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## **Work engagement and organisation performance: the mediating role of innovative work behaviour and moderating role of perceived distributive fairness in manufacturing industry of Pakistan**

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**Abstract:** Work engagement (WE) plays an important role in enhancing organisational performance (OP). Despite the considerable attention paid by developed economies, WE has been ignored in emerging economies, especially in Pakistan. This study used a survey questionnaire to investigate the relationship between WE and OP. Moreover, the mediating role of innovative work behaviour (IWB) and the moderating role of perceived distributive fairness (PDF) are also examined. Data collected from 535 manufacturing industry employees found that WE has a significant positive effect on IWB and OP. However, this effect becomes stronger after introducing PDF as moderator. Moreover, the mediating effect of IWB is also proved. Considering the results, manufacturing companies should put more emphasis on the WE level of employees. WE should be promoted to enhance OP through PDF and by pushing employees towards innovative work behaviour.

**Keywords:** work engagement; innovative work behaviour; IWB; perceived distributive fairness; PDF; organisational performance; manufacturing industry; Pakistan.

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## 1 Introduction

Work engagement (WE) has captured more attention in human resource management (HRM) studies over the past two decades. WE refer to a positive affective, motivational state with an elevated level of energy and commitment and more concentration on work (Schaufeli and Bakker, 2010). Different public, private sector organisations and small, medium enterprises desire to have engaged employees at the workplace because engagement leads to high level of creativity, employee individual and task performance, organisational citizenship behaviour, and customer satisfaction (Bakker and Costa, 2014). An engaged employee is more valuable and worthwhile to be loyal to their organisation (Gatling et al., 2016). Such kinds of the employee are cognitive, emotionally and

physically attached with their work role and perform better than other peers at the workplace (Kahn, 1990; Rodríguez-Sánchez et al., 2017).

It happens because engaged employee poses some unique characteristics including enthusiastic, alert, elated, excited in the workplace which make them able to go ‘the extra mile’. Because WE is contributing effectively and having positive consequences for both individuals and organisations, organisations are highly concerned in evaluating the motivational needs of engaged employees and try to retain them for a long time (Consiglio et al., 2016; Wollard and Shuck, 2011). Contextual nature of WE makes it more interesting for investigating it in different contexts by research scholars. Scholars pointed out ‘WE’ as an individual level construct which can pose a global measure, but its association with other variables is sensitive to the context (Jenkins and Delbridge, 2013; Skaalvik and Skaalvik, 2009). Surprisingly, despite the higher concentration on the enhancement of WE by developed countries, it has been largely ignored by developing countries such as Pakistan (Muduli et al., 2016). Pakistan workforce is one of the youngest workforces in the world due to passing from the transformational era and embracing global best practices. It is highly diversified regarding culture, cast, religion, colour, and beliefs.

WE and organisational performance (OP) as research topics in the field of HRM, organisational development, management and psychology have received ongoing attention (Jeung, 2011; Kim et al., 2013; Mercurio, 2015). Recent research supports this focus, and concludes that these two concepts are the foundation of employee well-being and provide organisations with a competitive advantage in human performance areas, such as job performance and turnover intent (Albdour and Altarawneh, 2014; Ibrahim and Al Falasi, 2014; Kim et al., 2016; Rivkin et al., 2018). In the context of academic and practical literature, WE refer to ‘a positive, fulfilling, work-related mentality characterised by vigour, dedication and absorption’ (Schaufeli and Salanova, 2011; Choi et al., 2015). Researchers such as Gupta et al. (2017) and Breevaart et al. (2016) have determined the impact of WE in relation to OP strategies. As well other scholars pointed out how innovative work behaviour (IWB) can help organisations gain competitive advantage and improve OP (Breevaart et al., 2015, Al-Dalahmeh et al., 2018; Singh, 2019). However, their approaches lack a potential conceptual framework; and focuses on the relationship between WE and OP.

IWB referred to the initiation, development, implementation, and commercialisation of innovative and useful ideas and standardised them in organisational processes. The association between IWB and different organisational outcomes has been considered significant (Chen et al., 2012). Innovation in the manufacturing industry can result in more convenience in operations, reduce cost and can enhance value for the end user. In a systematic literature review, Widmann et al. (2016) found that learning behaviours, employee motivation, task orientation, team reflectivity, reduced stress, and enough personal, instrumental and financial resources, all seem to associate with the innovation significantly. However, how the compatibility between WE and IWB is associated with OP needs further investigation (Bakker et al., 2012; Cesário and Chambel, 2017). WE have been found effective in contributing different behavioural, attitudinal and organisational outcomes positively, and researchers found it as a successful strategy to push employees for IWB (Van Zyl et al., 2021). Employees trigger creative ideas, build supportive work environment, and promote their implementation with the help of organisation both tangible and intangible (e.g., Perceived organisational support,

perceived distributional justice, employee empowerment, and innovation climate) support. IWB might not be foster without this support. The majority of earlier studies focused on the effect of organisational characteristics IWB (Cano and Cano, 2006; Hanif and Bukhari, 2015). A very few studies gave importance to the psychological attributes of employees such as WE. WE is a significant issue as different employees pose different levels of engagement and it may also differ in different context (Dubbelt et al., 2019; Mazzetti et al., 2016). Therefore, it is of great interest the check the association between WE and IWB.

Further research is needed to consider the limited literature on the relationship between WE and IWB in the manufacturing industry. Moreover, there is a need to enhance the unclear role of organisational characteristics influencing this relationship. Therefore, there are likely a number of possible mediators and moderator affecting the role of WE enhancing OP (Kim and Park, 2017). To investigate the complex role of WE consequent different outcomes, the aim of the study is threefold. Firstly, this study examines the relationship between WE and IWB. Due to the lack of systematic focus on the described relationship, it is hardly surprising that innovative behaviour cannot occur unless employees are engaged in their work, especially in psychologically exhausted contexts. Second, to get a better understanding of the psychological mechanism through which WE influences OP, this study argues that engagement-performance link is mediated by IWB. Third, this study examines the role that perceived distributive justice plays in moderating the association between WE and IWB.

This study contributes to different perspectives. First, unlike earlier studies that determine the effect of organisational characteristics on the employee, the current study tries to add literature to the psychological characteristics by empirically investigating the association of WE and IWB in the manufacturing industry. Second, this study further explains the potential mediators and moderator influencing the association between WE and IWB as well as WE and OP. Third, this study also contributes to the development of HR practices that need more concentration in the recruitment process. In order to gain benefits of IWB, managers need to be more focused on enhancing WE among employees.

## **2 Literature review and hypothesis development**

### *2.1 Manufacturing industry of Pakistan*

Pakistan is one of the most populous countries at the face of the earth and placed at 6th position. Among the top 25 economies in the world, Pakistan is the fastest growing economy ranked as third by the International Monetary Fund (IMF). Energy projects and investments in infrastructure are helping to speed up the growth of the economy by China-Pakistan economic corridor (CPEC) (Kris et al., in press). Due to the large investment in the industrial sector, there has been a tremendous increase in the consumption of natural resources as well. In 2017, the production and consumption of Pakistan's steel industry were increased by 39.3% with 5 million tons which is a remarkable growth in the international steel industry.

Moreover, Pakistan's iron and steel industry play an important role in sustaining its growth and considered as the backbone of the Pakistani economy. However, the modernisation in this industry cause large iron and steel waste generation, but the adoption of effective recycling and reutilising of this waste is indispensable (Kousar

et al., 2018). While the plastic and paper industry generated a value of total export of more than \$135 million and employed more than one million workers in these sectors (Gouda, 2016). The production and consumption of plastic bags are 55 billion every year in the country. In 2015, different manufacturing companies employed 4.2 million workers and earned the total exports nearly US\$13.6 billion of garments, textile, and footwear (GTF) products. The Pakistan automobile industry is employing 2.5 million direct and indirect labour forces which is aimed at increasing up to 4 million by 2021. In 2017–2018, motorcycles and vehicles 2.5 million and 2.49 Lac units are manufactured respectively (Marklines, 2018).

## *2.2 Work engagement*

In the concept of WE, the term engagement psychologically defines an individual's mind involvement, interest, absorption and strive to perform task devotedly (Macey et al., 2011). Engagement has a bound relation with work because individual shows his engagement in specific work which he acts physically and mentally (Cameron et al., 2003). So, WE define as an energetic move which indulges employees to perform full work performance. Engaged employees execute their work behaviour and encourage themselves in innovative work performances (Kahn, 1990). The role of WE expresses in many ways, but some components are important to boost workforces such as its motivational drives (vigour, dedication, and absorption). These motivational drives of WE consider as a milestone which strives to get competitive benefits (Macey et al., 2011; Van Zyl et al., 2021).

In previous literature, engagement remained interesting topic. However, surprisingly lack of researches considered WE in an organisational context as a burning issue (Saks, 2006; Dubbelt et al., 2019). Mainly, architecture firms' member Kahn (1990) gave the concept of WE in his ethnographic study. According to his concept employees are attached by their works with the help of their physical, cognitive and emotional work strengths enhance their performances during workplace (Bakker and Schaufeli, 2015) defined WE as positive working drives fill the gap with 'vigour, dedication, and absorption' These working drives help the individuals to increase their motivation level.

Firstly, WE's vigour defines as a high potential strengthen drive of mind resilience during work performance. This drive encourages employees to insert their effort in work willingly and provides determination in the phase hardships (Breevaart et al., 2016; Cesário and Chambel, 2017).

Secondly, WE's dedication defines as a motivational drive of work in which employees are devoted to performing their duties enthusiastically. It gives inspiration to employees to show their work with pride and commitment (Mazzetti et al., 2016; Kim et al., 2013).

Lastly, WE's absorption defines as a concentrated drive of physical emergence in work that engrosses employees deeply in their work. So these three drives of WE involve employees with their work and confer help during workplace. Moreover, this study examines these drives aggregately because these drives are helping to enhance the efficiency of employees in the organisation (Wang et al., 2017).

### 2.3 *Innovative work behaviour*

The term innovation in an organisation is defined as a formation of a new idea, thinking and begin new formation of application in work. It is an essential element of work behaviour in an organisation, and IWB is considered as an individual creative work effort within the organisation (Kleysen and Street, 2001; Gupta et al., 2017). Furthermore, Yuan and Woodman (2010) defined IWB as a new idea of applications that enhances organisational success. Employees' IWB generates a process of new work ideas, techniques, and procedures with the motive of extending organisational efficiency. IWB has broad applications, and it covers the constructive behaviour consisting of concrete innovative ideas transformation (Devloo et al., 2016). Employees can transform their ideas into the new innovative idea after the observation of the working environment. This type of employees' attitude can help either employees or organisations to show IWB and can improve their practical skill creatively.

In this competitive era, IWB is necessary to give competition by others globally (Yuan and Woodman, 2010; Janssen, 2004). Scholars most concentration was on those factors which constructed IWB, and organisations need those factors to create an environment in which employees can perform IWB efficiently. Scholars also discussed IWB's adverse effects on organisational work. However, scholars are working to highlight the negative and positive impact deliberately. Perhaps IWB has some conflicts regarding authority and employees because both have insecurity and uncertainty of innovative ideas between each other's (Janssen, 2004; Siregar et al., 2019). Organisations are working on such instability and uncertainty by hiring passionate employees who have main interest on their IWB (Janssen, 2003).

IWB also has cognitional and motivational dimensions because these dimensions stimulate employees and organisations to present creative tasks with encouragement. These innovative tasks may use new cognitive ways, new applications, latest technologies, new objectives and working techniques (De Jong and Den Hartog, 2010). Moreover, such inventive tasks may investigate the secure process of applying new motivational terminologies. Employees' motivational IWB may lead to the awareness of new ideas, technologies, measures and practices within organisations or working groups (Kleysen and Street, 2001; Woods et al., 2018).

### 2.4 *Organisational performance*

A diverse concept of OP (Paauwe, 2004) has a variety of definitions. Merely this concept defines a quality work that can increase the productivity of the organisation. OP classifies into two result's indicators. Firstly, efficient financial results of capital return and shareholder return and secondly effective operational results of productivity and quality (Paauwe, 2009; Kim et al., 2013). Generally, OP has more concern with operational results (Richard et al., 2009) because these are the indicators of product worth. However, financial results also have significance because OP measures the advantages and disadvantages of management. It also checks the measures of financial data either data is accurate or control misleading the organisation. A manager owes the data privacy (Dess and Robinson, 1984; Dubbelt et al., 2019) and financial report secrecy. The administration has an essential part in the OP, and there are positive and negative measures which signify management performance subjectively and objectively. Positive measures of performance present diversity in potential subjectively, such as

organisational competition from other organisation on the base of products (Khandwalla, 1977; Som, 2008; Al-Dalahmeh et al., 2018).

Moreover, positive measures enable organisations to generalise the performance of results and observe analysis of cross-industrial evaluation subjectively (Andrews et al., 2011; Waheed et al., 2017). On the other hands, negative measures of performance deal with biases subjectively (Meier and O'Toole, 2013). Bias reporting in OP tends to be limited especially self-reporting (Breevaart et al., 2016). However, self-reporting is considered a positive measure objectively and has a significant correlation with OP (Andrews et al., 2011; Dess and Robinson, 1984). Moreover, negative measures objectively deal with factors that are related to haziness in the financial report (Hoskisson et al., 2000), insufficient assess in the market report and disorganise management. Despite these factors, organisations can perform a tremendous job in recent years, but the majority could not get rid of the conventional way of performance (Gupta et al., 2017). These conventional performance techniques (such as cash flow, return on investment and profit margin) are not more useful in the recent competitive era (Al-Dalahmeh et al., 2018). There must use of explicit methods for documentation of finance. Management should take the responsibility to create the sequence, privacy, confidentiality and security in their managing departments. Managers must understand how to positively utilised the WE and IWB enhance OP (Van Zyl et al., 2021).

### *2.5 Perceived distributive fairness (PDF)*

This term PDF describes the observation of an individual in resources which he receives by using fairness' principles (Tyler and Boeckmann, 1997; Jørgensen et al., 2020). Cropanzano et al. (2001) defined this term as the perception of fairness in received resources. Moreover, researchers connoted that PDF in the organisation has focused upon individual's observation in fairness results and distribution of these results' value finally (Tjahjono et al., 2015; Tjahjono, 2011). Individuals use to observe the criteria of allocation in PDF for career opportunities they have. On the other side individuals also find PDF in their organisational recourses input, especially when they perceive an unfair attitude in reward system (Colquitt et al., 2007; Zmerli and Castillo, 2015).

Employees play a key role in organisations, and they devotedly perform their duties. These duties are their input in organisations. Organisations should encourage their employees by giving some positive distributed fair reward system as an output in which employees will perceive their effort fairly accepted in the organisation. Adams and Freedman (1976) presented equity theory for organisations to develop the fair distributive system. Researchers used this theory in their researches by representing the logistic view of fairness because this theory explains that each employee should be invested by his performance and organisation should be rewarded employees according to their inputs (Adams and Freedman, 1976; Janssen, 2004).

Hence, if there would be a balance between employees' input (employee's contribution) and organisation output (reward and incentives) employees would feel a sense of satisfaction in their work performance (Hoskisson et al., 2000; Zmerli and Castillo, 2015). Employees would also perform the extra WE (Janssen, 2003; Hartner-Tiefenthaler et al., 2012). Therefore, the present study investigates PDF as a moderator variable with the relationship between IWB and WE. The moderating role of PDF classifies many advantages such as IWB considers as a drive of the individual

(Luthans et al., 2007) and ‘a motivational issue’ (Amabile et al., 1994; Nederveen Pieterse et al., 2013). This IWB’s motivational drive at the organisation may more stimulate by PDF in an individual context (Janssen, 2003). Also, PDF role significantly influences employees’ behaviour and this behaviour is affected by IWB. Thus, PDF moderating role considered a sufficient for this study and helped to investigate the moderating effects of the PDF on the relationship between IWB, WE, and OP.

## 2.6 *WE and IWB*

WE deem a creative tool to deal with organisational work intentionally, and IWB believes motivational drive of new ideas and its applications within the organisation (West, 1990; Jason and Sn, 2021; Dubbelt et al., 2019). WE and IWB both are different drives entirely because WE main focus is related with individual’s idea of work whereas IWB prefers the team behaviour in innovative work diversely. In recent times, several moves have been made to observe the connection involving WE and IWB (Agarwal et al., 2012).

To deal with the competitive uncertainty organisation may require hiring the skilful, innovative minds that will perform their duties entirely and will show positive working behaviour (Janssen, 2003; Hanif and Bukhari, 2015). Such IWB leads to the success of organisations and enables organisations to create a new foundation of behaviour which can increase OP. Furthermore, IWB provokes the attention of researchers but this concept still in infancy stage because limit attention has been given to this concept. On the other hands, WE as an innovative antecedent also have been neglected by researchers (Hakanen et al., 2008; Gupta et al., 2017).

Organisations discussed innovations as an effective tool (West, 1990). No one argued upon employees’ IWB regarding the creation of new idea generalising and required an investment of employees’ effort significantly. Employees these concrete efforts absorb employees into their work (absorption). Innovation also creates change in the workplace (Ayala Calvo and García, 2018) but sometimes other employees do not like change in work because of they are afraid of insecurity, doubts, and uncertainty (Moorman, 1991). So, employees who have IWB confront those employees who have a conventional way of the work process. Hence, innovative employees try to convince their colleagues to apply innovative ideas in their work.

Organisational sector innovation can be organised in multidimensional step. Firstly idea is created, secondly promotes the idea, thirdly recognises the idea and lastly does the work on the idea. Behaviours have importance in these steps (Janssen, 2004) because employees must show full mental dedication (emotional, cognitive and behavioural) to complete the work (vigour). This mental dedication can help the employees to illustrate their positivity in work significantly. Employees will feel pride after the finish of a task, and their engage effort will demonstrate in their performance (dedication). So the studies expressed the significance of innovation with the WE’s positive states ‘vigour, dedication and absorption’ (Bakker and Schaufeli, 2015). Thus, vigour in innovation creates the high range of energy and spirit. Absorption in innovation generates an intensity of engrossment in work and dedication in innovation shows the keenness in work significantly.

H1a There is a positive link between vigour and innovative work behaviour.

H1b There is a positive link between dedication and innovative work behaviour.

H1c There is a positive link between absorption and innovative work behaviour.

## 2.7 *WE, IWB, and OP*

Researchers observed that organisations are demonstrating the unstable environment and there must be developed flexibilities, awareness, and responsibilities for competitive environment nationally and internationally (Reuvers et al., 2008). So, researchers gave the opinion that innovation is a key component of OP (Breevaart et al., 2014). Organisations must consider their attention towards employees' innovativeness that will boost the OP effectively. Moreover, organisations must apply the new ideas, resource, strategies, and technologies which can help the organisations to compete in other organisations creatively and successfully (Bommer and Jalajas, 2004; Siregar et al., 2019).

Now organisations should perform more anxiously and seriously for their survival in the market because unstable economic changes can affect OP. OP most often depends on employees' efforts and behaviour. Especially, in manufacture company managers' role directly affect the performance of employees and the products' worth (Clotfelter et al., 2009; Reuvers et al., 2008; Van Zyl et al., 2021). Same as Dutch manufacture companies studied that the performance of engaged employees as compare with non-engaged employees are more laborious, innovative (Nybakk and Jenssen, 2012) and creative (Bakker and Xanthopoulou, 2013). So, the researchers included that the WE is positively significant with OP (Schaufeli and Bakker, 2010).

IWB is measured as an essential part of the OP (Andrews et al., 2011; Gupta et al., 2017). Conventionally, innovation had focused on work; employees work behaviour was not be considered as much valued, but progressively organisations have started to pay attention to IWB. Qualified innovative employees recognised a vital part in organisations (Elche and González, 2008) and innovative organisational process continuously succeeded with employee's work behaviour (Jimenez-Jimenez et al., 2008). Thus employees' behaviour defines by the constant innovation and development with IWB in organisations (Janssen, 2003; Moorman, 1991).

H2 There is a positive link between IWB and OP.

H3a There is a positive link between vigour and OP.

H3b There is a positive link linked between dedication and OP.

H3c There is a positive link between absorption and OP.

## 2.8 *Mediating effect of IWB*

The role of IWB defined as a meta-analysis in the research literature (Devloo et al., 2016) and suggested that IWB can work as a mediator between organisational strategies and its results. It described that employee plays an essential role in the innovation process; this innovation ultimately increases OP. IWB has significant effects on organisational variables such as; job changes, engagement, satisfaction, and empowerment (Murtaza et al., 2016; Jimenez-Jimenez et al., 2008; Siregar et al., 2019). Moreover, it also consists of employees' moral behaviour (Khan et al., 2015). Employees' moral behaviour illustrates their devotion, obligation, and commitment to their work. Employees who have

morality in their behaviour have strong dedication to meet their requirement of the work. Organisations built the moral environment in which employees' IWB has the opportunity to generate a new idea and apply the procedure to complete the idea successfully (Luthans et al., 2007).

Janssen (2003) divided IWB into three interconnected behaviour works:

- a idea generation
- b idea promotion
- c idea realisation.

This three interdependent behaviour will help IWB to perform its mediating role between WE and OP.

H4a IWB s mediates in between vigour and OP.

H4b IWB mediates in between dedication and OP.

H4c IWB mediates in between absorption and OP.

## 2.9 *PDF as moderator*

According to the management researches, PDF deems one of the main concerns in organisations (Colquitt et al., 2007) and organisations discussed that in workplace PDF has great effect on workers' performance, behaviour, and mindset (Hakanen et al., 2008; Zmerli and Castillo, 2015). Previously literature classified organisational fairness into the categories:

- 1 'distributive fairness'
- 2 'procedural fairness'
- 3 'interactional fairness' (Skarlicki and Folger, 1997; Jørgensen et al., 2020).

However, this research is focusing on PDF as a moderator between WE and innovative work behaviour. Moreover, organisational fairness' categories distributive and procedural fairness examined the role as a moderator with IWB (Janssen, 2003, 2004). Also, employees' behaviour more engages when they perceived the fairness in the workplace in the context of reward (Janssen, 2003). In another research of Janssen (2004), he described that if distributive and procedural fairness would decrease IWB might be generated work pressure. So, this study can assume that there is a positive significance between IWB and PDF.

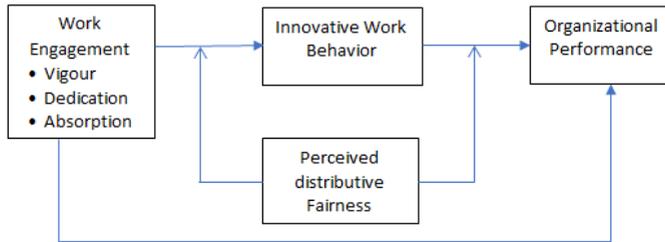
This study investigate that the moderating role of PDF creates positive effect of IWB on WE and OP. Implementation of innovative ideas through IWB may generate WE that increases OP. The effect of PDF significantly innovative employee behaviour with collaboration of others employees and generates new ideas to decrease uncertainty (Rupp et al., 2017). Thus, PDF might provide the innovative employees who have the affection with their work (Eisenberger et al., 2001) and they have difficulty to leave their work. Such emotional attachment with work helps organisations to compete for their product demands easily. The following hypotheses are developed on the basis of the above literature:

H5a The association between vigour and IWB is moderated by PDF.

H5b The association between dedication and IWB is moderated by PDF.

H5c The association between absorption and IWB is moderated by PDF.

**Figure 1** Conceptual framework (see online version for colours)



### 3 Research methodology

The conceptual model of this study which has shown as in Figure 1 is tested through a web-based self-administrated questionnaire. Data has collected from the manufacturing industry of Pakistan and participants targeted as sampling have managerial level included (top, middle and lower) of those manufacturing organisations. Before distributing questionnaires among employees, a cover letter was sent to related heads of all organisations to take permission for the collection of data.

A part of the cover letter and the instructions informed to the participants that the main purpose of the study is to collect data on WE of employees in the organisation and innovative behaviour towards work which increase the organisation performance. The letter further informs the respondents that the researchers were only interested in their opinions and their opinions will be treated trustworthy and anonymous. Total 1,000 questionnaires have been distributed, 720 appropriate responses are received. After screening, 535 questionnaires were used for further analysis with an effective response rate of 53%. The main variable of this study has further checked by non-response bias method comparing early and late respondents. Early respondents have 378 participants who responded in the first half of the survey time period, and late respondents have 157 participants who responded in the second half of the survey time period. The results of this study indicate that the main constructs (i.e., WE, IWB, PDF and OP) have no significant differences in the mean scores, identifying in the absence of non-response bias (Armstrong and Overton, 1977).

Questionnaire divided by two parts one contains demographic variables and second contains main variables. The demographic (gender, age group, manufacturing industries, level of education, industry experience, managerial level) details of respondents are given in Table.2. To increase the generalisation of study, we randomly selected the manager of different levels from manufacturing organisations. Among the 535 participants 67% are male and 33% female. In term of age group the participants are 45% (20–35), 34% (35–45) and 20% (45–65). The manufacturing industries are participated iron and steel 29%, paper industry 18%, plastic industry 15%, GTF industries 19% and automobile industry 19%. In term of education the participants are below under graduation 26%, graduate 41%, postgraduate 32%, and PhD's 1%. In term of the

managerial level, the participants are top level 31%, middle level 46% and low level of 23%. In term of service tenure in the manufacturing industry, the participants are 54% (2–5 years), 30% (6–10 years) and 16% (10-more years).

**Table 1** Demographics information

| <i>Demographics</i>           | <i>No. of respondent</i> | <i>Percent (%)</i> |
|-------------------------------|--------------------------|--------------------|
| <i>Gender</i>                 |                          |                    |
| Male                          | 358                      | 67                 |
| Female                        | 177                      | 33                 |
| <i>Age group</i>              |                          |                    |
| 20–35                         | 240                      | 45                 |
| 35–45                         | 185                      | 34                 |
| 45–65                         | 110                      | 20                 |
| <i>Manufacturing industry</i> |                          |                    |
| Iron and steel                | 155                      | 29                 |
| Paper industry                | 94                       | 18                 |
| Plastic industry              | 81                       | 15                 |
| GTF industry                  | 102                      | 19                 |
| Automobile industry           | 103                      | 19                 |
| <i>Education</i>              |                          |                    |
| Below under graduation        | 140                      | 26                 |
| Graduate                      | 218                      | 41                 |
| Post graduate                 | 172                      | 32                 |
| PhD                           | 5                        | 1                  |
| <i>Managerial level</i>       |                          |                    |
| Top level                     | 165                      | 31                 |
| Middle level                  | 245                      | 46                 |
| Low level                     | 125                      | 23                 |
| <i>Industry experience</i>    |                          |                    |
| 2–5 years                     | 262                      | 49                 |
| 6–10years                     | 182                      | 34                 |
| 10-more years                 | 91                       | 17                 |

### 3.1 Measures

Further questionnaire second part included the main variables (WE, IWB, PDF and OP) of study which were shown in Table.3. Responses were captured by five-point rating scale varying from ‘strongly disagree’ (1) to ‘strongly agree’ (5).

### 3.1.1 Work engagement

WE in this study used Utrecht scale which measured by nine-item version rarely called Utrecht Work Engagement Scale (UWES) (Schaufeli and Bakker, 2010). UWES further involves three dimensions: vigour, dedication, and absorption.

Each dimension consists of three items; vigour include (VI1: for the duration of job, I can feel that I am full with vigour. VI2: for the duration of job, I can feel healthy and energetic. VI3: for the duration of job, I am mentally relax) then dedication include items (DE1: I am passionate about my work. DE2: my job boosts me. DE3: To me, I feel that my job is challenging.), and absorption includes items (AB1: mostly I feel time glides when I'm on working. AB2: I feel joyful when I am working passionately. AB3: I immersed things during work hours.). The combination of all three WE dimensions creates the overall scale of WE. The high score of all three dimension shows the high WE. Cronbach's alpha for WE scale was 0.83.

### 3.1.2 Innovative work behaviour

IWB was measured using a nine-item scale developed by Janssen (2003). The respondent of the study also indicated how they participated and performed innovative activities. This measure contained nine-item which are (IWB1: constructing new ideas for complicated issues. IWB2: searching out innovative employ methods, practices, or tools. IWB3: engendering innovative resolutions for problems. IWB4: organising support for innovative thinking. IWB5: attaining support for innovative thinking. IWB6: assembling critical logistic members enthusiastic for innovative ideas. IWB7: mending innovative ideas into useful applications. IWB8: familiarising innovative insights into the work environment in a systematic way. IWB9: estimating the function of innovative ideas.). The nine-items additively combination creates an overall IWB scale for the current study. The Cronbach's alpha of this scale was 0.92.

**Table 2** Scale items and factor loading

| <i>Variables name</i>                        | <i>Items</i>  | <i>Factor loadings</i> |
|--|---|------------------------|
| Innovative work behaviour<br>$\alpha = 0.92$ | IWB1 Constructing new ideas for difficult issues (idea generation)                                      | 0.82                   |
|  | IWB2 Searching out innovative employ methods, practices, or tools (idea generation)                     | 0.64                   |
|  | IWB3 Engendering innovative resolutions for problems (idea generation)                                  | 0.65                   |
|  | IWB4 Organising support for innovative thinking (idea advancement)                                      | 0.54                   |
|  | IWB5 Attaining support for innovative thinking (idea advancement)                                       | 0.75                   |
|  | IWB6 Assembling critical logistic members enthusiastic for innovative ideas (idea advancement)          | 0.54                   |
|  | IWB7 Mending innovative ideas into useful applications (idea realisation)                               | 0.70                   |
|  | IWB8 Familiarising innovative insights into the work environment in a systematic way (idea realisation) | 0.60                   |

**Table 2** Scale items and factor loading (continued)

| <i>Variables name</i>                             |                                 | <i>Items</i>   | <i>Factor loadings</i>                                 |
|---|---------------------------------|--|--|
| Innovative work behaviour                         | IWB9                            | Estimating the function of innovative ideas (idea realisation)                                   | 0.67   |
| $\alpha = 0.92$                                   |                                 |  | 0.63   |
| <i>Work engagement <math>\alpha = 0.83</math></i> |                                 |  |  |
| Vigour  | VI1                             | For the duration of job, I can feel that I am full with vigour                                   | 0.56   |
| $\alpha = 0.92$                                   | VI2                             | For the duration of job, I can feel healthy and energetic  | 0.80   |
|   | VI3                             | For the duration of job, I am very resilient, mentally   | 0.74   |
|   | Dedication                      | DE1  | I am passionate about my work                          |
| $\alpha = 0.78$                                   | DE2                             | My job boosts me   | 0.60   |
|   | DE3                             | To me, I feel that my job is challenging   | 0.59   |
|   | Absorption                      | AB1  | Mostly I feel time glides when I'm on working          |
| $\alpha = 0.80$                                   | AB2                             | I feel joyful when I am working passionately   | 0.69   |
|   | AB3                             | I immersed things during work hours  | 0.70   |
|   | Organisational performance      | OP1  | Excellence of services, products or programs (Quality) |
| $\alpha = 0.90$                                   | OP2                             | Development of new products, services, or programs (Productivity)                                | 0.57   |
|   | OP3                             | It indicate that how effective management using capital to grow company (ROE)                    | 0.71   |
|   | OP4                             | Ability of business to earn profit (Profitability)   | 0.66   |
|   | OP5                             | Satisfaction of customers or clients (Customer service)  | 0.59   |
|   | OP6                             | Effort to judge the effectiveness toward generating profit (Market share)                        | 0.65   |
|   | Perceived distribution fairness | PDF1   | I work yourself too hard considering your outcomes.    |
| $\alpha = 0.77$                                   | PDF2                            | I give a great deal of time and attention to the organisation, but get very little appreciation. | 0.58   |
|   | PDF3                            | I invest more in your job than you receive in return.  | 0.61   |
|   | PDF4                            | The rewards you receive are not proportional to your investments.                                | 0.55   |
|   | PDF5                            | I put more energy into your job than it is worth.  | 0.56   |

### 3.1.3 Organisational performance

The OP was measured by adoption of Khandwalla (1977) and Som (2008) six-item scale. The respondents were involved in the process how to assess their OP as compared to their key competitors by indicated the measures of study.

These measure include six-items which are quality (OP1: excellence of services, products or programs), productivity (OP2: development of new products, services, or programs.), rate of equity (OP3: it indicates that how effective management using capital to grow company.), profitability (OP4: ability of business to earn profit), customer service (OP5: satisfaction of customers or clients.), and market share (OP6: effort to judge the effectiveness toward generating profit). The Cronbach's alpha score of this scale was 0.90.

### 3.1.4 Perceive distributive fairness

Janssen (2004) five-item scale was adapted to measure the perceive distributive fairness. Those items were used and based on as well as previous research studies (Van Yperen and Snijders, 2000). Sample five-items which are included (PDF1: I work yourself too hard considering your outcomes; PDF2: I give a great deal of time and attention to the organisation but get less appreciation; PDF3: I invest more in your job than you receive the return; PDF4: the rewards you receive are not proportional to your investments; PDF5: I put more energy you're your job than it is worth.). Perceive distributive fairness the score of the five-item scale was reversed which indicated sophisticated/high perceive distributive fairness. The score of Cronbach's alpha for this scale was 0.77.

## 4 Analysis and results of hypothesis

Mean, standard deviation (SD), and the correlation between variables are presented in Table 2. As expected, the results showed that OP had a significant positive correlation with vigour ( $r = 0.26, p < 0.05$ ), dedication ( $r = 0.31, p < 0.01$ ), absorption ( $r = 0.17^*, p < 0.10$ ), IWB ( $r = 0.26^{***}, p < 0.01$ ), and PDF ( $r = 0.28, p < 0.05$ ).

Due to multiple limitations in traditional techniques to assess the moderated mediation model, this study utilised PROCESS macro in SPSS to check the moderated mediation model (Preacher et al., 2007). PROCESS provides a facility for evaluating mediating effect with the help of a bootstrap test and also facilitates in multi-level moderation models (Hayes, 2013). Moreover, to prove moderated mediation, this study followed the guideline of Preacher et al. (2007).

The four basic guidelines recommend:

- a a significant association between WE (vigour, dedication, absorption) and OP
- b a significant association between IWB and OP
- c a significant interaction between WE (vigour, dedication, absorption) and PDF on OP as well as significant interaction between IWB and PDF on OP
- d an indirect effect of WE (vigour, dedication, absorption) on OP through IWB; depending on level of PDF.

Utilising PROCESS model 58, this study produced output of 95% bootstrap bias-corrected intervals to assess indirect effect moderated by PDF on the basis of 10,000 bootstrap samples. Following guidelines of Aiken et al. (1991), mean-centred variables were used in the analysis. The results found a significant positive association between WE and OP (vigour = 0.14,  $p < 0.05$ , 95% CI = 0.01–0.18; dedication = 0.17,  $p < 0.01$ ,

95% CI = 0.07–0.20; absorption = 0.16,  $p < 0.10$ , 95% CI = 0.10–0.16), supporting the condition 1. In addition, a significant positive association was found between WE and IWB (vigour = 0.18,  $p < 0.10$ , 95% CI = 0.17–0.28; dedication = 0.20,  $p < 0.01$ , 95% CI = 0.15–0.24; absorption = 0.21,  $p < 0.10$ , 95% CI = 0.16–0.26) and a significant positive association between IWB and OP ( $B = 0.18$ ,  $p < 0.05$ , 95% CI = 0.08–0.29), supporting condition 2. Further detail was shown in Table 4.

**Table 3** Mean and reliability analysis

| <i>Var.</i> | <i>Mean</i> | <i>SD</i> | <i>VI</i> | <i>DE</i> | <i>AP</i> | <i>IWB</i> | <i>OP</i> | <i>PDF</i> |
|-------------|-------------|-----------|-----------|-----------|-----------|------------|-----------|------------|
| VI          | 3.22        | 0.66      | 1         |           |           |            |           |            |
| DE          | 3.18        | 0.72      | 0.28***   | 1         |           |            |           |            |
| AP          | 3.10        | 0.58      | 0.18***   | 0.21***   | 1         |            |           |            |
| IWB         | 2.73        | 0.55      | 0.34***   | 0.25***   | 0.32***   | 1          |           |            |
| OP          | 3.42        | 1.04      | 0.26***   | 0.19***   | 0.17***   | 0.26***    | 1         |            |
| PDF         | 2.54        | 0.45      | 0.15***   | 0.10***   | 0.12***   | 0.20***    | 0.28***   | 1          |

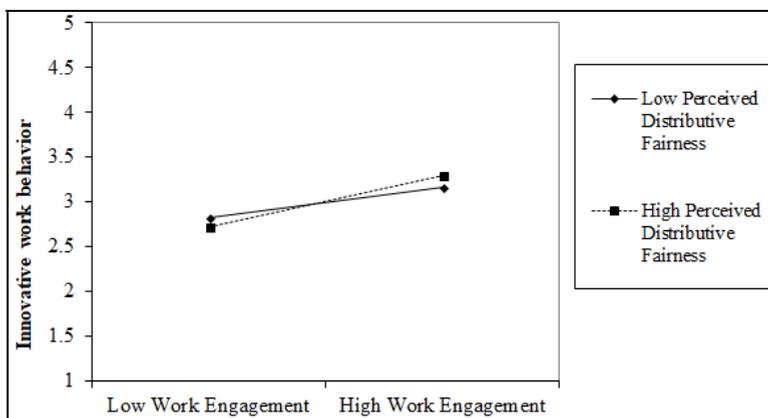
Note:  $N = 535$ , \*\* $p < 0.01$ , \* $p < 0.05$ .

The findings further prove the moderating effect of PDF between WE and IWB ( $B = 0.06$ ,  $p < 0.05$ , 95% CI = 0.01–0.10) and between IWB and OP ( $B = 0.05$ ,  $p < 0.05$ , 95% CI = 0.01–0.12), providing support to condition 3.

To examine the moderated mediation effect, we analysed condition 4, which shows the degree of conditional indirect effect of WE on OP through IWB across different levels of PDF. Results were obtained through bootstrap tests at three PDF values:

- one SD below the mean value
- at mean value
- one SD above the mean values, as recommended by Hayes (2013).

**Figure 2** Interaction plot PDF and WE



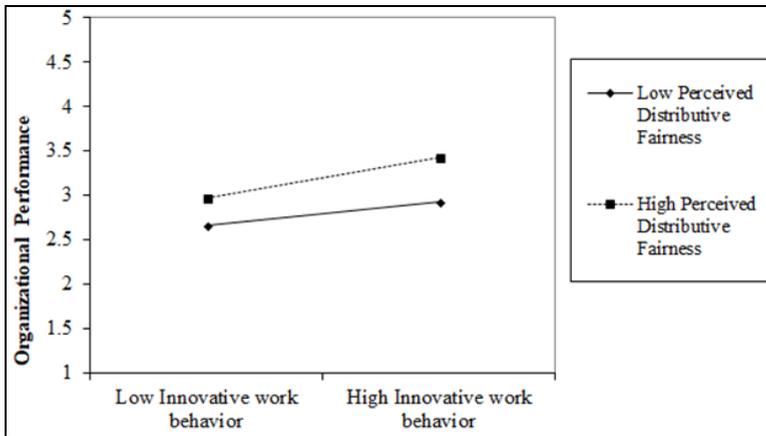
If the range of high and low CIs does have zero value, CIs are regarded as statistical significant. The bootstrap results show in Table 5 that the PDF values at one SD below mean (–0.01–0.03) poses zero, therefore, showing no significant indirect effect on OP.

However, the values of PDF, at mean and above the one SD, show an indirect effect of WE on OP via IWB (95% CI = 0.06–0.07 and 0.06–0.19), which does not have any zero value). These results support supports condition 4 of a moderated mediation model.

To better present and interpretation of moderated-mediation results, this study developed graphs showing relationships at different levels of PDF and one SD above and one SD below the mean. The plotted relationships show that WE has a more positive association with IWB, and IWB has a more positive association with OP when PDF is one SD above the mean than one SD below the mean. Moreover, the results can see in Figures 2 and 3.

The role of control variables is also significant, and significant levels may be inflated as affected by them (Becker, 2005). Following the criteria of Becker (2005), this study repeated the direct, mediated, moderated and moderated-mediation analysis without control variables. However, there was no change in the results mentioned above.

**Figure 3** Interaction plot PDF and innovative work behaviour



**Table 4** Results of PROCESS analysis

| <i>Model 1</i>          | <i>Innovative work behaviour</i> |           |          |          |             |             |
|-------------------------|----------------------------------|-----------|----------|----------|-------------|-------------|
| <i>Study constructs</i> | <i>B</i>                         | <i>SE</i> | <i>t</i> | <i>p</i> | <i>LLCI</i> | <i>ULCI</i> |
| Gender                  | 0.16                             | 0.06      | 2.71     |          | 0.04        | 0.29        |
| Age group               | -0.10                            | 0.09      | -0.95    |          | -0.01       | 0.00        |
| Iron and steel          | 0.17                             | 0.12      | 1.48     | *        | 0.17        | 0.70        |
| Paper industry          | -0.14                            | 0.09      | -1.23    |          | -0.12       | 0.21        |
| Plastic industry        | 0.16                             | 0.10      | 1.34     |          | 0.14        | 0.31        |
| GTF industry            | -0.18                            | 0.13      | -1.51    |          | -0.15       | 0.35        |
| Automobile industry     | 0.18                             | 0.10      | 1.59     | *        | 0.16        | 0.27        |
| Education               | 0.16                             | 0.11      | 1.38     | **       | 0.05        | 0.38        |
| Managerial level        | 0.17                             | 0.12      | 1.45     |          | -0.41       | 0.32        |
| Industry experience     | -0.43                            | 0.20      | -2.11    | *        | -0.81       | -0.04       |
| Work engagement         | 0.23                             | 0.03      | 7.00     | ***      | 0.18        | 0.36        |
| Vigour                  | 0.18                             | 0.07      | 4.03     | *        | 0.17        | 0.28        |

**Table 4** Results of PROCESS analysis (continued)

| <i>Model 1</i>   |          |           |          |          | <i>Innovative work behaviour</i>  |             |
|--|----------|-----------|----------|----------|-----------------------------------|-------------|
| <i>Study constructs</i>                                    | <i>B</i> | <i>SE</i> | <i>t</i> | <i>p</i> | <i>LLCI</i>                       | <i>ULCI</i> |
| Dedication   | 0.20     | 0.05      | 5.32     | ***      | 0.15                              | 0.24        |
| Absorption   | 0.21     | 0.04      | 3.70     | *        | 0.16                              | 0.26        |
| Perceive distributive fairness                             | 0.01     | 0.02      | 0.28     | **       | -0.08                             | 0.05        |
| Work engagement × perceive distributive fairness           | 0.06     | 0.03      | 2.69     | ***      | 0.01                              | 0.10        |
| F  |          |           | 8.02     |          |                                   |             |
| R  |          |           | 0.36     |          |                                   |             |
| R <sup>2</sup>   |          |           | 0.14     |          |                                   |             |
| <i>Model 2</i>   |          |           |          |          | <i>Organisational performance</i> |             |
| <i>Study constructs</i>                                    | <i>B</i> | <i>SE</i> | <i>t</i> | <i>p</i> | <i>LLCI</i>                       | <i>ULCI</i> |
| Gender   | 0.09     | 0.10      | 0.85     |          | -0.08                             | 0.23        |
| Age group  | -0.10    | 0.09      | -1.37    |          | -0.01                             | 0.00        |
| Iron and steel   | 0.18     | 0.04      | 2.21     | *        | 0.16                              | 0.56        |
| Paper industry   | 0.14     | 0.09      | 1.24     |          | 0.13                              | 0.17        |
| Plastic industry   | -0.13    | 0.08      | -1.18    |          | -0.11                             | 0.14        |
| GTF industry   | -0.17    | 0.11      | -1.43    |          | -0.14                             | 0.31        |
| Automobile industry  | 0.18     | 0.12      | 1.53     | *        | 0.15                              | 0.40        |
| Education  | 0.34     | 0.13      | 2.70     | **       | 0.10                              | 0.61        |
| Managerial level   | 0.36     | 0.13      | 3.24     | *        | 0.17                              | 0.74        |
| Industry experience  | -0.30    | 0.23      | -1.28    |          | -0.74                             | 0.16        |
| Work engagement  | 0.12     | 0.07      | 3.25     | *        | 0.01                              | 0.21        |
| Vigour   | 0.14     | 0.05      | 2.16     | **       | 0.01                              | 0.18        |
| Dedication   | 0.17     | 0.04      | 2.14     | ***      | 0.07                              | 0.20        |
| Absorption   | 0.16     | 0.03      | 2.18     | *        | 0.10                              | 0.16        |
| Innovative work behaviour                                  | 0.18     | 0.05      | 3.56     | **       | 0.08                              | 0.29        |
| Perceive distributive fairness                             | 0.20     | 0.04      | 5.59     | *        | 0.13                              | 0.27        |
| Innovative work behaviour × perceive distributive fairness | 0.05     | 0.02      | 2.13     | ***      | 0.01                              | 0.12        |
| F  |          |           | 14.05    |          |                                   |             |
| R  |          |           | 0.48     |          |                                   |             |
| R <sup>2</sup>   |          |           | 0.22     |          |                                   |             |

**Table 5** Bootstrap results

| <i>Mediator: innovative work behaviour</i> | <i>-1SD (1.90)</i> | <i>M (0)</i> | <i>+1SD (1.90)</i> |
|--|--------------------|--------------|--------------------|
| Boot indirect effect                       | 0.01               | 0.03         | 0.12               |
| Boot SE                                    | 0.01               | 0.02         | 0.04               |
| BootLowerLimit95%CI                        | -0.01              | 0.06         | 0.06               |
| BootUpperLimit95%CI                        | 0.03               | 0.07         | 0.19               |

## 5 Discussion

The results of the study found that WE is a major driving force significantly influencing IWB and OP. Moreover, the mediating role of IWB was also supported between WE and OP. Therefore, it can be said that WE, directly and indirectly, has significantly influence OP. Further, results proved the moderating effect of PDF between WE and IWB.

### 5.1 Theoretical contribution

This study indicates multiple pathways of WE through which OP is significantly improved. While the previous literature was supported the connection between WEs with performance (May et al., 2004) but multiple predictors, need to be explored. So, this research contributed to developing a comprehensive moderated mediation model and explained the indirect relationship of WE with OP.

Due to multiple limitations in traditional techniques this research utilised PROCESS macro in SPSS to check the moderated mediation model (Preacher et al., 2007). Moreover, to prove moderated mediation, this research followed the principle of (Preacher et al., 2007). According to this research there are four basic guidelines recommend:

- a a significant association between WE (vigour, dedication, absorption) and OP
- b a significant association between IWB and OP
- c a significant interaction between work engagement (vigour, dedication, absorption) and PDF on OP as well as significant interaction between IWB and PDF on OP
- d an indirect effect of work engagement (vigour, dedication, absorption) on OP through IWB; depending on level of PDF.

Furthermore, this research repeated the indirect, mediated, moderated and moderated-mediation analysis without control variables (Becker, 2005). The indirect effect of WE on OP through IWB across different levels of PDF was shown in this research. Results were obtained through bootstrap tests at three PDF values (Hayes, 2013). The results showed no significant indirect effect on OP. However, the values of PDF show an indirect effect of WE on OP via IWB. Thus, results support the moderated mediation model, and developed graphs showed relationships at different levels of PDF.

### 5.2 Practical implications

WE is working as the primary stimulus for nurturing OP. Vigour, dedication, and absorption are WE's motivational drivers boosting managers to perform IWB that can increase OP. Researchers also presented the positive relationship between WE and OP (Schaufeli and Bakker, 2010) because engaged managers have high motivational level to enhance their performance and getting customers loyalty.

The results justify managers to maintain workers' IWB in this competitive era. Workers' IWB is a challenge for companies and companies try to prevent turnover intentions of innovative employees. Generally, innovation is necessary for OP. So, managers must involve in innovation activities because mediating role of IWB act as a triggering factor between WE and OP which triggers to increase organisational success.

Consequently, organisations should improve training and innovative workshops to increase creativity in employees. Further, managers must also pay attention to workers' PDF because it may provide innovative workers who have the affection for their work (Eisenberger et al., 2001). Thus, PDF as a moderating variable may mitigate the positive impacts of IWB on WE and OP.

## **6 Conclusions, limitation and future research direction**

Although this study provided significant results, some limitations need to be justified for future research. The main limitation of this research is to use cross-sectional data; all the data was collected from the manufacturing industry of Pakistan. For future research, other organisations can be considered, e.g., the service sector, health sector, and IT sector, etc. Furthermore, previous literature regarding the relationship of WE and OP have been discussed in the USA and UK. Currently, few researchers gave the eye towards other countries such as China (Liao et al., 2021). Thus, future studies should be conducted as well other countries to verify this relationship. So, it is essential to find investigations in different contexts (Kousar et al., 2018; Ning et al., 2018). This research investigates the association between WE and OP in the Pakistan context.

WE generally has a positive view (Bakker et al., 2008; Seligman and Csikszentmihalyi, 2000) and this research supports this positivity with OP. Future findings can also consider some other concerns such as its negative effects (Bakker et al., 2011; Maslach, 2011). Another limitation of WE concerning the main idea of WE's motivational drivers (vigour, dedication, and absorption) indirectly leads towards OP. For the future view, some other WE's drivers (such as involvement, interest, strive and enthusiasm) can also be considered to check direct and indirect relationship with OP.

Further, this research has taken a step to exceed the relationship of WE and OP in the Pakistan context as few researches pay attention towards this topic. Moreover, this finding demonstrated the indirect relationship between WE and OP because IWB as a mediator and PDF as moderator positively create a significant effect. Thus, this research would be helpful for managers and human resource departments to employ this research's information in their organisation and assist the stability between WE and OP. This study highlights the positive mediating role of IWB between WE and OP. However, negative effect of IWB can also be measured. Further, a bit of research rose to this point that IWB gives aid to OP. Lastly, even though the moderating role of PDF positively defines the relationship between WE and IWB but the negative impact can also be considered for future studies. PDF prone to adjust as it has short-term development (Folger and Konovsky, 1989). Thus, future directions should investigate the negative role of PDF in detail.

A multi-dimensional study tested the moderated mediation model of WE, IWB, OP, and PDF. IWB as a mediator and PDF as a moderator contribute towards the OP with the help of WE. Moreover, this research is beneficial for the manufacturing sector to accomplish the OP although previous literature did not consider the OP in the manufacturing sector considering WE, IWB, and PDF.

Moreover, these findings demonstrated the indirect relationship between WE and OP because IWB as a mediator and PDF as moderator positively create a significant effect. Empirical investigation of this research into the indirect impact of IWB in established relationships between WE and OP. In term of practical significance, the results show that

the organisation can improve the performance if they encourage the engagement of employees towards IWB. Should employees experience WE, it can activate innovative employee's work-related behaviour which in turn can yield positive returns on their OP will follow.

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