food delivery work provides new labor market opportunities for many workers, as this work has low entry barriers and requires relatively limited skills and assets (Goods et al., 2019). The food delivery sector of platform work is rapidly expanding (Griesbach et al., 2019). During the COVID-19 pandemic, when restaurants had to remain closed for the most part, the food delivery industry has flourished as never before (AD, 2021; Trouw, 2020). That is very good for food delivery platforms such as Deliveroo and Uber Eats, and the restaurants. However, as the largest Dutch trade union concludes,

the position of the meal deliverers is getting worse, uncertainty about work and income has further increased (FNV, 2020). In view of these and aforementioned working life issues, this research will examine the quality of working life of freelancers working via food delivery platforms, and the role of algorithmic control, as the latter is central to the operation of these platforms and the use of algorithms may negatively affect freelancers' quality of working life. How a platform functions has impact on the working experiences of freelancers. In the Netherlands, there are three main food delivery platforms: Thuisbezorgd, Uber Eats and Deliveroo (FNV, 2020). Thuisbezorgd works with temporary workers who have an employment contract. Uber Eats and Deliveroo, on the other hand, work with freelancers. In this master thesis, the two food delivery platforms Deliveroo and Uber Eats are investigated, as they work with freelancers.

In the literature, authors often refer to the 'gig economy', referring to the work that comes about via work or labor platforms. The gig economy consists, on the one hand, of work that is transacted via platforms, but delivered locally, and thus requires the worker to be physically present: local gig work. On the other hand, the gig economy includes work that is transacted and delivered remotely via platforms: remote gig work (Wood et al., 2019). Food delivery falls under the first category. There are contrasting views on the implications of these new forms of work organization for workers and society (Goods et al., 2019). On the one hand, according to Mulcahy (2017), gig work has the potential to improve labor market flexibility. In the study of Griesbach et al. (2019), many platform workers told the researchers how much they valued the flexibility and freedom they felt they had. On the other hand, Stewart and Standford (2017) argue that it will erode income certainty and working conditions. In addition to this, Griesbach et al. (2019) state that the freedom of platform workers is often illusory, or at least constrained to a great extent by the platforms:

Many food delivery platforms, like others in the gig economy, do allow workers relative autonomy over when they work and what particular tasks they accept, and yet that freedom exists under algorithmic control, which includes incentive pricing, ratings, and incomplete information as well as the broader uncertainty and unpredictability of earnings. (p. 13)

Scholars have predominantly focused on efficiency and organizational goal attainment facilitated by the use of algorithmic systems, but have largely ignored the topic of how employers' use of algorithms may negatively affect workers (Kellogg et al., 2020). There has been limited investigation into experiences of platform workers, neither have their perceptions on its quality been evaluated (Goods et al., 2019), while, as already mentioned, the food delivery sector of platform work is rapidly expanding, meaning that an increasing group of people will start working for these platforms. Not only is worker wellbeing important for platform workers themselves, it is important for organizations as well: high quality of working life leads to low turnover intentions (Chan & Wyatt, 2007; Surlenty, Ramayah, Lo, & Tarmizi, 2013), and boosts commitment and productivity (Nayak, Sahoo & Mohanty, 2018). Seeing the importance of worker wellbeing, taking into account that the use of algorithms may negatively affect

freelancers' quality of working life, and that an increasing group of people will start working for these platforms, it makes sense to study freelancers' quality of working life and the role of algorithmic control. Moreover, Healy, Nicholson and Pekarek (2017) argue that gig work is a phenomenon that requires scholarly attention. Goods et al. (2019) go further, by stating that the growth of the gig economy "should not only be of concern to regulators, industrial relations scholars and the community, but, at a minimum, should elicit actions that eliminate the most concerning dimensions of gig work" (p. 522).

Algorithmic control is central to the operation of the digital labor platforms (Wood et al., 2019), and platforms use different algorithmic mechanisms to control workers. The use of algorithmic restricting, whereby access to information is restricted, can make it difficult to make your own decisions, decreasing autonomy. Using algorithmic recommending, platforms could prompt workers to work during unsocial hours, such as evenings and weekends. Wood et al. (2019) showed that freelancers on these platforms are encountering working life issues, such as having few autonomy and working unsocial hours. This indicates that algorithmic control might play a role in the experienced quality of working life of freelancers working for food delivery platforms: employers' use of algorithms may negatively affect meal deliverers' quality of working life. The objective of this research is to gain more insight, through qualitative research, into the role of six algorithmic mechanisms in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo, in order to contribute to literature in the field of algorithmic control. How a platform functions has impact on meal deliverers' working experiences. To achieve the research objective, the following research question needs to be answered:

"What is the role of algorithmic control in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo?"

1.3 Research design

In order to answer the research question, a qualitative research is conducted. Data is collected through ten online semi-structured interviews with meal deliverers working for Uber Eats and Deliveroo. During the interviews, the different dimensions of algorithmic control and quality of working life are discussed. A deductive approach has been chosen in this study, as the six mechanisms through which algorithms are used to control workers, distinguished by Kellogg et al. (2020), and the extended classification of quality of working life criteria by Grote and Guest (2017), are well-substantiated with scientific literature, and constitute a good basis for research. Using both theories allows to contribute to literature in the field of algorithmic control by providing a more tangible picture of the role of algorithmic control in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo.

1.4 Outline of the thesis

In the next chapter, relevant literature will be discussed and a theoretical framework is formed. Subsequently, the research methods will be discussed, making clear why the chosen method is suitable and how this research is conducted. The fourth chapter presents the findings of this study. This is followed by the conclusion, in which the research question is answered. The study concludes by discussing theoretical implications, results, the contribution of this study, practical implications, limitations and reflexivity.

2. Theoretical framework

This chapter discusses relevant literature in order to develop a theoretical framework. The first paragraph looks at the position of food delivery platforms as digital labor platforms in the platform economy. This research aims to gain more insight into the role of algorithmic control in the experienced quality of working life of meal deliverers. Therefore, paragraph 2.2 discusses the concept of algorithmic control, goes into, among other things, the six algorithmic mechanisms that are used to control workers, and ends with connecting this concept to quality of working life. Paragraph 2.3 concerns the concept of quality of working life, and examines, among other things, ten quality of working life criteria. The conceptual model, based on the connections between the two concepts algorithmic control and quality of working life, is presented in paragraph 2.4.

2.1 Food delivery platforms

A distinction can be made between commercial and non-commercial platforms (SER, 2020). Non-commercial platforms are, for example, sharing and volunteering platforms. A great diversity can be observed within the commercial platforms, and they can be divided into a number of main categories: platforms that mediate in labor, goods, money, communication, entertainment and information (Schmidt, 2017). This master thesis relates to labor platforms, platforms that bring together the demand for and the supply of labor, such as food delivery platforms. Based on various sources, the SER has found 125 labor platforms active in the Netherlands, of which 92 platforms for work on location (of which four food delivery platforms) and 33 platforms for online work (SER, 2020). It is difficult, according to the SER, to gain a good insight into the number of platform workers in the Netherlands, mainly caused by differences in the definitions, their operationalization and the methodology used in studies. The digital labor platforms are websites or technical applications that bring customers and freelancers together to perform certain tasks or projects. Freelancers are paid by platforms, who act as an intermediary between client and the worker. This happens in the ‘platform-based’ economy, which refers to “markets created by intermediaries or platforms who facilitate and manage interactions between buyers and sellers of services via digital platforms and mobile phone applications” (Goods et al., 2019, p. 504), and is expected to become more important in the future and occur in more sectors of the economy (KPMG, 2018). Platform work concerns location-bound (physical) work as well as online work. Food delivery involves location-specific, physical work. Within location-bound work, a distinction can be made with regard to how the work is distributed: individual selected or task to the crowd. Food delivery relates to the former. Now that the position of food delivery platforms as digital labor platforms in the platform economy is explored, algorithmic control can be examined. Algorithmic control is central to the operation of digital labor platforms (Wood et al., 2019) and used by all food delivery platforms to assign and evaluate work (Griesbach et al., 2019).

2.2 Algorithmic control

In the beginning, digital platforms were only seen as market intermediaries (Sundararajan, 2016). The algorithms they use “would improve market mechanisms and free workers from the constraints of hierarchical organizations” (Galière, 2020, p. 358). Empirical studies however, gradually unveiled the role of algorithms as rational means of control (Kellogg et al., 2020). Algorithmic control, also referred to as algorithmic management, is central to the operation of online labor platforms (Wood et al., 2019), and “captures the new reality where algorithms track the performance of employees or contractors, optimizing decisions concerning their tasks and future employment” (Schildt, 2017, p. 25). Algorithms allow “specific affordances for managerial control by relying on comprehensive information based on a variety of sources, giving instantaneous assessments of performance based on algorithmic computation, and providing interactive platforms on which multiple parties can partake in interactions” (Bucher, Schou & Waldkirch, 2021, p. 46). Algorithmic management allows for the remote coordination of work (Galière, 2020) and replacing human resource practices of task assignment and performance management (Duggan, Sherman, Carbery & McDonnell, 2020). Algorithms are used to undertake these typical human resource processes without the need for face-to-face interaction, which eliminates the more interpersonal and empathetic aspects of people management (Duggan et al., 2020). Workers then do not have an organizational partner standing up for their needs and maintaining a balanced working relationship (Gilbert, De Winne & Sels, 2011). Further, algorithmic management allows to organize and coordinate extremely large groups of workers and clients in an automated way (Sutherland & Jarahi, 2018). Characteristics of algorithmic management of platform workers are “an inherent opaqueness, driven by a lack of disclosure about data sources, evaluation mechanisms that operate “under the surface”, and the difficulty for workers to properly interpret algorithmic outcomes” (Bucher et al., 2021, p. 45). For people outside of the platform organization it is difficult to understand how the algorithms work. With algorithmic management, decision making and control may be employed entirely through computerized systems, handled by human oversight, or used as a means to support human decision making and control (Danaher, 2016). New, fast-growing businesses, such as Uber Eats and Deliveroo, have developed and use algorithmic management to control their meal deliverers. Algorithmic control refers to “control systems increasingly based on ‘deep learning’ (i.e. self-learning algorithms) replacing management as an agent of capital” (Veen et al., 2020, p. 392), and allows companies to oversee innumerable workers in an optimized manner at a large scale (Lee, Kusbit, Metsky & Dabbish, 2015).

The automation of task allocation and performance management has contributed to a shift of managerial responsibilities from humans to machines. Algorithms, due to their analytical capacities, are replacing tasks that were once seen as the responsibility of middle (and even upper) managers (Möhlmann & Zalmanson, 2017). These tasks include matching workers and service recipients, assigning tasks, evaluating performances of platform workers, providing information to transacting parties, and implementing human resource management decisions (Lee et al., 2015). Algorithmic

management “shifts power from a hierarchy of managers to larger cadres of professionals who master analytics, programming, and business” (Schildt, 2017, p. 25). Another consequence is that platform workers interact with intelligent machines that take on managerial roles. Studies on intelligent systems have pointed out important aspects for effective human interaction with intelligent machines, including establishing trust and cooperation (Parise, Kiesler, Sproull & Waters, 1999), creating accurate mental models (e.g., Kulesza, Stumpf, Burnett & Kwan, 2012), providing transparency and explanations (e.g., Kay & Kummerfeld, 2012), and designing shared control between humans and intelligent machines (e.g., Sheridan & Parasuraman, 2005).

All food delivery platforms use algorithmic management to assign and evaluate work (Griesbach et al., 2019). This platform work is digitally organized and generally remunerated on a piece rate basis (De Stefano, 2016). Further, Stewart and Stanford (2017) mention four key characteristics of platform work. The first characteristic is an irregular work schedule, driven by fluctuations in demand for platform workers’ services. Second, workers provide some or all of the capital equipment used directly in their work, which in the case of food delivery is a bike, for example. Third, work is paid at a piece rate basis, with payment defined according to specific tasks rather than per unit of time worked. Lastly, work is arranged and/or facilitated via platforms. Moreover, Lee et al. (2015) describe three algorithmic features, namely work assignment, informational support and performance evaluation, which could be applied to food delivery. Deliverers log in to a worker app to notify their availability. When a customer places an order, the food delivery platform assigns the delivery to a deliverer via the app, who then can either accept or reject the delivery (Goods et al., 2019). At this moment, the meal deliverer is informed about the pick-up location, but not about the location where the food has to be delivered. Only after having accepted the delivery, picked up the food and confirmed that the order is ready, the delivery address is given. The platform app, with navigation software, facilitates the trip to the address of the customer. Using metrics collected by the app, platforms evaluate the performance of the deliverers, such as “consumer ratings, acceptance, cancellation and average travel speed ratings” (Goods et al., 2019, pp. 505-506). To sum up, algorithms assign deliveries to platform workers, provide informational support, and, utilizing algorithmic control, constantly track, monitor and evaluate the workers’ performance (Goods et al., 2019).

Kellogg et al. (2020) found, based on a detailed review of algorithmic studies, that algorithms are used to control workers through six main mechanisms, which the authors call the “6 Rs”: employers use “algorithms to direct workers by *recommending* and *restricting*, evaluate workers by *recording* and *rating*, and discipline workers by *replacing* and *rewarding*” (p. 372):

1. Algorithmic recommending	Entails employers using algorithms to offer suggestions intended to prompt the targeted worker to make decisions preferred by the choice architect
2. Algorithmic restricting	Entails the use of algorithms to display only certain information and allow specific behaviors while preventing others
3. Algorithmic recording	Entails the use of computational procedures to monitor, aggregate, and report, often in real time, a wide range of finely grained data from internal and external sources
4. Algorithmic rating	Entails using computational technologies to gather ratings and rankings to calculate some measure of workers' performance, as well as predictive analytics to predict measures of their future performance
5. Algorithmic replacing	Entails rapidly or even automatically firing underperforming workers from the organization and replacing them with substitute workers
6. Algorithmic rewarding	Entails using algorithms to interactively and dynamically reward high-performing workers with more opportunities, higher pay, and promotions

First of all, algorithmic recommending and restricting are used to direct workers: state what needs to be done, in what order and time period, and with different degrees of accuracy (Kellogg et al., 2020). Secondly, employers use algorithmic recording and rating to evaluate workers: “the review of workers’ activities to correct mistakes, assess performance, and identify those who are not performing adequately” (Kellogg et al, 2020, p. 376). Lastly, algorithmic replacing and rewarding are used to discipline workers: the punishment and reward of workers to bring about collaboration and compel compliance (Kellogg et al, 2020).

As mentioned earlier, algorithmic control is central to the operation of digital labor platforms (Wood et al., 2019). Digital labor platforms use algorithms to control workers through the six mechanisms described above, the “6 Rs” (Kellogg et al., 2020). The use of algorithmic restricting, whereby access to information is restricted, can make it difficult to make your own decisions, decreasing autonomy. Using algorithmic recommending, platforms could prompt workers to work during unsocial hours, such as evenings and weekends. Freelancers on these platforms are encountering working life issues, such as having few autonomy and working unsocial hours (Wood et al., 2019). This indicates that algorithmic control might play a role in meal deliverers’ quality of working life. Moreover, other roles of the algorithmic mechanisms are conceivable. Algorithmic recording, for example, whereby a

wide range of finely grained data are monitored, aggregated, and reported, could be problematic with respect to privacy, an aspect of quality of working life discussed in the next paragraph. Deliverers might be concerned about the recording of their behavior, they might not feel comfortable about it. Rapidly or even automatically firing underperforming workers by means of algorithmic replacing could jeopardize employment security. When algorithmic rating is used, workers are rated by customers, for example. With respect to due process, workers should have access to appeals, which in this case would mean that workers should be able to appeal against (unfair) ratings. Another quality of working life aspect is advancement opportunities. Algorithmic rewarding can be used to reward high-performing workers with promotions. There are even more possible roles that the algorithmic mechanisms can have in the quality of working life criteria discussed in the next paragraph.

2.3 Quality of working life

Improving the quality of working life has been a goal of industrial relations and organizational research for a long time (e.g., Walton, 1974; Mickel & Dallimore, 2009). As a movement, quality of working life was influential in helping firms to make voluntary changes to work design, intended to improve the wellbeing of workers (Guest, Knox & Warhurst, 2021). Now, there is renewed interest in the quality of working life, arising out of a number of concerns (Guest et al., 2021). Such concerns are the emerging gig economy, precarious work more generally, and the impact of new digital technologies on the quality of jobs that are not replaced by smart robots. Digitalization and flexible work arrangements, among other changes, have produced positive outcomes, but also negative consequences that need consideration, as they can do damage to the quality of personal and family life of individuals (Böhnke & Cifuentes, 2018). Negative consequences include blurred work-personal life boundaries and chronic health burnout (Kossek, 2016), precarious employment often associated with a risk of exploitation, low earnings, or threats to work-life balance (Benavides et al., 2006; Sonnentag & Binnewies, 2013).

Grote and Guest (2017) have set out the case for reinvigorating research on quality of working life. These authors define quality of working life as “a coherent set of research-informed policies and practices that aim to enhance workers’ emancipation and well-being” (Grote & Guest, 2017, p. 150). According to Guest et al. (2021), more research on the quality of working life is desperately needed. It is essential to examine the quality of working life, as high quality of working life, next to being important for workers themselves, leads to low turnover intentions (Chan & Wyatt, 2007; Surlenty et al., 2013), and boosts commitment and productivity (Nayak et al., 2018). This study will use the revised list of quality of working life criteria by Grote and Guest (2017), adapted from Walton (1973, 1974). Walton is a leading academic in the field, and identified eight ‘conceptual categories’ that describe the core features of quality of working life: adequate and fair compensation, a safe and healthy working environment, development of human capacities, growth and security, social integration,

constitutionalism, consideration of the total life space, and social relevance. Grote and Guest (2017) extended the original classification of dimensions of quality of working life, by adding two further criteria ('individual proactivity' and 'flexible working'), as important changes have occurred since the original list was developed. In the 1970s, the predominate focus was on the manufacturing sector, whereas now, it is the service sector that rules "employment in all advanced industrial countries and many service jobs provide greater autonomy and scope for individual initiative as well as opportunities for various forms of flexible working enabled by information and communication technologies" (Grote & Guest, 2017, p. 155). The extended classification of criteria to guide quality of working life activities is the following (Grote & Guest, 2017, p. 156):

- | | |
|--|--|
| 1. Adequate and fair compensation | Pay meeting socially determined minimum and fair standards; equal pay for equivalent work |
| 2. Safe and healthy environment | Promotion of healthy work and work environment |
| 3. Development of human capacities | Jobs that promote skill development, decision-latitude and task identity |
| 4. Growth and security | Jobs that promote employability and opportunities for personal development |
| 5. Social integration | Positive organizational climate and psychological safety; accommodating diversity |
| 6. Constitutionalism | Respect for and protection of employees' rights and mechanisms for employee representation |
| 7. Consideration of the total life space | Adequate concern for balancing demands from different life domains |
| 8. Social relevance | Adherence to socially responsible practices in the organization |
| 9. Individual proactivity | Support for personal initiative without undue transfer of employment risks to the employee |
| 10. Flexible working | Flexible working schemes to bridge organizational and employee interests |

The first eight categories, ranging from adequate and fair compensation to social relevance, were proposed by Walton (1973), which already provides a framework for analyzing salient features of quality of working life. Grote and Guest (2017) added 'individual proactivity' and 'flexible working' to this list. The first criterion is adequate and fair compensation. The typical impetus for employment is earning a living, and how well that aim is achieved fundamentally affects the quality of working life (Walton, 1973). With respect to adequate compensation, the question 'Does the income from full-time work meet socially determined standards of sufficiency or the objective standard of the recipient?' could be asked, and in the case of fair compensation: 'Does the pay received for certain work bear on appropriate relationship to the pay received for other work?' (Walton, 1973, p. 13). A safe and healthy

environment is the second criterion. Workers should not be exposed to physical conditions or hourly arrangements that are disproportionately hazardous or harmful to their health (Walton, 1973). The third criterion is development of human capacities. Some of the job qualities necessary for the development of skills and knowledge are, according to Walton (1973), having substantial autonomy and self-control relative to external controls, allowance to exercise a wide range of skills and abilities, allowance to obtain meaningful information about the total work process and the results of own actions, having work that embraces a whole task (versus fragmentation), and having work that includes planning as well as implementation of activities. Growth and security is the fourth criterion, with four relevant aspects:

Development: The extent to which one's current activities (work assignments and educational pursuits) contribute to maintaining and expanding one's capabilities rather than leading to obsolescence.

Prospective application: The expectation to use expanded or newly acquired knowledge and skills in future work assignments.

Advancement opportunities: The availability of opportunities to advance in organizational or career terms recognized by peers, family members, or associates.

Security: Employment or income security associated with one's work. (Walton, 1973, p. 14)

The fifth criterion is social integration. Attributes that influence whether a worker has satisfying identity and experiences self-esteem are freedom of prejudice, egalitarianism, mobility, supportive primary groups community and interpersonal openness (Walton, 1973). Constitutionalism is the sixth criterion, and refers to rights of the workers and how they can protect them. Aspects of constitutionalism that are key elements in providing higher quality of working life are the right to personal privacy, free speech, the right to equitable treatment in all matters, and due process in work-related matters (Walton, 1973). The seventh criterion is consideration of the total life space. The relationship of work to the total life space is, according to Walton (1973), best expressed by the concept of balance, whereby "the balanced role of work is defined by work schedules, career demands, and travel requirements that do not take up leisure and family time on a regular basis" (p. 16). Social relevance is the eighth criterion. This refers to whether the worker perceives the organization to be socially responsible in, for example, its products, marketing techniques and employment practices. Organizations acting in a socially irresponsible manner could cause increasing numbers of employees to depreciate their work's and careers' value, "which in turn affects worker self-esteem" (Walton, 1973, p. 16). Grote and Guest (2017) added two criteria: individual proactivity and flexible working. Individual proactivity emphasizes the desire for and benefits of the exercise of personal initiative (Parker, Bindl, & Strauss, 2010), "implying the requirement for organizations to provide employees with a sufficient degree of control over activities that are central to their well-being, without transferring all responsibility for their situation at work to them" (Grote & Guest, 2017, p. 155). Flexible working covers arrangements permitting space for some choice over when and where to work (Grote & Guest, 2017).

According to Grote and Guest (2017), a coherent approach to quality of working life requires integration across criteria and across levels of analysis. Therefore, the authors have outlined an integrative framework that incorporates all criteria in the classification:

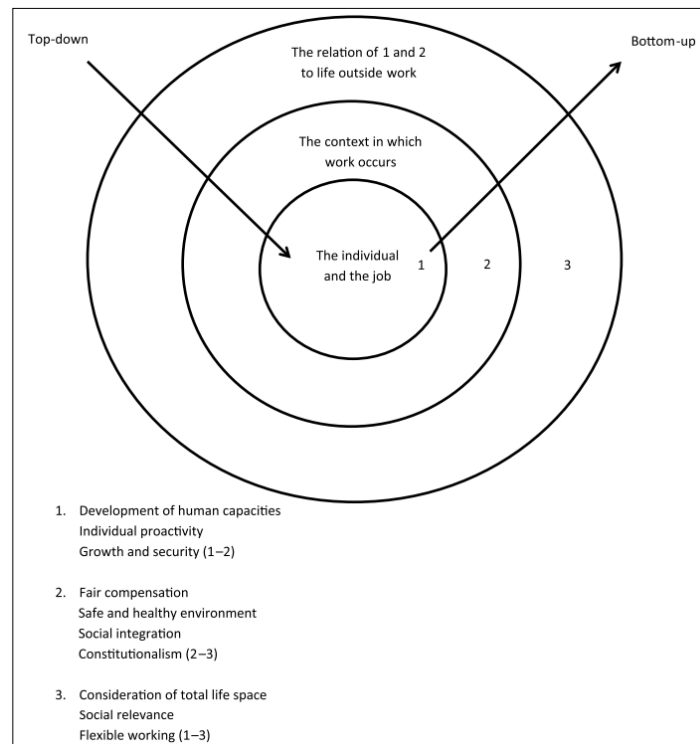


Figure 1. An integrated framework for future quality of working life research. Reprinted from “The case for reinvigorating quality of working life research,” by G. Grote and D. Guest, 2017, *Human Relations*, 70, p. 157. Copyright 2016 by The Author(s).

In the center, level one, the individual worker and the job are shown, “reflected in *Individual proactivity* and the *Development of human capacities*, implying a focus on job content, decision-latitude and employee development” (Grote & Guest, 2017, p. 156). The band around the center, level two, reflects the organizational context of work, where organizational human resource management policy-related criteria including *Adequate and fair compensation*, *Safe and healthy environment* and *Social integration* are positioned. The outermost band, level 3, “covers issues related to the world outside work including *Consideration of the total life space*, *Social relevance* and *Flexible working*, although the latter potentially cuts across all three levels” (Grote & Guest, 2017, p. 156). Further, it is to be expected that the boundaries between these levels vary in strength, and there is unavoidably some overlap: *Growth and security* is placed at the boundary of level one and two, and *Constitutionalism* is located between levels two and three.

2.4 Conceptual model

Algorithmic control is central to the operation of digital labor platforms (Wood et al., 2019). Platforms use algorithms to control workers through six mechanisms, the “6 Rs” (Kellogg et al., 2020): directing workers by *recommending* and *restricting*, evaluating workers by *recording* and *rating*, and disciplining workers by *replacing* and *rewarding*. The use of algorithmic restricting, whereby access to information is restricted, can make it difficult to make your own decisions, decreasing autonomy. Using algorithmic recommending, platforms could prompt workers to work during unsocial hours, such as evenings and weekends. Wood et al. (2019) showed that freelancers on these platforms are encountering working life issues, such as having few autonomy and working unsocial hours. This indicates that algorithmic control might play a role in the experienced quality of working life of freelancers working for food delivery platforms: employers’ use of algorithms may negatively affect meal deliverers’ quality of working life. This reasoning leads to the following conceptual model:

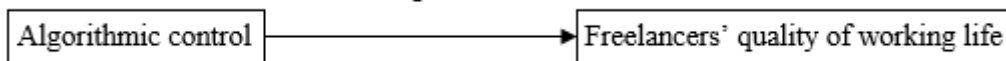


Figure 2. Conceptual model.

3. Methodology

This chapter elaborates on the research methods of this research. The first paragraph discusses the rationale for choosing a qualitative approach in order to answer the research question. Paragraph 2.2 explains the choice for a multiple case study, and goes into the data collection and sample for this study. Subsequently, paragraph 2.3 goes into the operationalization of the two concepts algorithmic control and quality of working life. Paragraph 2.4 discusses the data analysis, and paragraph 2.5 elaborates on research ethics to conclude the methodology chapter.

3.1 Research method

This study examines the role of algorithmic control in the experienced quality of working life of meal deliverers. The aim is to understand and make sense of meal deliverers' quality of working life, how the different algorithmic mechanisms operate, and how meal deliverers experience these mechanisms. Though, it is difficult for people outside of the platform organization to understand how the algorithmic mechanisms operate, as algorithmic control is characterized by "an inherent opaqueness, driven by a lack of disclosure about data sources, evaluation mechanisms that operate "under the surface", and the difficulty for workers to properly interpret algorithmic outcomes" (Bucher et al., 2021, p. 45). Platforms such as Uber Eats and Deliveroo do not disclose how their algorithmic mechanisms operate. In order to be able to find out how the different algorithmic mechanisms (might) operate, and how meal deliverers experience these mechanisms, a qualitative research will be conducted, as qualitative research produces rich material (Bleijenbergh, 2015). By interviewing meal deliverers, a rich picture will emerge of how the mechanisms (might) operate, and deliverers will also be able to tell how they experience these mechanisms. Interviewing the deliverers allows to get a good understanding of their quality of working life as well. Meal deliverers are given the opportunity to tell their story, and follow-up questions can be asked in order to find out more information, which results in rich empirical material. Moreover, it is not only difficult for researchers to understand how the algorithmic mechanisms operate, but for meal deliverers as well. They may not even be aware of the existence of these mechanisms. Interviewing deliverers provides the opportunity for them to think about and become aware of the presence of the different algorithmic mechanisms, and the role the mechanisms have in their working experiences. All in all, conducting a qualitative research leads to an good understanding of the role of algorithmic control in the experienced quality of working life of meal deliverers.

3.2 Research design

All food delivery platforms use algorithmic management to assign and evaluate work, but they vary in the extent to which they constrain the freedoms over activities and schedules (Griesbach et al., 2019). Platforms differ in the way they design and organize work, which means algorithmic control

might be designed differently by both Uber Eats and Deliveroo. Differences between the experienced quality of working life of Deliveroo's and Uber Eats' meal deliverers could be explained by differences in the way the mechanisms of algorithmic control are designed, which makes a multiple case study design suitable for this study. A case study refers to a "study of one or more carriers of a social phenomenon in the natural environment, over a period of time, using various data sources, in order to be able to make statements about the patterns and processes underlying the phenomenon" (Bleijenbergh, 2015, p. 43). Studying the two different food delivery platforms Deliveroo and Uber Eats allows to analyze data within each situation and across different situations (Yin, 2003). The possibilities to contribute to theory with case study research greatly increase when a researcher involves several cases in the research (Bleijenbergh, 2015). Furthermore, evidence generated from a multiple case study can be considered strong and reliable (Baxter & Jack, 2008). The unit of analysis in this study is the meal deliverers.

Uber Eats was launched by Uber in 2014, and has been active in the Netherlands since 2016 (FNV, 2020). The company does deliveries for more than 2500 restaurants in 15 cities. Information about the Dutch results are not provided by Uber, but globally, Uber Eats' turnover was 2.1 billion euros in 2019 (FNV, 2020). Deliveroo originated in 2013 in London, England (Deliveroo, n.d.), and was established in thirteen countries (FNV, 2020). This international food delivery platform entered the Dutch food delivery market in 2015, and since then, Deliveroo has done deliveries for approximately 2500 restaurants in the Netherlands in 18 cities (FNV, 2020). The Dutch turnover of 2018 and 2019 is unknown, however, in 2017 the turnover was 13.8 million euros. Worldwide, Deliveroo's revenue was 525.5 million euros in 2018, and 306 million euros in 2017 (FNV, 2020).

Data is collected on the basis of ten online semi-structured interviews. This means that the formulation of the questions is predetermined (Bleijenbergh, 2015), and ensures that the aspects relevant to the research are addressed. The order of the questions is predetermined as well, but can change as a result of the course of the conversation. The interview questions are open, which means that the respondents can formulate answers in their own words (Bleijenbergh, 2015). As respondents answer a question in their own words, you get to know their specific wording and interpretation of the phenomenon (Bleijenbergh, 2015). Moreover, allowing respondent to formulate answers in their own words could possibly lead to new insights into relationships between algorithmic control and freelancers' quality of working life, which could have a lot of value for the research. The questions in the interview arise from the operationalization of the important concepts (Vennix, 2016), algorithmic control and quality of working life. The interview questions can be found in Appendix B (Dutch version) and Appendix C (English version). Some of the respondents were foreigners, so some interviews were conducted in English. In total, ten meal deliverers were interviewed for this study: five deliverers working for Uber Eats, four working for Deliveroo, and one working for both food delivery platforms.

Appendix D gives an overview of the respondents and the platform(s) they work for. At first, meal deliverers were approached online via LinkedIn and Facebook. People on LinkedIn who indicated on their profile that they work for Deliveroo and/or Uber Eats were asked whether they would like to participate in an interview for this master thesis. Two respondents were found via LinkedIn. Uber Eats and Deliveroo were contacted as well, however, Deliveroo indicated they were too busy to participate in this study, and Uber Eats did not respond. Further, with permission from a community administrator, a message was posted on a Facebook page of a community of meal deliverers, with more than six hundred members. Unfortunately, only one person responded. The other seven respondents were found through street intercepts (Herzog, 2012), which took place while workers were waiting for a new delivery order. The street intercepts allowed to engage with and observe the meal deliverers during their work. Furthermore, one deliverer already demonstrated some functionalities of the Uber Eats app, which was helpful as well. More explanation and context regarding the street intercepts is included in Appendix E.

3.3 Operationalization

The two central concepts that emerge from the theoretical framework are algorithmic control and quality of working life. Algorithmic control is defined as “control systems increasingly based on ‘deep learning’ (i.e. self-learning algorithms) replacing management as an agent of capital” (Veen et al., 2020, p. 392). In this study, algorithmic control is considered as “food delivery platforms’ control systems increasingly based on ‘deep learning’, replacing management as an agent of capital”. Further, quality of working life is defined as “a coherent set of research-informed policies and practices that aim to enhance workers’ emancipation and well-being” (Grote & Guest, 2017, p. 150). In this study, quality of working life is considered as “a coherent set of research-informed policies and practices that aim to enhance meal deliverers’ emancipation and well-being”. For algorithmic control, the “6Rs”, referring to the six mechanisms through which algorithms are used to control workers (Kellogg et al., 2020), form the dimensions. For quality of working life, the extended classification of criteria to guide quality of working life activities (Grote & Guest, 2017) form the dimensions. In order to code, which is discussed in the next paragraph, it is necessary to further unravel each dimension into a number of indicators that are more concrete and closer to the material. Based on the dimensions of both algorithmic control and quality of working life, indicators have been drawn up, observable variables that refer to the theoretical concepts (Vennix, 2016).

In this research, the focus will be on the role of algorithmic control in the experienced quality of working life of meal deliverers, and not all dimensions of quality of working life are relevant for this study. Social relevance is not included in this study. The issue here is whether meal deliverers consider the platform socially responsible, for example, in its marketing techniques, employment practices, relations to underdeveloped countries and participation in political campaigns. The focus of this study,

however, is on the different algorithmic mechanisms, and the role they have in the experienced quality of working life of meal deliverers. So, the dimension ‘social relevance’ does not add much to answering the research question and falls outside the scope of the research. The operationalization can be found in Appendix A.

3.4 Data analysis

The online semi-structured interviews are recorded using recording equipment, in this case a mobile phone. These recordings are then transcribed, ‘raw’ material is made suitable for analysis (Vennix, 2016). After transcribing, it is possible to analyze the transcripts, with the aim of finding patterns in the material (Vennix, 2016). A deductive approach has been chosen in this study. The codes are based on the theories by Kellogg et al. (2020) and Grote and Guest (2017). The six mechanisms through which algorithms are used to control workers, distinguished by Kellogg et al. (2020), and the extended classification of criteria to guide quality of working life activities by Grote and Guest (2017) are well-substantiated with scientific literature, and constitute a good basis for research. Descriptive, thematic and pattern codes are used in order to analyze the data (Vennix, 2016), as they help to establish a connection between what has been concretely observed empirically and the abstract theories by Kellogg et al. (2020) and Grote and Guest (2017). The transcripts were put in a table in Word, which allowed to put codes next to the data. This also helped to keep an overview and to look up codes that were put in different places in the Word document. Fragments were continuously compared within and between the interview transcripts, so that a substantiated answer could be given to the research question. Continuously comparing the interview transcripts was very important, as respondents experienced several algorithmic mechanisms in different ways, complemented each other with interesting information, or even contradicted each other, as respondents thought differently about how some algorithmic mechanisms work.

3.5 Research ethics

The meal deliverers were approached online and during street intercepts, without the knowledge or support of the platforms, and asked whether they would like to participate in an online interview for this master thesis. It was indicated that the researcher is a master’s student in Business Administration, and the subject of the thesis was explained. The approach was in a positive manner, showing interest in meal deliverers’ experiences. It was stated that the meal deliverer only had to participate if he or she would like to. Online, contact was established using LinkedIn and Facebook, and when questions were asked about what the research exactly was about and when interviews would take place, they were answered based on honest and as complete as possible information. Phone numbers were exchanged with the respondents who were found during street intercepts, so they were able to ask questions about this study too. A proper consent process “ensures that individuals are voluntarily participating in the

research with full knowledge of relevant risks and benefits” (Smith, 2003). Prior to the interviews, permission is requested to record the interview, with the aim of being able to analyze it afterwards. Besides, the respondents are treated in a respectful manner, as the researcher is grateful for their participation, and are given the opportunity to withdraw at any time. If, for example, it appears afterwards that a respondent cannot be properly understood in the recording, or it is not clear what a respondent means by what he or she said, then this respondent will be contacted to ensure that the data can be interpreted correctly. Furthermore, anonymity, which “involves protecting the identity of an individual or organization by concealing their names or other identifying information” (Bell & Bryman, 2007, p. 69), is very important. The interviews are anonymized so that it is not possible to find out who the respondent is. They will be notified about this, and in this thesis respondents will be referred to using numbers. At the end of the interviews, respondents are asked whether they are interested in the findings of the study. If this is the case, the researcher has a moral obligation to ensure that they can actually read these results when the time comes (Bleijenbergh, 2015). The findings of this study will be shared with the interested respondents. Sharing this with the respondents is the reciprocal service for the time investment that the respondents have made in this research. Finally, the choice of method, the assessment of data and the weight attributed to alternative statements were not guided by non-scientific or non-scholarly considerations (Netherlands Code of Conduct for Research Integrity, 2018). This means that there were no considerations of commercial or political nature.

4. Results

In this chapter, the findings of this study are discussed. Paragraph 4.1 discusses the six algorithmic mechanisms and the quality of working life criteria. Consideration of the total life space is discussed in paragraph 4.2. This criterion has a separate paragraph, as no clear/unclear/possible role of an algorithmic mechanism in meal deliverers' work-life balance emerged from the data. Paragraph 4.3 gives an overview of how the different algorithmic mechanisms have a role in the experienced quality of working life of meal deliverers.

4.1 Algorithmic control and quality of working life

Algorithms are used to control workers through six main mechanisms, the “6 Rs”: employers use “algorithms to direct workers by *recommending* and *restricting*, evaluate workers by *recording* and *rating*, and discipline workers by *replacing* and *rewarding*” (Kellogg et al., 2020, p. 372). The following nine quality of working life criteria will be discussed: adequate and fair compensation, safe and healthy working environment, development of human capacities, growth and security, social integration, constitutionalism, consideration of the total life space, individual proactivity and flexible working.

4.1.1 Algorithmic recommending

Algorithmic recommending entails “employers using algorithms to offer suggestions intended to prompt the targeted worker to make decisions preferred by the choice architect” (Kellogg et al., 2020, p. 372). Platforms can recommend specific courses of action, and prompt the worker to make decisions preferred by the choice architect.

Respondents explained how both food delivery platforms recommend specific courses of action during the food delivery process: when they accept a delivery order, the app shows the route to the restaurant where the food has to be picked up, which specific order they have to take with them, and the route to the customer where they have to deliver the food. The meal deliverers experienced these recommendations positively (e.g., useful), they need them to perform their delivery work. Now, during the COVID-19 pandemic, Uber Eats' deliverers get recommendations from the app when they go online. A meal deliverer experienced that the Uber Eats app tells him to do the deliveries according to certain COVID-19 guidelines, leading to frustration for him: “*It is continuously you get a notification about Covid, “Covid this”, “Covid that”, “Do the delivery like this and that”. Yes, and that is very annoying. But yeah, you know, you can't help it, you can't stop it, nothing*” (Respondent 4). Lastly, Respondent 5 experienced that when he had not worked for three days due to homework for school, he received messages from the Uber Eats app that recommended him to go online: “[...] *you'll just get a notification*

that basically says “Just go online, just go to work, just go to the app and press ‘start’ and go to work”. [...] every day from the app I just got the same message “Go to work, go online”” (Respondent 5).

When demand for food deliveries is high, Deliveroo and Uber Eats need sufficient meal deliverers. As freelancers, deliverers can decide by themselves when they want to work. Respondents indicated that in order to have enough meal deliverers, food delivery platforms present them opportunities to earn extra money: ‘promotions’. Deliveroo and Uber Eats prompt the meal deliverers to make decisions preferred by them (i.e., make the decision to start or keep working), in order to ensure sufficient meal deliverers. Respondents explained that both food delivery platforms use what is called ‘multipliers’, allowing them to earn, for example, 1.25 or 1.5 times more per order (see Figure 3). These multipliers are active during certain moments meal deliverers explained, for example, during holidays such as King’s Day (as more people order food), bad weather such as rain and snow (since more people stay at home and order food, and less meal deliverers want to work due to the weather), dinner time, between 9 and 11 in the evening (when there are not enough meal deliverers), and times when the food delivery platforms suddenly need more deliverers. Sometimes the app sends a message in advance regarding a promotion, as was the case with King’s Day, Respondent 1 explained. Another form of promotion is what Respondent 3 called a ‘quest’: “Let’s say the quest is “You work for 15 trips, then you will get 15 more euros”. Promotions are also used when food delivery platforms launch in a new city: “[...] you really get a special e-mail for that, if you do this many hours there for 2 weeks, then you might get 100 euros extra or something like that. Because it is new, they want to have more deliverers there” (Respondent 2).

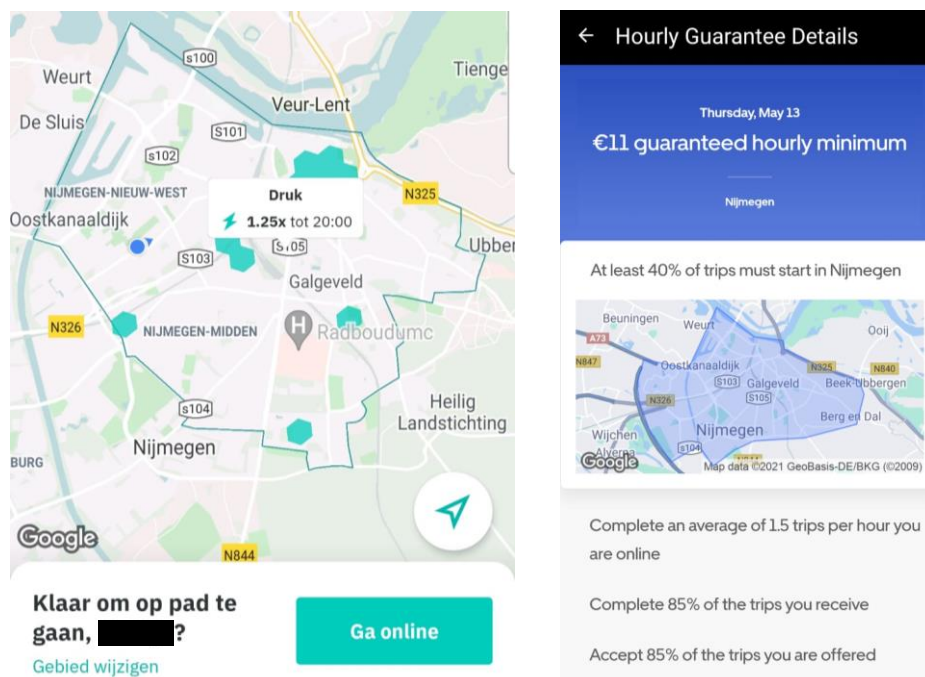


Figure 3. Two examples of promotions. On the left, an example is shown of a multiplier used by Deliveroo (a multiplier of 1.25 is applied on top of the base fee). The picture at the right shows a guaranteed hourly minimum of 11 euros, with a number of conditions. If the meal deliverer does not reach 11 euros of earnings per hour, Uber Eats will supplement the remaining amount so that the meal deliverer ends up with 11 euros earned per hour.

In general, respondents indicated that these promotions encourage them to work more: it leads to meal deliverers working a bit longer (e.g., one extra hour), getting motivated to work, or working especially when there are promotions. Though, two respondents mentioned that promotions do not always work for them. Deliverers might earn more per order, however, they might receive less orders due to the increased number of deliverers: “[...] it also happens that of course everyone who gets this [message] that there is extra money today, then everyone goes to the center at 6 o’clock, and then you are all waiting for an order to come” (Respondent 10); “More delivery people means fewer orders for me” (Respondent 6). Still, according to Respondent 10 it is “interesting to work” when there is a promotion, only Respondent 6 indicated promotions did not trigger him to decide to go online. Moreover, both respondents added two other problems. According to Respondent 6, Deliveroo often ‘cheats’ with these promotions: “[...] normally I get 5 euros for this, so you would expect, 1.2, then you get 6 euros for it. But then you only get 5.50 all the time, because then the basic fee has gone down in one go. At some point you have figured out those tricks”. Respondent 10 indicated that with respect to messages that tell Deliveroo expects the busiest period of the year, it “is always a bit of waiting to see if that is really the case”.

Flexible working concerns the choice over when and where to work. As freelancers, meal deliverers have the freedom to choose when they want to work, so which days and hours, and where they want to work, for example, in which city. All respondents experienced this flexibility: “Can really decide 100% in which city, which zone, at what time, everything” (Respondent 2). Still, respondents indicated that they are dependent on when people eat their meals: “[...] lunchtime or dinner time, that’s the two times that people will order the most. And it also depends on the day of the week, for example, from Monday to Thursday, not a lot. From Friday to Sunday, that’s the prime time. Yeah, you’re going to get very much orders from, for example, a Friday night. Friday night is the most orders in one week” (Respondent 3). Deliverers can decide when and where they want to work, though, the app prompts them to work at certain moments as well, using promotions. As discussed above, respondents indicated that these promotions encourage them to work more: they lead to meal deliverers working a bit longer, getting motivated to work, or working especially when there are promotions. Further, respondents explained that Uber Eats provides them expectations regarding busyness in terms of orders for the coming 24 hours, based on the past four weeks. Respondent 3 experienced this as “good information to know, and to keep in mind, increase your earnings”. Deliveroo has a live indicator that shows whether it is ‘busy’, ‘moderate’ or ‘not busy’ in a certain area (see Figure 3 that shows ‘Druk’, meaning ‘Busy’). Respondents indicated that they use this indicator in order to choose when and where to work (e.g., start working when the indicator shows ‘busy’). However, both Respondent 6 and Respondent 7 experienced the indicator as unreliable. Respondent 6 indicated that as a result of the unreliability of the indicator, he does not use it that much: “But at the same time it is also not very accurate. [...] In the end you don’t do much with it [...] If they have one order at 3 p.m., they really need someone for that one order, so

they say *"It's busy". The moment that that one order is gone, it is 'not busy' again"* (Respondent 6). Respondent 7 experienced that sometimes when he goes online while the indicator shows 'busy', he still has to wait for half an hour until he receives an order.

This research examined the degree to which meal deliverers make ends meet and have some money left, and whether they think they receive a fair compensation for their work. In general, it was hard for respondents to judge whether they can make ends meet and have some money left, as most of the respondents do delivery work as a side job, just to earn extra money: *"[...] hard to say, because it's really a side job for me. So I don't have to get by"* (Respondent 7); *"[...] for me it's just a way to earn extra money"* (Respondent 3). Several meal deliverers indicated that the degree to which they make ends meet is sufficient (e.g., sufficient to pay off rent and living expenses), or that, if they would have worked fulltime, they could get by. Only Respondent 4 works fulltime, and he indicated that he gets by quite well. Questions about the degree to which meal deliverers have some money left resulted in contrasting answers. On the one hand, several respondents indicated that they have no money left (e.g., remaining money is spent on food), save a little (rest goes to monthly expenses), or would not have money left if he would only do delivery work. On the other hand, a number of respondents indicated that they do have some money left, for example, as they do not spend much, save half of their earnings, or live with their parents and have low fixed expenses. Additionally, on the one hand, several respondents indicated the promotions have a(n) (big) impact on their earnings: *"If not for those quests and those promotions, my income is going to be a lot less I think"* (Respondent 3). On the other hand, respondents indicated that during these promotions they might get less orders due to the fact that more deliverers start working, Deliveroo 'cheats' with the promotions (basic fee goes down; see earlier), and promotion messages are not necessarily reliable. Furthermore, respondents were asked whether they felt they receive a fair compensation for their work. Mostly, respondents indicated that they get a fair compensation. Respondent 10, for example, was very positive: *"[...] I think it's quite a lot actually, if I compare it with other jobs where you don't have to be able to do or have much. You don't need a driver's license or anything, you just need a bike, and you don't have to have completed any education"*. Though, Respondent 3 felt that the effort meal deliverers put into their job is not compensated well enough. Several deliverers working for Deliveroo mentioned that the compensation for a delivery gradually has been going down. Still, Respondent 7 indicated that he earns quite well in student terms, in contrast to Respondent 8, who now more often experienced his work as 'less valuable': *"[...] now I'm more like 'I'm done with it now', because it feels less valuable to drive a long distance for 4 euros if you previously received 5 euros for it"*.

With respect to a safe and healthy environment, this study looked into physical conditions. Respondents were asked how they experienced the physical work of meal delivery, and all respondents thought it was either 'fine' or 'not too bad'. Several meal deliverers stated they can take a break at any

moment they want, either by rejecting an order or by going offline. Two respondents indicated that at the end of the day, they felt tired, but experienced it as a “satisfying effort” (Respondent 6), or got motivated: “[...] if you’re constantly busy, [...] you are tired at the end of the day, but you’re not like, “Oh, I’m so tired, I can’t anymore”. No, you are tired, but you are motivated and you think “Oh, I want another day like this”. The more rides you get, the more motivated you become” (Respondent 4). Though, five respondents talked about how bad weather, such as rain, strong wind, low temperatures and snow, could be “annoying” (Respondent 2) or “stressful” (Respondent 3). In the case of bad weather, some respondents said they decide to stay at home, or go home when it suddenly starts raining. Respondent 3 experienced mixed feelings: “The thing is, I like it, but I also hate it, because, when the weather is extreme, there will be more orders, so that I will make more money when. For example, if it’s raining, then I’m going to make more money. But then, if it’s raining, then it’s gonna be very cold, it’s gonna be hard to ride my bike”. As discussed earlier, the app shows the route to the restaurant where the food has to be picked up. Although deliverers experienced such recommendations positively (e.g., useful), one respondent told a remarkable story about Uber Eats’ navigation system: “[...] it does not matter whether you are in [the app] as a cyclist, moped driver or car driver, you always get the car route [...] my account was just on ‘bicycle’, and it just sent me to that 70 kilometers per hour ring road” (Respondent 6). Still, none of the incidents or near misses respondents experienced had to do with navigation.

4.1.2 Algorithmic restricting

Algorithmic restricting entails “the use of algorithms to display only certain information and allow specific behaviors while preventing others” (Kellogg et al., 2020, p. 375). Platforms can use algorithms to restrict access to information, and restrict behavior.

When a meal deliverer receives an order, a certain screen shows up. Respondents’ stories revealed significant differences between Uber Eats and Deliveroo in the information displayed (see Figure 4). When receiving an order, Uber Eats deliverers’ indicated that they can only see the location of the restaurant where the food has to be picked up (but not which restaurant). When the order is accepted, the app shows the route to the restaurant, but the location of the customer(s) is not shown yet. Only after having picked up the food from the restaurant, the app shows the location of the customer. After having delivered the order, the deliverer can see the earnings for that delivery. In contrast to Uber Eats’ app, respondents indicated that Deliveroo’s app immediately shows the location of the restaurant (with name) and the customer(s), and the earnings for that delivery.

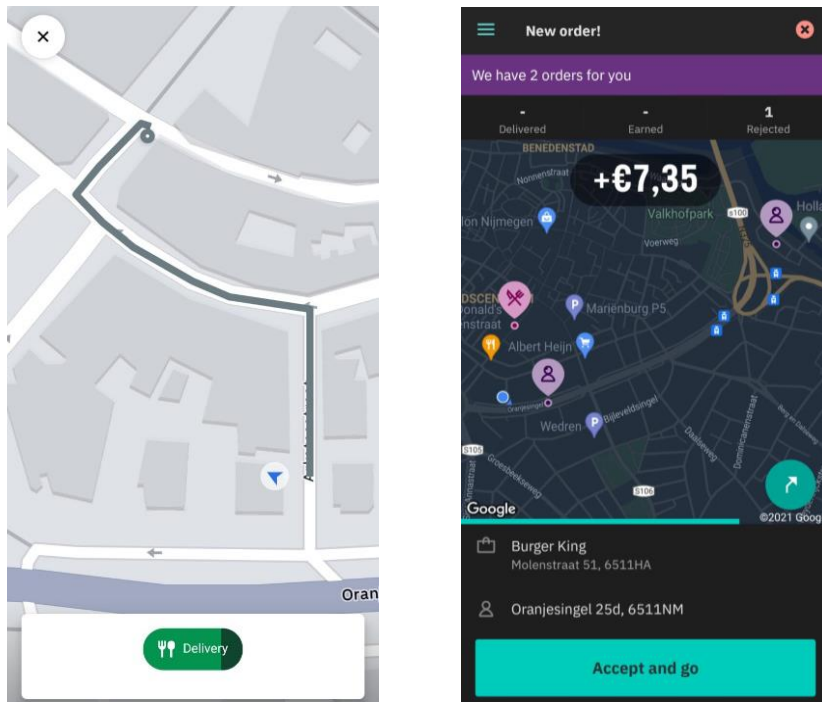


Figure 4. The picture at the left shows the screen Uber Eats’ meal deliverers see when they receive an order, the right picture shows Deliveroo’s meal deliverers’ screen¹.

Information and perspective refers to whether the worker is allowed to obtain meaningful information about the total work process and the results of his or her own action, so that he or she can appreciate the relevance and consequences of his or her actions. Uber Eats’ deliverers responded differently to the restricted access to information regarding the delivery. For example, Respondent 2 mentioned: *“It’s pretty annoying that you can’t see how far you have to go. [...] it has happened often, then you are already a little bit tired, and then you say “The last order”. And the last order is really very far. And then you have to go all the way back”*. According to Respondent 6 *“you only get half information about the work they offer you. You know, I’m just doing my job, but it’s like, it makes the difference between a nice working relationship and it’s simply what you earn your money with”*. But the limited information does not bother Respondent 4 (*“For me it’s just about, I go online and I want to do as many rides as possible, and yeah, then I have a nice day”*), he only hopes that in the future the app will show the earnings of a delivery in advance. Respondent 1 also indicated that he would like to see the earnings in advance, but further he indicated he has sufficient information. Furthermore, next to their ratings, which are discussed in paragraph 4.1.4, Uber Eats’ meal deliverers mentioned that they can see (negative) customer/restaurant feedback that appears sometimes, but disappears within a short period of time as well. Deliverers have no information regarding from whom the feedback is and which order it concerns: *“[...] I don’t know what happened, I don’t know if I did something wrong. For example, it said ‘item damaged’, yeah, I don’t know, was it my fault or did the restaurant make a mistake. You know, I only*

¹ The screen shows that the meal deliverer is going to earn €7.35 for that delivery, which is a relatively high compensation. The compensation is higher than normal, since this is a ‘double order’: the deliverer picks up two different orders at one restaurant. Meal deliverers indicated that they liked these double orders, as they could earn more while only having to go to one restaurant.

see someone is dissatisfied, but we're not going to tell you why. Yeah, what am I supposed to do with that?" (Respondent 6). Three meal deliverers working for Deliveroo indicated that they have sufficient information, though, Respondent 8 wanted to know what the compensation for a delivery is based on. Respondent 7 was less satisfied with the information: *"[...] who will receive which order when, how does that actually work? What you also don't know about "It's busy now, but how busy is that?", that you get a little more information about that, that would be nice. That's really all that's important to know"*; and indicated that as a result of this lack of information, he works less. All in all, meal deliverers do not have complete information about a delivery, have no information regarding from whom the customer/restaurant feedback is and which order it concerns, have no information about what the compensation is based on, have no information regarding the distribution of orders, and information lacks with respect to busyness in terms of orders that have to be delivered.

Autonomy refers to making your own decisions during work, for example, determining what kind of work you do and how. Respondents indicated that they can decide to accept or reject an order, and can decide to cancel an order, for example, when a restaurant takes too long to prepare the food or their bike breaks. Though, cancelling an order has a disadvantage: *"[...] you can cancel, but then you will not get paid [...]"* (Respondent 10). Further, the app presents a route for the deliverer to take, however, meal deliverers do not have to follow this: *"[...] there is a route on that map from Deliveroo, but you don't have to literally cycle this, you can of course take the route that you like best"* (Respondent 7). When respondents were asked whether they can make their own decisions during work, for example, determine what kind of work they do and how, almost every respondent answered that they can, by explaining they can accept, reject and cancel orders, which showed that meal deliverers experience autonomy. Only Respondent 10 mentioned in this regard that he cannot choose from different orders, and that the app present him an order, yet, does not experience it negatively: *"[...] it's also kind of funny that you get an assignment and then go there, and then the next. There's no stress in it or anything"* (Respondent 10). Further, Uber Eats' meal deliverers can only see the address of the customer after having picked up the order in the restaurant. Respondent 2 indicated that if he would have had more information, he would have made other decisions during work: *"[...] for example, if you see that you have to go very far from the restaurant, I would have rejected a few times. But because you have already accepted it, you have to deliver it"* (Respondent 2). Restricting access to information regarding the delivery does not enable the deliverer to make informed decisions regarding whether or not to accept or reject a delivery order.

Development refers to the extent to which one's current activities contribute to maintaining and expanding one's capabilities. Most of the respondents indicated that their activities do not contribute to developing themselves. For example, Respondent 1 explained: *"I don't think there's any development in this. [...] it's for living expense, and mostly to pay off my rents"*. Respondent 8 feels the work he has

to do is “not that challenging”, and Respondent 10 sees meal delivery as ‘simplistic work’: *“With Deliveroo I can accept an order and then pick it up at the restaurant, cycle to the customer and then the next order. So that in itself is very simplistic work actually”*. Two respondents indicated that it just improved their physical qualities/stamina. However, two (foreign) meal deliverers indicated that they were able to develop themselves: Respondent 9 told he learns from how people interact with him and how people interact with each other, and Respondent 3 told that he, as an international student, is able to discover the city, get in contact and interact with Dutch people, and learn the Dutch language. Further, as discussed earlier, Uber Eats’ meal deliverers have no information regarding from whom the customer/restaurant feedback is and which order it concerns. Respondent 6 mentioned that as a consequence he does not know what the feedback is about, and is not able to improve himself: *“But I also know, I am human, I am not perfect either, something can go wrong. Therefore, if I knew what would have gone wrong, I can do something about it. But if I do not know, all I can do is continue to do my best”* (Respondent 6).

Next to restricting access to information, the food delivery platforms restrict behavior as well. Several respondents told about negative experiences they had when trying to contact Uber Eats’ or Deliveroo’s support in case of questions or problems. Deliveroo uses a live chat, and Uber Eats, according to three respondents, has a phone number that can be called. Though, one of them told: *“[...] by coincidence I got a number that I can call to from someone, but not everyone has a number, and that is very very difficult, that is annoying”* (Respondent 4). Respondent 5 does not know which phone number to call: *“Sometimes when I have questions I search through the app or something, but I just can’t find it, my question. I just need to get that [phone] number”*. Additionally, respondents indicated that trying to solve problems together with the platform does not work well: *“[...] those people have no idea of our work, I think it is outsourced to Suriname or something. I had someone who thought I was the customer. That’s really bad sometimes. That doesn’t always help you”* (Respondent 7); and: *“[...] communication with Uber Eats you better start talking to a wall [...] there’s no point in contacting support, so I’ll try for 5 minutes, and if not, then yeah, it’s bad luck”* (Respondent 6). Such experiences can lead to meal deliverers not contacting the food delivery platforms anymore: *“[...] next time I’m not going to report that anymore, because I think “Yeah, I did that last time, sent messages about it 3 times, but there’s no point”* (Respondent 10). Aforementioned restrictions show how platforms can prevent meal deliverers from communicating with them, by being difficult to reach and providing poor support, discouraging deliverers from contacting the platform.

Individual proactivity is about exercising personal initiative, so taking or initiating action, instead of waiting, and without prompting from anyone else. From the interviews emerged that the opportunity to exercise personal initiative is very limited: *“You can decide whether or not to make a delivery, and you can decide whether or not to go online, but that’s really all you can do. [...] it’s purely*

a bit of a checklist. This now has to go from A to B. Yeah, take it or leave it” (Respondent 6). Respondent 1 experienced deciding when and where to work as exercising personal initiative. Two other respondents mentioned that in case they are sitting or standing somewhere for a long time and they do not receive any orders, they can go to another place to see whether they receive more orders in that location. From the interviews emerged that meal deliverers are not allowed to choose from available orders, they are only able to choose from among the choices presented to them: *“[...] it’s just waiting until you get a notification and then act on it”* (Respondent 8). Many deliverers indicated that they reject an order when they see they have to travel a long distance to the restaurant or customer. Though, there is no “bulletin board” (Respondent 8) or list of orders (Respondent 10) that enables meal deliverers to take action by taking an order other deliverers do not want. Respondent 10 mentioned that he would like a list of available orders, and an additional option: *“I would also find it nice if, that probably won’t happen, but that you have a list or something you can choose from, or that you can first reject an order, and then still do it when no other order comes in”*. Further, sufficient personal initiative would mean that when a meal deliverer identifies a problem, he or she should be able to take action him or herself in order to find a solution. Though, the food delivery platforms are difficult to reach, making taking action and finding a solution more difficult: *“[...] these days it’s like, unless I really need [Deliveroo] I just know it’s wasted time. Same with Uber Eats. If there is something, you try to solve it with the customer or restaurant, and then you especially should think about that the customer enters the wrong address or no address or things like that. But I just know if I can’t get a hold of them, there’s no point in contacting support, so I’ll try for 5 minutes, and if not, then yeah, it’s bad luck. I think that’s a pity. I’d love to do great, but you just don’t have the support for that”* (Respondent 6).

Regarding social integration, this research looked at whether there is a sense of community. Respondents indicated that there is no communication platform to share experiences, they do not feel part of a community, they feel there used to be more of a community feeling, they think there is no community of meal deliverers, or do not have much contact with other deliverers. Only Respondent 9 felt that there is a community of deliverers, by referring to a WhatsApp group chat of meal deliverers in Arnhem he is part of. Several other respondents mentioned that they are part of a group chat as well. Meal deliverers indicated they meet each other during delivery work, for example, when they are waiting for an order. In that way, they also discover the existence of group chats. Though, Respondent 10 said he does not know about the existence of these chats. In these group chats, meal deliverers talk about, for example, issues regarding the app, orders that are too far away, future promotions, or problems with restaurants, such as: *“[...] there is an order for a restaurant that is closed, then you let know in the group: “Hey, if there is an order from that restaurant, don’t accept””* (Respondent 6). Two respondents explained that these group chats are used to “whine” too, for example, about “annoying restaurants”. According to Respondent 3, deliverers do not share working tips or experiences with each other, because *“everyone is trying to earn the most money”*. Respondent 5 indicated he has not met Dutch deliverers:

“Some deliverers actually speak English, and I can only speak Dutch. I haven’t seen people who speak Dutch, really a lot who speak English”. Furthermore, respondents indicated that the Uber Eats and Deliveroo apps do not enable them to communicate with each other: *“[...] you have an app for yourself”* (Respondent 8). Respondent 3 explained that Thuisbezorgd creates Discord servers for deliverers to communicate with each other, while Uber Eats does not provide a communication platform for meal deliverers to share their experiences.

4.1.3 Algorithmic recording

Algorithmic recording entails “the use of computational procedures to monitor, aggregate, and report, often in real time, a wide range of finely grained data from internal and external sources” (Kellogg et al., 2020, p. 376). Platforms can record and aggregate finely grained behavior and statistics from internal and external sources, and provide real-time feedback.

From the interviews emerged that both food delivery platforms record meal deliverers’ behavior and statistics. In the case of Uber Eats it is more clear, as deliverers indicated they could see certain information about themselves in the app: *“[...] for every particular delivery it shows like, you took this much of time, you traveled that much of distance, you earned that much”* (Respondent 1). The Deliveroo app does not show any statistics. Several respondents indicated that they believe or are convinced that Deliveroo records their behavior and statistics, which Respondent 6 was able to confirm, as he was aware that some meal deliverers, in connection with the privacy law, requested all the data that Deliveroo had about them: *“That’s why I know Deliveroo really keeps track of everything in detail [...] your complete online time, you were online from 11:30 a.m. to 11:35 a.m., or from 11:45 a.m. to 12:10 p.m. All actions, and therefore timestamps that you have done in the app, at 11:50 a.m. you have rejected an order. You accepted this order at 11:51 a.m.. Then you were... then the GPS route to the restaurant. You arrived there at 12 o’clock, all those actions, yeah, there is a log of that”*. Not every respondent was aware or thought the food delivery platform records their behavior and statistics. Respondent 2’s initial reaction was that he did not know whether he is monitored, only after some follow-up questions he realized his behavior and statistics are recorded. According to Respondent 5, his behavior and statistics are not recorded.

Algorithmic recording can raise questions regarding privacy. Though, none of the respondents found the recording of their behavior and statistics problematic. Several respondents indicated it makes sense that the platforms monitor them: *“It’s a company, you have to monitor your employees. Yeah, it’s fine”* (Respondent 1); *“I also understand that as a company you should have some sort of insight into what your employees do”* (Respondent 7); and: *“I think it makes sense. In normal work if there’s anything, you are at the company. But if the customer calls “Hey, I haven’t had my food”, Deliveroo or Uber wants to be able to see “Wait a minute, we see the GPS location here, at 12:10 he was at your*

door”. Or indeed, “He hasn’t been around you”” (Respondent 6). Respondent 3 also mentioned: “And I don’t guess, they don’t record much personal data, it’s just that how we perform that, they record it”.

Next to recording and aggregating finely grained behavior and statistics, platforms can provide real-time feedback. Uber Eats’ meal deliverers indicated that Uber Eats does not do this. As mentioned earlier, deliverers can see some statistics about themselves in the Uber Eats app. Though, deliverers working for Deliveroo mentioned that the app does provide real-time feedback. After a delivery, the app shows them how long they took to deliver the food, along with a text “saying “Good job, you delivered it in 4 minutes” or something” (Respondent 6), for example. In the case that the meal deliverer arrives later than the expected time, the app shows a ‘sad’ (Respondent 9) or ‘angry’ (Respondent 7) emoji. The deliverers working for Deliveroo indicated that they do not do much with this feedback, or do not pay attention to it.

4.1.4 Algorithmic rating

Algorithmic rating entails “using computational technologies to gather ratings and rankings to calculate some measure of workers’ performance, as well as predictive analytics to predict measures of their future performance” (Kellogg et al., 2020, p. 378). Platforms can use online rating and ranking, and use predictive analytics.

From the interviews emerged that Uber Eats and Deliveroo differ considerably with respect to the use of online rating and ranking. Uber Eats uses ‘satisfaction rates’, ranging from 0 to 100 percent.

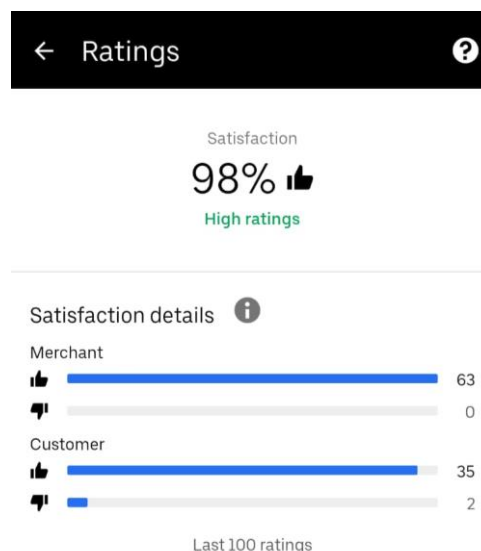


Figure 5. Uber Eats’ satisfaction rate². As mentioned in paragraph 4.1.2, sometimes (negative) feedback appears underneath these satisfaction details, but disappears within a short period of time as well.

² The satisfaction details show that most of the last 100 ratings come from the restaurants (‘merchants’). However, several respondents indicated that mostly customers rate them, and restaurant less, as they are not directly asked to rate the meal deliverer and might be busy with other orders. This distribution here might be the result of the fact that this respondent is a very active meal deliverer, is setting up his own food delivery platform with several others, and as a result has contact with various restaurants.

As shown in Figure 5, meal deliverers are rated by restaurants and customers through thumbs up and thumbs down, resulting in a satisfaction rate, which is based on the last 100 ratings. Restaurants can rate deliverers at a later moment if they want to, based on *“how late are you to pick up, how do you behave with them and everything [...] And also right now due to Covid, they rate you based on your Covid mask also, if you’re wearing it or not, if you’re wearing it properly or not”* (Respondent 1). Customers are asked to rate meal deliverers immediately after the food is delivered. When customers choose ‘thumbs up’, five different options appear that customers can select: ‘Quick and efficient’, ‘Friendly service’, ‘Perfect handoff’, ‘Delivered with care’, and ‘Great communication’. Meal deliverers indicated that they cannot see which restaurants or customers gave the thumbs up or down, and what the thumbs up or down are based on. Though, when deliverers click on their profile, they can see what is called ‘Customer compliments’, shown in Figure 6 below.

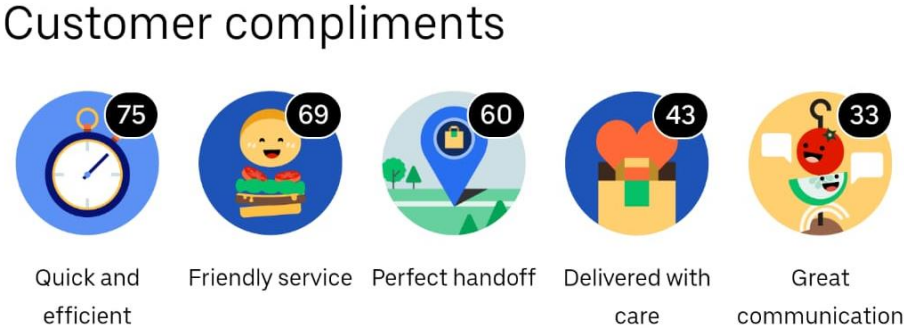


Figure 6. Uber Eats’ Customer compliments.

The numbers show how many times a certain compliment has been given by a customer, but it does not show for which delivery. Meal deliverers told they can rate customers and restaurants as well. The respondents working for Uber Eats indicated that the use of ratings does not affect their working experiences: *“It’s not much of an effect on me, because I think my rating currently is like 90 something. So, like, as long as I don’t mess an order up, then they’re going to give me a thumbs up. So it’s fairly common for me to get a thumbs up, so it’s not much of a big deal for me”* (Respondent 3). Respondent 4 sees it as a “small side issue”, and Respondent 2 mentioned: *“[...] because I also do it as a part-time job, I don’t mind either”*.

In the case of Deliveroo, however, respondents mentioned that there are no visible ratings. Restaurants and customers can rate the trip as a whole with a thumbs up or down, the same applies to meal deliverers. Respondents told that it is just giving a trip a thumbs up or down, however, Respondent 9 stated: *“I can give like a thumbs down. So it gives like around like 6 to 8 reasons, like what was the reason to give a thumbs down emoji”*. Meal deliverers working for Deliveroo indicated that they are not affected by the use of ratings either. For example, Respondent 8 thought giving thumbs up or down does not have much influence on anything, and Respondent 9 told he gives thumbs up whatever the situation is *“to get the next order, to speed up the app”*.

This study examined whether there are procedures for due process and access to appeals in work-related matters. Meal deliverers indicated that they are rated by restaurants, but are able to review restaurants as well: *“How was the delivery?”, “How was your pick up?”, Uber asks us also. [...] suppose like a restaurant is taking a lot of time to make the food, you can complain to it”* (Respondent 1). When a meal deliverer, after having accepted an order, suddenly gets assigned a second order to deliver as well, *“then you can say via the chat “Hey, I’ve now received a second order, I don’t want that”. Well, then in the system they change that, [...] then it becomes available for another deliverer”* (Respondent 8). However, respondents indicated that they are not able to appeal against unfair ratings. Respondent 4, for example, told a story about a delivery where the customer put the wrong address of his/her house in the app: *“Yeah, I can’t help that I’m at the wrong flat. Then I think “Why do I deserve such a dislike, because I went to the wrong flat? Is it me or is it you?”. Because you have to fill in the data perfectly”*. Respondent 3 explained that there is not an option that enables him to appeal against ratings: *“There’s not like a button that you can say that “I disagree with this person and this rating is unfair””*.

Platforms can use predictive analytics in order to predict measures of meal deliverers’ future performance. When meal deliverers were asked whether the food delivery platform they work for uses predictive analytics, most respondents responded by saying that (they think) the platform does not do that, doing that is impossible, or they do not know. Though, Respondent 7 thought the platform does use predictive analytics, Respondent 6 thought he could see that reflected in practice: *“You see, if you’re with a group of riders in an evening that you know are less reliable, that seems to trigger Deliveroo more [to do] a promotion to attract more people than on evenings when you usually work with a fairly reliable group. Because then they seem to know: “Okay, tonight we can expect approximately this many deliverers and they perform approximately like this, there may or may not be enough””*.

4.1.5 Algorithmic replacing

Algorithmic replacing entails *“rapidly or even automatically firing underperforming workers from the organization and replacing them with substitute workers”* (Kellogg et al., 2020, p. 380). Platforms can automatically replace or remove workers.

None of the respondents indicated that they have experienced or heard from others that underperforming workers have been removed from the platform, except for Respondent 6. However, his story shows that the mechanism does not operate consistently: *“In theory, you know, if you really underperform your account can be canceled, but in practice I sometimes think of deliverers like “How do you still have an account?”. Recently a deliverer had accepted an order from Deliveroo. Restaurant is told by Deliveroo “He’ll be there in 10 minutes”, so the restaurant is preparing the food. And in the end, he took orders from Uber Eats for 45 minutes before he got to the restaurant, and they ended up*

throwing away 80 euros worth of food. If it happens once, but this... You know... This happens to him all the time, but somehow he still has an account. The bit of theory and practice, yeah... I don't quite understand yet". He added to this that the way the platforms deal with underperforming workers does not affect him, as he indicated that he is just doing his job the best he can, so normally it is not a problem he would have, according to him. One Uber Eats deliverer mentioned that in the app there is a text that says *"Partners with consistently low ratings may be deactivated after receiving multiple warnings"* (Respondent 3). Subsequently, it does not explain what "consistently low ratings" means, restricting access to information regarding possible removal. According to several respondents, possible reasons for removal could be if meal deliverers constantly arrive late at the restaurant or customer, cancel many orders, or eat the food they have to deliver. Further, respondents were asked whether rejecting orders has consequences, which led to mixed responses. On the one hand, respondents indicated that rejecting an order is not a problem. On the other hand, Respondent 6 mentioned that rejecting can lead to receiving less orders: *"Perhaps also because I've been more involved with it, I'm very aware of the domino effect it has if you reject a lot. I'm just very aware of, the moment I reject, yeah you know, that's not a choice to take lightly. [...] Occasionally rejecting an order is not a problem, but if at some point if you reject one after another, I am aware of it, that does have an effect"*. Two other respondents gave examples of consequences they experienced: Respondent 4 mentioned that after rejecting three orders, he did not receive any order for almost half an hour, and Respondent 5 experienced that he automatically went offline for five minutes after rejecting two orders.

Security relates to employment and income security. Regarding employment security, algorithmic replacing has a central role, as this mechanism enables platforms to automatically replace or remove workers. As already mentioned, only one respondent has experienced that meal deliverers have been removed from the platforms. Moreover, Respondent 3 mentioned, when talking about getting removed from the platform: *"[...] you just have to work normally to have a good rating. You don't have to work extra hard to get a good rating"*. Regarding income security, respondents had different views. Deliverers indicated that they are paid per order by the food delivery platforms, so regarding income, they are dependent on the orders they receive. On the one hand, several respondents indicated that their income is stable: *"If you just start working the right hours, you can expect to receive orders"* (Respondent 7). On the other hand, some respondents indicated that their income is not stable: *"It depends on the number of trips you do, so it can never be stable according to me"* (Respondent 1). Respondent 3, for example, told: *"There are days that I make literally 10 euros for 3 hours of work"*. So, respondents experienced income security differently, several deliverers experienced that they have a stable income, and others did not.

4.1.6 Algorithmic rewarding

Algorithmic rewarding entails “using algorithms to interactively and dynamically reward high-performing workers with more opportunities, higher pay, and promotions” (Kellogg et al., 2020, p. 381). Platforms can interactively and dynamically reward workers, and use gamifying rewards.

Several deliverers working for Uber Eats indicated or felt that they receive relatively more orders due to their high ratings: “*And the more better reviews you get, the more orders you actually get*” (Respondent 4); and: “[...] *I can hardly imagine that it is not included in the distribution of orders [...]*” (Respondent 6). Also, platforms can provide rewards for behaviors that comply with predefined correct behaviors. In order for food delivery platforms to smoothly bring supply and demand together, it is desirable that meal deliverers who receive an order, accept the order as well. On the one hand, several respondents indicated that when they accept many orders, and do not or hardly reject them, they then receive relatively more orders. According to Respondent 6, it makes sense to reward those deliverers: “*The moment you have 2 deliverers, and one refuses half of all the orders and the other accepts 90 percent of the orders. You know, you’re Deliveroo, you want an order taken away, who do you give the order to?*”; and mentioned that he sees this way of rewarding reflected on a personal level, and in the trends in the city: the moment deliverers rejected less, they received relatively more orders. Respondent 7 also thought that if a meal deliver often accepts orders, he or she then will receive more orders, and mentioned an example of a friend who accepts almost every order, and quickly receives orders when he goes online. On the other hand, others indicated that accepting many orders and not or hardly rejecting them does not have such an effect: “*No, [...] actually not no. It depends, if it’s busy on a day, you’ll just get more orders*” (Respondent 5); and: “[...] *I don’t really notice that*” (Respondent 8). Further, respondents indicated that accepting many orders does not lead to higher pay.

This study looked at whether there are opportunities available to advance in organizational or career terms. Respondents mentioned that they have never seen, spoken and do not know people from the platform organization (except for support in case of questions or problems). Moreover, respondents indicated that there are no opportunities available that reward high-performing meal deliverers with promotions (e.g., positions at the offices of Uber Eats and Deliveroo in Amsterdam, such as restaurant partnership representative or account manager): “*It’s just a platform. You are a delivery person. All your job is you get notifications, you go to them, you take your food from those people and you just keep going. That’s it. It’s not more than that*” (Respondent 4). Respondent 6 mentioned: “*there is no clear [...] promotion path*”.

Platforms can use gamifying rewards too. Uber Eats does use gamifying rewards, namely the five different ‘badges’ discussed in paragraph 4.1.4 (Customer compliments, see Figure 6). Only two respondents realized or experienced that these Customer compliments are badges, others indicated Uber

Eats does not use gamifying rewards: “Never heard about [...] that” (Respondent 1). Respondent 3 mentioned that, although he sees it as “plain feedback” and “it has no value to it”, it boosts his working morale and makes him happy, as it shows him he is doing well. In contrast, next to mentioning that there is no reward attached to these badges, Respondent 6 said: “I like to look at it afterwards, but yeah... That I don’t know whose, for what, for what situation it was, yeah, I can’t do much with it in practice”. Deliveroo does not use gamifying rewards according to respondents, which, according to Respondent 7, is a missed opportunity, as such rewards would have made the work “more fun”.

4.2 Consideration of the total life space

Regarding consideration of the total life space, this research looked at the work-life balance, referring to the amount of time meal deliverers spend doing delivery work compared with the amount of time they spend with their family and doing things they enjoy. Respondents indicated that they have a very good work-life balance as a result of the flexibility of their work: “[...] it’s very flexible. I think It’s the most flexible platform to work on, because you can choose whenever you want to work, you can choose how long you want to work, and you just take as many days off as you want. [...] So for me, [...] work-life balance, it’s very positive, I really like it” (Respondent 3); and “[...] that’s really just the advantage of working for Deliveroo, that when you’re really busy with your studies, or you just don’t feel like it, you’ve worked so much in the last few months, you can just say “I’m not going to work”. That way you keep that balance” (Respondent 7).

4.3 The role of algorithmic control in the experienced quality of working life of meal deliverers

The table below shows how the different algorithmic mechanisms have a role in the experienced quality of working life of meal deliverers.

Algorithmic control	Quality of working life
Algorithmic recommending	<ul style="list-style-type: none"> - Algorithmic recommending influences the choice over when and where to work - Algorithmic recommending could negatively contribute to the choice over when and where to work (the way Deliveroo uses this mechanism) - Whether algorithmic recommending positively or negatively contributes to the degree to which meal deliverers make ends meet and have some money left is unclear - Algorithmic recommending could negatively contribute to safe and healthy environment
Algorithmic restricting	<ul style="list-style-type: none"> * - Algorithmic restricting negatively contributes to information and perspective ** - Algorithmic restricting negatively contributes to autonomy *** - Algorithmic restricting in combination with algorithmic rating negatively contributes to development - Algorithmic restricting negatively contributes to personal initiative - Algorithmic restricting could negatively contribute to community - Algorithmic restricting in combination with algorithmic replacing presumably does not negatively contribute to employment security
Algorithmic recording	- Algorithmic recording has no problematic role in privacy
Algorithmic rating	* - Algorithmic rating in combination with algorithmic restricting negatively contributes to information and perspective

	**	- Algorithmic rating in combination with algorithmic restricting negatively contributes to development - Algorithmic rating negatively contributes to due process
Algorithmic replacing	***	- Algorithmic replacing in combination with algorithmic restricting presumably does not negatively contribute to employment security
Algorithmic rewarding		- Algorithmic rewarding negatively contributes to advancement opportunities - Algorithmic rewarding could positively contribute to the degree to which meal deliverers make ends meet and have some money left

Table 1. The role of algorithmic control in the experienced quality of working life of meal deliverers. Gray means either unclear role or possible role. Asterisk(s) indicate(s) relatedness.

5. Conclusion

The objective of this research is to gain more insight, through qualitative research, into the role of six algorithmic mechanisms in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo, in order to contribute to literature in the field of algorithmic control. To achieve the research objective, the following research question needs to be answered:

“What is the role of algorithmic control in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo?”

Meal deliverers have and experience the choice over when and where to work, though, algorithmic recommending influences this choice using promotions.

Algorithmic restricting negatively contributes to information and perspective by restricting access to information, resulting in meal deliverers lacking meaningful information about their work. This mechanism negatively contributes to autonomy as well: restricting access to information regarding the delivery does not enable meal deliverers to make informed decisions regarding whether or not to accept or reject a delivery order. Further, when meal deliverers receive customer/restaurant feedback, they have no information regarding from whom the feedback is and which order it concerns. As a consequence, deliverers do not know what the feedback is about, and are not able to improve themselves, revealing how algorithmic restricting in combination with algorithmic rating negatively contributes to development. Algorithmic restricting negatively contributes to personal initiative in two different ways: (1) by not allowing meal deliverers to choose from available orders, they are not able take action by taking an order other deliverers do not want, and (2) the food delivery platforms are difficult to reach, making taking action and finding a solution for a problem more difficult.

Algorithmic recording has no problematic role in privacy: meal deliverers do not find the recording of their behavior and statistics problematic. According to deliverers, it makes sense that the platforms monitor them.

Algorithmic rating in combination with algorithmic restricting negatively contributes to information and perspective. Meal deliverers have no information regarding from whom the customer/restaurant feedback is and which order it concerns. The same combination of mechanisms negatively contributes to development. Algorithmic rating negatively contributes to due process, as there is no option that enables meal deliverers to appeal against unfair ratings.

No clear role has been found regarding algorithmic replacing.

Algorithmic rewarding negatively contributes to advancement opportunities: there is no mechanism that rewards high-performing meal deliverers with promotions.

Algorithms are used to control workers through six main mechanisms, the “6 Rs”: employers use “algorithms to direct workers by *recommending* and *restricting*, evaluate workers by *recording* and *rating*, and discipline workers by *replacing* and *rewarding*” (Kellogg et al., 2020, p. 372). This study has shown that, in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo, algorithmic control has an important directing role, mainly by algorithmic restricting, a moderately important evaluating role, mainly by algorithmic rating, and a slightly important disciplining role, entirely by algorithmic rewarding.

6. Discussion

Wood et al. (2019) showed that freelancers working on digital labor platforms encounter working life issues, such as having few autonomy and working unsocial hours. Objectively, it appears that meal deliverers have little autonomy, as they are only able to accept, reject or cancel an order. Though, deliverers subjectively do experience autonomy. Apparently, meal deliverers consider being able to accept, reject and cancel an order as having autonomy. Yet, this study shows that algorithmic restricting negatively contributes to autonomy by restricting access to information regarding the delivery, which does not enable meal deliverers to make informed decisions regarding whether or not to accept or reject a delivery order. The expectation that algorithmic restricting would play a role in the autonomy of meal deliverers is consistent with the results. The expectation that algorithmic recommending could prompt deliverers to work during unsocial hours was confirmed as well, although working unsocial hours did not emerge as a problem in this study. Even though deliverers work during dinner time, in the evenings and weekends, which is influenced by algorithmic recommending, only one deliverer mentioned that working during dinner time “can sometimes be tricky”.

This study too shows that the platforms use extensive digital monitoring and rating systems to guide the execution of work (Griesbach et al., 2019; Rosenblat & Stark, 2016). It became clear that Uber Eats at least monitors deliverers’ GPS location, the distance they travel and how much time they take to travel that distance. In the case of Deliveroo, it became clear that the platform monitors deliverers’ GPS location, how much time they take to deliver an order, complete online time, and moments when they accept or reject an order. It would not be illogical if Uber Eats does the same in order to guide the execution of work. While Deliveroo does not have (visible) ratings, Uber Eats does use a rating system that shows meal deliverers their ‘satisfaction rate’, in order to calculate some measure of deliverers’ performance.

Bucher et al. (2021) describe several characteristics of algorithmic management of platform workers: “an inherent opaqueness, driven by a lack of disclosure about data sources, evaluation mechanisms that operate “under the surface”, and the difficulty for workers to properly interpret algorithmic outcomes” (p. 45). These aspects often recurred during this study. Much is unclear about how the different algorithmic mechanisms operate. The lack of disclosure about data sources was clearly evident when discussing how algorithmic rating in combination with algorithmic restricting negatively contributes to both information and perspective, and development. Meal deliverers have no information regarding from whom the customer/restaurant feedback is (and which order it concerns). Platforms use algorithmic recording and rating to evaluate workers. Only because some meal deliverers, in connection with the privacy law, requested all the data that Deliveroo had about them, it became clear that Deliveroo keeps track of deliverers’ behavior in detail. Whether Uber Eats does this as well is unclear, but, as already mentioned, it would not be illogical if Uber Eats does the same. Although Deliveroo has no

visible ratings, restaurants, customers and the meal deliverers can rate the delivery trip as a whole. It could be that in the background Deliveroo still calculates ratings of deliverers based on those reviews. The difficulty for workers to properly interpret algorithmic outcomes recurred when deliverers were asked whether ratings affect anything, and whether rejecting orders has consequences. As the food delivery platforms do not disclose information about this, deliverers can only keep guessing about effects and consequences. Namely, some mentioned that ratings have no further effect, while others indicated that higher ratings lead to receiving relatively more orders. The consequences of rejecting orders were interpreted differently as well.

On the one hand, this study shows that meal deliverers have and experience the choice over when and where to work, supporting the idea that gig work has the potential to improve labor market flexibility (Mulcahy, 2017). Deliverers also have the freedom to accept and reject an order. On the other hand, this study reveals that meal deliverers' freedom exists under algorithmic control: algorithmic recommending influences the choice over when and where to work using promotions, meal deliverers do not have complete information due to algorithmic restricting (e.g., no information regarding the distribution of orders: who receives which order when?), and meal deliverers are not able to make informed decisions regarding whether or not to accept or reject a delivery order, due to restricted access to information regarding the delivery. This confirms the study of Griesbach et al. (2019) that showed that the freedom of platform workers is at least constrained to a great extent by the platforms. The contrasting views in literature on the implications of these new forms of work organization for workers and society are both reflected in this study.

Digitalization and flexible work arrangements have produced positive outcomes, but also negative consequences that can do damage to the quality of personal and family life of individuals, including threats to work-life balance (Benavides et al., 2006; Sonnentag & Binnewies, 2013) and chronic health burnout (Kossek, 2016). However, the findings of this study do not support those studies. Meal deliverers experience a very good work-life balance as a result of being able to choose when and where to work. These results could be explained by the fact that almost every respondent of this study does meal delivery as a side job, so work-life balance is not quickly jeopardized.

The way Deliveroo uses algorithmic recommending could negatively contribute to the choice over when and where to work. Meal deliverers use the indicator that shows the busyness in terms of orders in order to choose when and where to work, however, this indicator is experienced as unreliable by some deliverers, with the result that one deliverer does not use this indicator that much. When meal deliverers find the indicator unreliable and then (almost) stop using it, it could make it more difficult to choose when and where to work. Whether algorithmic recommending positively or negatively contributes to the degree to which meal deliverers make ends meet and have some money left is unclear. On the one hand, several meal deliverers indicated that the promotions have a(n) (big) impact on their earnings. On the other hand, deliverers indicated that during these promotions they might get less orders

due to the fact that more deliverers start working, Deliveroo ‘cheats’ with the promotions (basic fee goes down), and promotion messages are not necessarily reliable. Further, one meal deliverer told a remarkable story about Uber Eats’ navigation system: despite having indicated in the app that he delivers food by bicycle, he still gets the car route, which, for example, sends him on roads where cars drive seventy kilometers per hour. Such recommendations with respect to the route to take increase the risk of incidents, and shows how algorithmic recommending could negatively contribute to meal deliverers’ safe and healthy environment. Still, none of the incidents or near misses respondents have experienced had to do with navigation.

Algorithmic restricting could negatively contribute to the sense of community. The Uber Eats and Deliveroo apps do not enable meal deliverers to communicate with each other. This makes it more difficult for meal deliverers to get in touch with each other, which could prevent meal deliverers from forming a community.

An interesting finding is that algorithmic recording has no problematic role in privacy. Meal deliverers do not find the recording of their behavior and statistics problematic, it makes sense that the platforms monitor them, according to them. This finding is contrary to the expectation that deliverers might be concerned about the recording of their behavior, that they might not feel comfortable about it. The fact that meal deliverers mainly do this work as a side job, so they may be not worried about their statistics, and that the recording of behavior happens in the background, could explain this result.

Rapidly or even automatically firing underperforming workers by means of algorithmic replacing could jeopardize employment security. Though, the findings of this study suggest that algorithmic replacing in combination with algorithmic restricting presumably does not negatively contribute to employment security. The Uber Eats app states that deliverers “with consistently low ratings may be deactivated after receiving multiple warnings”, which subsequently does not explain what “consistently low ratings” means, restricting access to information regarding possible removal. Still, the findings suggest that replacing or removing of meal deliverers does not happen often and rapidly, which is positive for employment security.

Algorithmic rewarding could positively contribute to the degree to which meal deliverers make ends meet and have some money left. The findings suggest that deliverers with high ratings are rewarded with relatively more orders. As for rewarding deliverers who accept many orders and do not or hardly reject them, although not everyone experiences it that way, the findings seem to suggest that there might be a mechanism that rewards these deliverers with relatively more orders. Receiving relatively more orders would allow meal deliverers to earn more money.

The food delivery sector of platform work is rapidly expanding, meaning that an increasing group of people will start working for these platforms. Still, the topic of how employers’ use of algorithms may negatively affect workers has largely been ignored by scholars (Kellogg et al., 2020), and there has been limited investigation into experiences of platform workers, neither have their

perceptions on its quality been evaluated (Goods et al., 2019). Next to examining quality of working life, this study investigated concrete algorithmic mechanisms. As a result, a tangible picture emerged of the role of algorithmic control in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo: this study shows that algorithmic control has an important directing role, mainly by algorithmic restricting, a moderately important evaluating role, mainly by algorithmic rating, and a slightly important disciplining role, entirely by algorithmic rewarding. This study contributes to literature in the field of algorithmic control by providing a more tangible picture of the role of algorithmic control in the experienced quality of working life of meal deliverers working for Uber Eats and Deliveroo.

If the different algorithmic mechanisms are not adjusted, meal deliverers working for Uber Eats and Deliveroo will continue to experience the negative contributions of the algorithmic mechanisms to their quality of working life. One meal deliverer indicated that due to the lack of information and support, he sees delivery work simply as something he earns money with, instead of experiencing a “nice working relationship”. Another deliverer works less as a result of the lack of information, instead of working with “more pleasure”. If the algorithmic mechanisms continue to operate in this way, there is a good chance that other meal deliverers who now work for the platforms or who will do so in the future, as a result (will) enjoy the work less, or (will) work less. Worker wellbeing, next to being important for platform workers themselves, is important for organizations as well, as high quality of working life leads to low turnover intentions (Chan & Wyatt, 2007; Surlenty et al., 2013), and boosts commitment and productivity (Nayak et al., 2018). So, food delivery platforms will also benefit if the algorithmic mechanisms are adjusted in such a way that the negative role of algorithmic control in the experienced quality of working life of meal deliverers is limited as much as possible.

While the findings reveal the role of algorithmic mechanisms in the experienced quality of working life of meal deliverers, there are several limitations to the study. This research uses the stories of meal deliverers to discover how the different algorithmic mechanisms operate. Interviewing people from Uber Eats and Deliveroo was not possible. As a result, how the mechanisms work is not completely clear, also leading to presumptions of possible roles of the algorithmic mechanisms. This has a negative effect on internal validity. Future research could use quantitative research methods to determine more precisely and with more certainty whether mechanisms play a certain role in deliverers’ quality of working life. Moreover, future research could reveal other roles that were not found in this study.

Also, it may be that, in general, meal deliverers who do delivery work full-time experience the work differently than deliverers who do it as a side job. Almost all respondents of this study do delivery work as a side job, which negatively affects internal and external validity. For instance, respondents in this study were not concerned about their ratings. However, it is conceivable that full-timers, who rely on the platform work for their livelihood, in general might be more concerned about ratings, as low

ratings could lead to removal from the platforms. This reveals the need for research that includes full-timers to a greater extent. Respondents were consistently interviewed in the same way, namely via online semi-structured interviews, which increases the reliability of this study.

This research is done in the specific context of food delivery, raising questions regarding generalizability to other digital labor platforms. Two different food delivery platforms have been examined, which contributes to generalizability. As algorithmic control is central to the operation of digital labor platforms (Wood et al., 2019), it is likely that freelancers who do other forms of platform work via these platforms also experience the impact of the different algorithmic mechanisms. Future research could investigate other sectors, such as translation services, babysitting, nursing and IT, and explore how the platform functions and what impact this has on the working experiences of freelancers. Then a clear picture will emerge of the role of algorithmic control in the experienced quality of working life of freelancers working via digital labor platforms.

The negative news about the lawsuits against Deliveroo, the studies of Wood et al. (2019) and Goods et al. (2019) that revealed working life issues freelancers on digital labor platforms encounter, and the FNV (2020) report that is very negative regarding the position of meal deliverers, formed the starting point of this research. The theoretical framework of this study results in the expectation that the use of algorithms may negatively affect meal deliverers' quality of working life. This suggests that the researcher may have conducted the research with the assumption that the use of algorithmic control can only play a negative role. I do not think I had this assumption while conducting this research. If that assumption had been there to a small extent, it was further reduced by the, for me, surprising findings that meal deliverers do not worry at all about the monitoring and ratings. I also tried to make sure the questions were open, and attempted to look at the data as openly as possible. This is also apparent from the fact that a possible positive role for an algorithmic mechanism has been found, namely for algorithmic rewarding.

Looking back at the theory after having found that algorithmic rewarding could have a positive role, led to the realization that there could actually be a clear positive role for algorithmic control: algorithmic rewarding could be used to interactively and dynamically reward high-performing meal deliverers with more opportunities (e.g., receiving relatively more orders), higher pay, and promotions, and could be used to reward deliverers with gamifying rewards, such as digital points and badges, to make the experience of the work more positive and fun. However, this study shows that algorithmic rewarding negatively contributes to advancement opportunities, as there is no mechanism that rewards high-performing meal deliverers with promotions. Though, this mechanism could play a clear positive role in deliverers' advancement opportunities if it would be used to reward high-performing meal deliverers with promotions. Future research should therefore take into account that algorithmic control could also play a positive role in freelancers' quality of working life.

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Appendices

Appendix A: Operationalization

Concept	Dimension	Indicator
Algorithmic control	Algorithmic recommending	<ul style="list-style-type: none"> • Prompting the worker to make decisions preferred by the food delivery platform • Recommending specific courses of action
	Algorithmic restricting	<ul style="list-style-type: none"> • Restricting access to information • Restricting behavior
	Algorithmic recording	<ul style="list-style-type: none"> • Recording and aggregate finely grained behavior and statistics from internal and external sources • Providing real-time feedback
	Algorithmic rating	<ul style="list-style-type: none"> • Using online rating and ranking • Using predictive analysis
	Algorithmic replacing	<ul style="list-style-type: none"> • Automatically replacing or removing
	Algorithmic rewarding	<ul style="list-style-type: none"> • Interactively and dynamically rewarding • Gamifying rewards

Concept	Dimension	Indicator
Quality of working life	Adequate and fair compensation	<ul style="list-style-type: none"> • Degree to which the meal deliverer makes ends meet and has some money left • Fair compensation
	Safe and healthy environment	<ul style="list-style-type: none"> • Physical conditions
	Development of human capacities	<ul style="list-style-type: none"> • Autonomy • Information and perspective
	Growth and security	<ul style="list-style-type: none"> • Development • Advancement opportunities • Security
	Social integration	<ul style="list-style-type: none"> • Community
	Constitutionalism	<ul style="list-style-type: none"> • Privacy • Due process
	Consideration of the total life space	<ul style="list-style-type: none"> • Work-life balance
	Individual proactivity	<ul style="list-style-type: none"> • Personal initiative
	Flexible working	<ul style="list-style-type: none"> • Choice over when and where to work

Appendix B: Interview questions in Dutch

Introduction

Ik ben Franke de Jong, masterstudent Bedrijfskunde aan de Radboud Universiteit in Nijmegen. Voor mijn scriptie doe ik onderzoek naar de ‘quality of working life’ van maaltijdbezorgers, dat gaat over onder andere het welzijn van de bezorgers, en kijk ik ook naar de rol van ‘controlemechanismen’ die platforms zoals Deliveroo en Uber Eats toepassen, zoals het ervoor zorgen dat bezorgers beslissingen nemen die het platform wil die je neemt en het beperkt laten zien van informatie aan bezorgers. Ik wilde graag jou als bezorger hierover een aantal vragen stellen, heel erg fijn dat je dit wilt doen. Vind je het goed als ik een spraakopname maak? Ik laat je naam en andere persoonlijke gegevens weg, het wordt anoniem gemaakt. Door het op te nemen kan ik het interview straks uittypen en analyseren.

Introductory questions

1. Zou je jezelf kunnen voorstellen? Hoe heet je, hoe oud ben je, en hoe lang werk je al bij Deliveroo/Uber Eats? (In geval van werken bij beide platforms, vragen waarom)
2. Doe je dit bezorgwerk als bijbaan, of is dit fulltime werk waar je (een groot deel van) je inkomen uit haalt?

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3. Hoe ervaar je het fysieke werk van het bezorgen? Ervaar je het bezorgen bijvoorbeeld als inspannend, zwaar, of valt het fysiek gezien mee?
4. Maakt Deliveroo/Uber Eats gebruik van ratings en/of rankings om prestaties van bezorgers te berekenen? Hoe ervaar jij dit gebruik van ratings? Wat voor effect heeft het op jouw werkervaringen? Merk je dat het platform analyses doet om prestaties van bezorgers in de toekomst te voorspellen?
5. Merk je dat de app jou aanbeveelt hoe je het bezorgen moet uitvoeren, hoe je je werk moet doen? Ervaar je dat de app ervoor probeert te zorgen dat de bezorgers beslissingen nemen die ze willen die je neemt? Krijg je, bijvoorbeeld, wanneer je aan het werkt bent, van de app meldingen/ berichten die je aansporen om langer te werken? Wat voor effect hebben deze aanbevelingen op jouw werkervaringen?
6. Kan je tijdens het werk zelf beslissingen nemen, bijvoorbeeld zelf bepalen wat voor werk je uitvoert en hoe?
7. Ervaar je wel eens dat de app beslissingen neemt waar je het niet mee eens bent? Kan je hiertegen op één of andere manier in beroep gaan?
8. Ervaar je dat je zelf kunt kiezen wanneer en waar je gaat werken? Krijg je zo nu en dan berichten/suggesties van de app om bijvoorbeeld te gaan werken wanneer het druk is,

- wanneer er veel bestellingen gedaan moeten worden? Ga je in die gevallen over het algemeen dan ook werken, of doe je niets met zulke berichten? Zijn er beloningen te verdienen als je in deze gevallen gaat bezorgen?
9. Ervaar je dat je beperkt toegang hebt tot informatie, dat niet alle informatie wordt weergegeven? Beschik je over informatie die belangrijk is voor jouw werk? Deze informatie kan betrekking hebben tot het aanbod van bestellingen die bezorgd moeten worden, waar de bestelling opgehaald en afgeleverd moet worden, afstanden die afgelegd moeten worden, opbrengsten van ritten, of andere informatie die je nodig hebt om jouw werk uit te voeren. Hoe ervaar jij deze beperkingen? Wat voor effect heeft dat op jouw werkervaringen?
 10. Ervaar je dat je de mogelijkheid hebt om zelf initiatief te nemen tijdens het werk?
 11. Draagt het werk dat je doet bij aan het uitbreiden van jouw capaciteiten, aan het ontwikkelen van jezelf? Dit is erg breed, maar het kan bijvoorbeeld gaan om het ontwikkelen van sociale vaardigheden, stressbestendigheid, probleemanalyse, etc. Ervaar je dat het ontwikkelen van jezelf op één of andere manier beperkt wordt?
 12. Worden jouw werkzaamheden geregistreerd door de app terwijl je werkt, dus jouw gedrag en statistieken? Hoe ervaar je dit, wat voor effect heeft dit op jouw werkervaringen? Krijg je ook feedback van het platform over jouw gedrag en statistieken?
 13. Hoe wordt er omgegaan met “onderpresterende” bezorgers, die bijvoorbeeld een lage rating hebben? Heb je zelf meegemaakt, of gehoord van anderen, dat “onderpresterende” bezorgers automatisch en meteen verwijderd worden van het platform en vervangen worden? Wat voor effect heeft dat op jouw werkervaring?
 14. Je verdient nu een bepaald bedrag per maand. Kan je hier van rondkomen en hou je wat over, of heb je nog andere banen nodig? Hoeveel uren werk je ongeveer per week/maand?
 15. Wordt je beloond met meer kansen, hoger salaris en promoties als je goed presteert, zoals het doen van veel bestellingen of bestellingen snel afleveren? Wat voor effect hebben de beloningen op jouw werkervaring? En maakt het platform ook gebruik van spelelementen zoals digitale punten en badges die je kunt verzamelen? Wat voor effect heeft dit op jouw werkervaringen?
 16. Is er naar jouw idee sprake van kansen om vooruit te komen in loopbaantermen, bijvoorbeeld een mogelijkheid om te promoveren tot een teamleider, om iets te noemen?
 17. Ervaar je een goede balans tussen werk en privé? Hiermee bedoel ik de hoeveelheid tijd die je besteedt aan bezorgwerk in vergelijking met de hoeveelheid tijd die je doorbrengt met jouw familie en besteedt aan dingen doen die je leuk vindt.
 18. Heb je het idee dat er sprake is van een community van bezorgers? Kan je via de Uber Eats/Deliveroo app in contact komen met andere bezorgers? Hoe kom je in contact met andere bezorgers? Wat delen jullie met elkaar?

Closing words

We hebben nu alle vragen gehad. Ontzettend bedankt voor dit gesprek en dat je hiervoor de tijd genomen hebt. Ik zal het gesprek later uittypen, en het is zoals ik aan het begin al vertelde anoniem, dus jouw naam en andere persoonlijke gegevens worden weggelaten. Ben je geïnteresseerd in mijn scriptie en de belangrijkste resultaten? Dan kan ik deze naar jou mailen als het onderzoek afgerond is.

Appendix C: Interview questions in English

Introduction

I am Franke de Jong, master's student Business Administration at Radboud University in Nijmegen. For my thesis, I am researching the quality of working life of meal deliverers, which concerns, among other things, the well-being of the deliverers, and I also look at the role of 'control mechanisms' that platforms such as Deliveroo and Uber Eats apply, like ensuring that deliverers make decisions that the platform wants you to make and only showing limited information to deliverers. I would like to ask you as deliverer a number of questions about this, it is very nice that you want to do this. Would you mind if I make a voice recording? I will leave out your name and other personal information, it will be made anonymous. By recording it, I will be able to write down the conversation in a Word document and analyze the interview.

Introductory questions

1. Could you introduce yourself? What's your name, how old are you, and how long have you been working for Deliveroo/Uber Eats? (in case of working for both platforms, ask why)
2. Do you do this delivery work as a side job, or is this full-time work from which you get (a large part of) your income?

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3. How do you experience the physical work of delivery? For example, do you experience delivery as strenuous, hard work, or is it not too bad physically?
4. Does Deliveroo/Uber Eats use ratings and/or rankings to calculate the performance of deliverers? How do you experience this use of ratings? What effect does it have on your work experiences? Do you notice whether the platform does analyzes to predict future performance of deliverers?
5. Do you notice whether the app recommends you how to do the delivery, how you have to do your work? Do you experience that the app tries to get deliverers to make decisions that they want you to make? When you are working, for example, do you receive notifications/messages from the app that encourage you to work longer? How do these recommendations affect your work experience?
6. Can you make your own decisions during work, for example, determine what kind of work you do and how?
7. Do you ever experience that the app makes decisions that you disagree with? Can you appeal against this in one way or another?
8. Do you experience that you can choose when and where you are going to work? Do you occasionally receive messages from the app that suggest you to work, for example, when it

is busy, when many orders have to be delivered? In those cases, do you generally go do deliveries, or do you not do anything with such messages? Do you earn rewards for delivering in these cases?

9. Do you experience that you have limited access to information, that not all information is shown? Do you have information that is important to your work? This information may relate to orders that have to be delivered, where to pick up and deliver the order, distances that have to be traveled, revenue from rides, or other information you need to do your work. How do you experience these limitations? What effect does that have on your work experiences?
10. Do you experience that you have the opportunity to take initiative yourself during work?
11. Does the work you do contribute to expanding your capacities, to developing yourself? This is very broad, but it can, for example, concern the development of oral skills, stress resistance, analyzing problems, etc. Do you experience that the development of yourself is limited in one way or another?
12. Are your activities recorded while you work, so your behavior and statistics? How do you experience this, what effect does this have on your work experiences? Do you also receive feedback from the platform about your behavior and statistics?
13. How does the platform deal with “underperforming” deliverers, for example, deliverers with a low rating? Have you experienced, or heard from others, that “underperforming” deliverers are automatically and immediately removed from the platform and replaced? What effect does that have on your work experience?
14. You now earn a certain amount of money per month. Can you make ends meet and do you have something left at the of the month, or do you need other jobs? How many hours do you work approximately per week/month?
15. Are you rewarded with more opportunities, higher salary and promotions if you perform well, such as delivering many orders or delivering orders quickly? How do the rewards affect your work experience? And does the platform also use game elements such as digital points and badges that you can collect? What effect does this have on your work experiences?
16. Do you think there are opportunities to advance in career terms, for example, an opportunity to get promoted to a team leader, to name one thing?
17. Do you experience a good work-life balance? By this I mean the amount of time you spend doing delivery work compared with the amount of time you spend with your family and doing things you enjoy.
18. Do you feel that there is a community of delivery people? Can you get in touch with other deliverers via the Uber Eats/Deliveroo app? How do you get in touch with other deliverers? What do you share with each other?

Closing words

We have now discussed all questions. Thank you very much for this conversation and for taking the time to do this. I will write down the conversation later, and as I mentioned at the beginning, it is anonymous, so your name and other personal information will be left out. Are you interested in my thesis and the main results? Then I can email it to you when the research is completed.

Appendix D: Respondents and the platform(s) they work for

The overview below shows for which food delivery platform(s) the deliverers work. Respondent 6 works for both Uber Eats and Deliveroo. Other information about the meal deliverers is not given in order to protect their privacy.

<i>Respondent</i>	<i>Uber Eats</i>	<i>Deliveroo</i>
Respondent 1	x	
Respondent 2	x	
Respondent 3	x	
Respondent 4	x	
Respondent 5	x	
Respondent 6	x	x
Respondent 7		x
Respondent 8		x
Respondent 9		x
Respondent 10		x

Appendix E: Street intercepts

In order to find respondents for my research, I went to Arnhem center. I approached meal deliverers while they were waiting for a new delivery order.

The first day, I went to a McDonald's that is next to Arnhem Central station. This McDonald's has its meals delivered by Uber Eats and Thuisbezorgd, so I decided to sit on a bench in this area to spot deliverers. Meal deliverers either stood next to the McDonald's, or sat on the bench as well. I walked up to them to ask if they would like to participate in my research. Here, I found three respondents. On my way home, still in Arnhem center, I ran into an Uber Eats deliverer who was willing to participate in this study as well.



The second day, I went to a different part of Arnhem center. From the first day, I learned that I had to look in a different area for Deliveroo's deliverers.

At first, I cycled back and forth between KFC and Dadawan, as both restaurants have their meals delivered by Deliveroo. And yet, the first respondent I found was an Uber Eats deliverer, sitting on a bench, waiting for an order. Then I decided to wait in the area around Dadawan, as I noticed that deliverers from Deliveroo mainly were waiting there, and picked up the delivery orders at this pick-up point. They stood around or sat on these benches, for example. Here, I found two respondents.

In the end, I found seven respondents through street intercepts.

