

Applying qualitative approach to identify the characteristics of effective messages in eWOM communications

Effective
messages in
eWOM
communication

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Abstract

Purpose – The present study aimed to identify the characteristics of effective messages in electronic word of mouth (eWOM) communication on social networks to be considered in the planning of eWOM strategies. For this purpose, the present study tries to identify these factors through a qualitative approach.

Design/methodology/approach – A qualitative approach based on the thematic analysis was used with semi-structured interviews and opinions of 25 experts in the field of e-marketing and e-retailing. The collected data were analyzed and coded in the MaxQDA software.

Findings – The results of the study showed the extracted seven main themes of message sender specifications, aesthetic appearance, choosing the right content, sending strategy, message usefulness, correct targeting, type of information and also 47 subthemes. These seven criteria provide a way to design the right strategies.

Research limitations/implications – Limited studies in this area were a challenge and also integrating the opinions of the interviewees due to contradictory and different views, as well as unfamiliarity with some new approaches to digital marketing, were among the limitations of the present study that managed and controlled their effects. Practical and theoretical implications for developing and planning effective eWOMs in social networks presented.

Originality/value – Understanding the way of creating appropriate features of effective and suitable messages in the planning of eWOM strategies is crucial to digital marketers. This study recommends considering the extracted features in designing effective messages.

Keywords Electronic word of mouth, Social networks sites, Message effectiveness, Thematic analysis

Paper type Research paper

1. Introduction

With the rapid growth of social media and the widespread use of smartphones, electronic word of mouth (eWOM) has become a ubiquitous phenomenon (Zhang *et al.*, 2017; Zamani *et al.*, 2018). eWOM allows customers to obtain up-to-date and more realistic information. Social media networks allow users to easily publish or collect brand information at the right time and at the lowest cost (Burnasheva *et al.*, 2019). Today, eWOM has become one of the



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most effective tools in influencing customers' attitudes and behaviors toward brands (Sun *et al.*, 2020). With a cascade of messages, social media users engage and exchange information through numerous channels designated as social media. By sharing personal experiences about products, online users tend to accept and use online information in their decision-making processes. There is a big and growing body of evidence that eWOM messages have an impact on changing consumers' attitudes and behavior (e.g. Burnasheva *et al.*, 2019; Farzin and Fattahi, 2018). Several studies have explored the motives of applying social networking sites (SNSs) in eWOM communication and assessed significant antecedents of persuasive messages in eWOM communication (e.g. Ismagilova *et al.*, 2019; Zhang *et al.*, 2019). However, researchers stated that little is known about the determinants of persuasive eWOM messages when people process the information in the context of social media (Teng *et al.*, 2014, 2017). Despite significant managerial and academic attention on eWOM, few research studies have directly tested potential determinants of eWOM messages in the social media context. Since one of the important factors in eWOM is the message itself, identifying the feature of the message is one of the key issues (Nam *et al.*, 2020); hence, the present study focusing on the subject of "message" and its related features.

There is also heterogeneity among research findings in this area. For instance, Ismagilova *et al.* (2019) reported different results regarding persuasiveness of eWOM communications such as homophily of the messages' source among different studies. Farzin and Fattahi (2018) showed that the normative influence and the tie strength have no effect on eWOM communication on social networks, while previous research considered them as effective antecedents. In addition, to generalize the findings to other countries, studies have emphasized the need for research in other countries, especially developing countries (Ismagilova *et al.*, 2019). On the other hand, some researchers have stated that one of the most important factors that increase the effectiveness of eWOM communication is the message itself and stressed the need for further research in this area (Teng *et al.*, 2014, 2017). Moreover, many studies in the field of eWOM communication have suggested the use of qualitative research approaches such as interviews and focus groups to investigate new factors which can affect the persuasiveness of eWOM communications and gain a deep understanding and a comprehensive picture (e.g. Ismagilova *et al.*, 2019; Farzin and Fattahi, 2018; Farzin *et al.*, 2020b). Thus, the present study focusing on the subject of "message" and its related features discusses the characteristics of effective messages in eWOM.

The rest of this article is organized as follows. In Section 2, the literature review on eWOM communication was investigated. In Section 3, the participants, sampling procedure, data gathering process, data analysis method and trustworthiness and validity were discussed. In Section 4, the findings were presented and talk about main themes, subthemes and selective codes. In this section, a research model related to the characteristics of the message in eWOM communication was presented. In Section 5, the findings were discussed; the theoretical and practical implications are described; and the limitations and suggestions for future research were presented.

2. Literature review

Historically, WOM has been recognized as one of the most influential resources of information transmission (Chan and Ngai, 2011; Jalilvand *et al.*, 2017; Le *et al.*, 2018). WOM initially is a casual communication between people who have consumed goods or services with their own perceived evaluation, and people who are interested to experience those goods or services (Amed *et al.*, 2019). WOM refers to sharing opinion from one consumer to another, and the conclusive stage in the consumer decision that convinces people to use the products or services and enter deep into the target audience, delivering reliable messages that are proven to change behaviors and attitudes, in offices, homes, schools, on blogs and SNSs, wherever consumers naturally talk (Jalilvand *et al.*, 2017; Le *et al.*, 2018). The influence of

power of WOM on consumer decision making is well established in academic literature (Abubakar *et al.*, 2016; Mishra *et al.*, 2018; Sijoria *et al.*, 2018). Referring to past literature, WOM is more effective than other marketing tools and conventional advertising media (Chan and Ngai, 2011). Therefore, it is an important area for marketing research. However, traditional WOM communications are limited by boundaries and are only effective within the network boundaries (Jalilvand *et al.*, 2017; Seifert and Kwon, 2020).

The advent of the internet and social media has radically transformed the role of the consumer from a passive recipient of information provided by brands to a more active experienter and creator of content. The concept of eWOM has attracted a great deal of attention in recent years due to the growth of the internet and the popularity of the e-commerce (Amed *et al.*, 2019; Srivastava and Sivaramakrishnan, 2021). eWOM can also be considered as the extension of traditional interpersonal communications in the new age. It has attracted numerous marketing and consumer research studies, particularly regarding the motives behind exchanging eWOM and the impact of eWOM on consumption (Abubakar *et al.*, 2016; Amed *et al.*, 2019; Seifert and Kwon, 2020; Sijoria *et al.*, 2018). eWOM is one of the key marketing communication tools that has been considered by both researchers and marketing practitioners (Aoki *et al.*, 2019). Most of the studies in the field of eWOM focus on how WOM can affect its target individuals or groups and lead to changes in consumer attitudes or willingness to buy (e.g. Farzin and Fattahi, 2018; Zhang *et al.*, 2020). Based on studies such as Kim *et al.* (2018), the characteristics of transmitted messages in eWOM were considered as one of the most important factors that had a significant relationship with the effectiveness of these interactions. By focusing on eWOM credibility, researchers show that message clarity and message valence were factors that affect message credibility (Moran and Muzellec, 2017). In addition, Purnawirawan *et al.* (2012) showed that the source credibility and the perceived usefulness of the message play a significant role in the effectiveness of eWOM. Some studies argued that the attractiveness or annoyance of eWOM had an impact on how products were evaluated (Lim and Chung, 2011).

A number of studies investigate factors that influence the persuasiveness of messages in eWOM communications. Studies showed that argument quality, source credibility, source attractiveness, source perception and source style are critical antecedents of persuasive eWOM messages (Teng *et al.*, 2014, 2017). Farzin *et al.* (2020a, b) conducted a study on the dissemination of advertising messages (e.g. eWOM) on social networks by market-mavens. The results of their qualitative study showed that message salience was one of the most important factors that make users want to re-disseminate eWOMs. Ismagilova *et al.* (2019) stated quality, argument strength, content and valence could influence the persuasiveness of eWOM messages. Montazemi and Saremi (2014) in reviewing the effectiveness of the eWOM communication stated that features such as valence, quality, volume, sidedness, orientation and consistency were important for the effectiveness of the message. Sun *et al.* (2020) examined eWOM message characteristics in online consumer reviews considering message type and message valence. Srivastava and Sivaramakrishnan (2021) evaluated the effect of eWOM on brand engagement and considered features such as volume, valence and helpfulness as the dimensions of the message. Ismagilova *et al.* (2019) meta-analyzed the effect of eWOM communication on the intention to buy. Unlike previous research, their results showed message volume as the worst predictor for eWOM communication. Reviewing the literature in the field of eWOM message and the lack of consensus and heterogeneity of research findings, the question arises that what are the characteristics of advertising messages in eWOM communication so that marketers can formulate their strategies to apply on online platforms.

3. Methodology

In order to answer the research question, a qualitative and interpretive approach was taken, in which the data collection tool was semi-structured personal interviews with experts in the field of

eWOM, and thematic analysis was used to interpret data. In this research, a qualitative inductive method is better suited to answering the research question, as the aim of this research is not to test a theory. The qualitative method approach was used to understand the multifaceted social phenomena, and aids to create the topic from the participants' points of view (Sodhi and Tang, 2018). Through its theoretical freedom, the thematic analysis provides a highly flexible approach that can be modified for the needs of many studies, providing a rich and detailed, yet complex account of data (Braun and Clarke, 2006). Farzin *et al.* (2020a) argued that thematic analysis is a useful method for examining the perspectives of different research participants, highlighting similarities and differences and generating unanticipated insights. The use of a qualitative approach, especially the thematic analysis method, is necessary when there are little data about the phenomenon or when the lack of a theoretical framework that is comprehensive be evident in the studies related to the subject (Braun and Clarke, 2006). There are few studies about identifying the characteristics of effective messages in eWOM communication on social networks; therefore, the lack of a comprehensive model led the researchers to provide a comprehensive model for eWOM messages. There are various methods for thematic analysis. The data analysis of this study is inspired by Braun and Clarke (2006) primary work. This method involves six subprocesses: become familiar with the data, generate initial codes, search for themes, review themes, define themes and writing the report.

The data required for this study were collected through interviews with experts involved in eWOM. Due to the qualitative nature of the research, primary participants were selected based on the purposive sampling, then sequential and snowball approach was used to continue sampling. Data saturation has been referred to as a justification for the sample size in thematic analysis, and in this study, sampling was terminated as soon as there were no additional concepts observed (Farzin *et al.*, 2020a). Accordingly, a total of 25 experts in the field of e-marketing were interviewed. Semi-structured and open-ended interview was used as data gathering tool and was tape-recorded with the respondents' permission. To have a focused discussion, the researcher sometimes had to ask probing questions. Subsequent transcriptions were analyzed by two researchers who followed the methodological principles of thematic analysis. All interviews covered a predetermined agenda and standard questions as a means of achieving the maximum feasible level of validity across the data gathered.

In addition, we attempted to satisfy Maxwell (2004) qualitative validity (e.g. internal validity, interpretative validity and descriptive validity) through such strategies as "investigator triangulation", "participants' feedback", "low-inference description" and "data saturation". For instance, researchers by spending adequate time observing various aspects of a setting, speaking with people and developing relationships and rapport with participants attempt to satisfy "prolonged engagement". Also for "member check" and "participants' feedback", following research conduction, at each stage of analysis, the interviewer's impression was explained to the participant whereby the errors were corrected. Next, after research conduction and implementation, the results were communicated to the participants and their feedbacks were collected. In addition, the least intervention took place in the description, so the descriptive phrases were reported as they were to satisfy "low-inference description" criteria.

Based on the review method during coding and the use of a second interviewer, the reliability of the used research tool in this study was confirmed. Inter-coder validity was also used to indicate the consensus between the different coders (Farzin *et al.*, 2020a). Seven main themes and 47 subthemes were identified and coded (see Figure 1). The coding reliability of the themes among the results of the two researchers was 0.89, which is obtained by dividing the compatible code between the two researchers into all existing codes (Farzin *et al.*, 2020b). It should be noted that MaxQDA software was used to sort and organize the identified codes and categorize them to achieve the subthemes and main themes. For this purpose, the final interviews were entered into the software and according to the steps of the thematic analysis method, first the selective codes, then the subthemes and finally the main themes extracted based on the nature of the codes

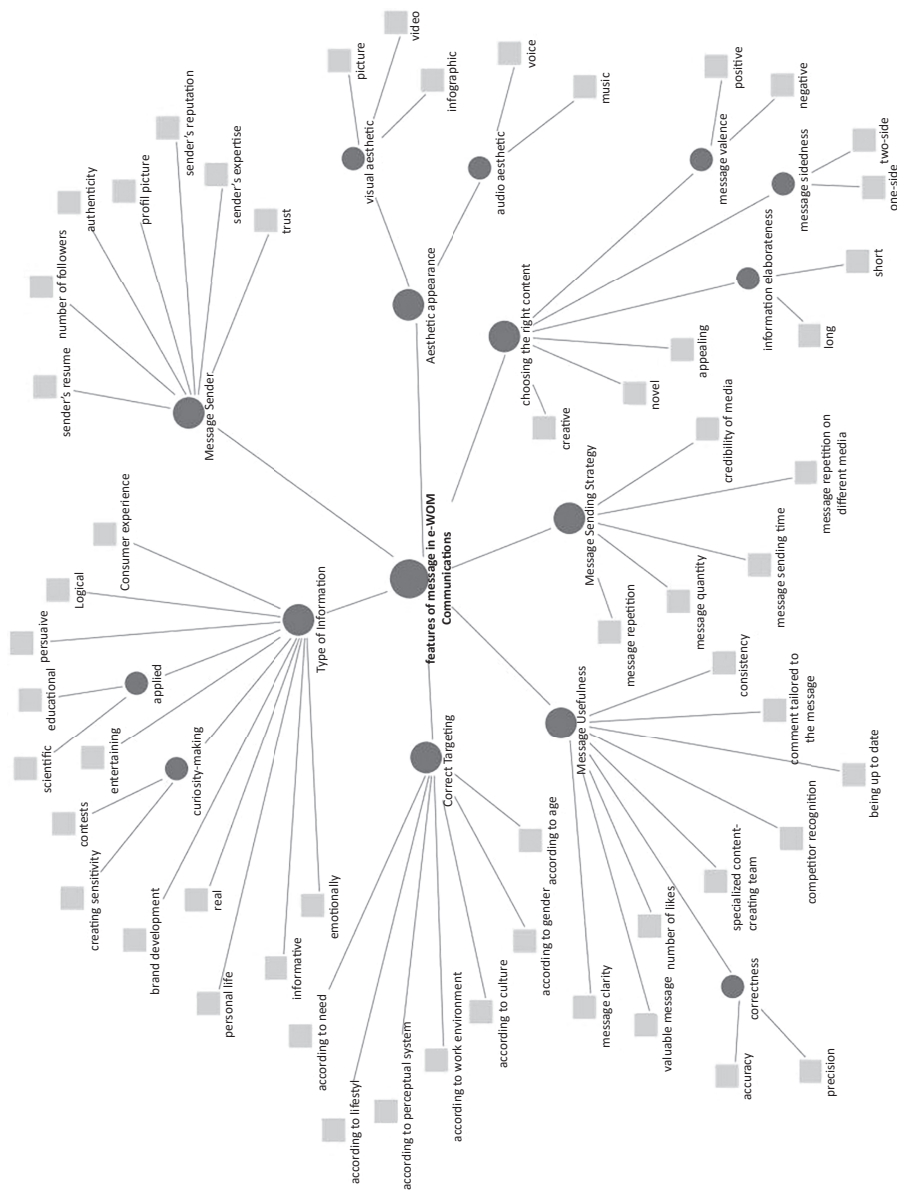


Figure 1.
Main themes,
subthemes and
selective codes

from the interviews. Besides, the step of identifying the selective codes includes refining the codes several times to remove duplicate or inappropriate items.

4. Findings

In this study, the six phases of analysis of Braun and Clarke (2006) were used to conduct thematic analysis. For this purpose, first, the collected verbal and recorded data were transcribed into written form, and then the researcher got acquainted with the content of these interviews by studying the written texts several times. Then, based on the understanding of the data, the initial codes were generating. These open codes were used as a basis for obtaining the main codes. At this phase, 93 initial codes with a frequency of 339 codes were extracted from the interviews. The next step was to search for selective codes; the purpose of this phase is to analyze the initial code to combine them and create new themes. By discarding incomplete or less relevant codes and duplicate codes finally, 56 codes were selected.

The next phase in the thematic analysis was to reviewing the subthemes; this level involves two levels of reviewing and refining the subthemes. The first step involves reviewing at the level of the coded data extracts. In the second level, the validity of the subthemes in relation to the data set is considered. In this phase, based on two levels of reviewing and refining the subthemes, 47 subthemes were identified and extracted. Many of the selective themes appeared in the form of a subtheme. The next phase in the thematic analysis was to define and name the main themes. At this phase, the main themes defined and reviewed, and then the data inside them are analyzed. At this phase, the researcher defines seven main themes that can be explained and used in the research. Figure 1 shows the structure of the selection codes and the main themes and subthemes. Finally, using Phases 1–6 above in the thematic analysis, seven main themes extracted from interviews. These themes include message sender specifications, aesthetic appearance, choosing the right content, message sending strategy, message usefulness, correct targeting and type of information. Following each of these themes is examined and analyzed.

As can be seen in Figure 1, the results of theme analysis in the form of 56 selection codes (such as auditory appeal, accuracy, correctness, etc.), 47 subthemes (such as value, message direction, accuracy, etc.) and seven main themes (such as, correct targeting, message sender, etc.) are categorized as follow:

4.1 *The first main theme: message sender specifications*

The process of eWOM starts from the source of the message. It starts when the sender presents his/her attitudes and emotional states toward a product or service according to his/her experience, knowledge and feelings. The senders determine how much positive information they have about the product or service. Thus, they form their attitudes or emotional states toward the product or service in eWOM communication and distribute it through an electronic platform. Based on the interviews, the main theme of the message sender is divided into the subthemes of trust, sender resume, number of followers, authenticity, profile picture, sender reputation and expertise.

4.2 *The second main theme: type of information (content diversity)*

The other main theme is the diversity of content or type of information in the form of subthemes of consumer experience, logicity, persuasiveness, applied (educational, scientific), entertaining, curiosity (contests, sensitization), brand development, realism, personal life, informative and emotion were identified.

4.3 *The third main theme: correct targeting*

The audience is the person who responds to the eWOM (Cheung and Lee, 2012). They are looking for eWOM through various platforms via the internet. They pursue eWOM to shape

their attitudes and emotions toward the product or service. The same eWOM could have different responses from different recipients depending on their perception, features and experience. Therefore, effective targeting and audience categorization are very important. The main themes extracted in the form of subthemes are following the needs, lifestyle, perceptual system, work environment, culture, gender and age of audiences.

4.4 The fourth main theme: message usefulness

Another main theme extracted from the interviews is message usefulness in the form of subthemes of message clarity, creating valuable messages, number of likes, accuracy, precision, specialized team for content creating, recognizing competitors, being up to date, consistency and comments tailored to messages.

4.5 The fifth main theme: message sending strategy

Another main theme extracted from the interviews is the strategy of sending messages, which is in the form of subthemes of message repetition, message quantity, message sending time, repetition in different media and credibility of media. Repetition of the message is very important, i.e. the number of times the message is shared, but the repetition of the message should not be so much that it is boring for the audience.

4.6 The sixth main theme: choosing the right content

Choosing the appropriate content (how to present the message) is another main theme extracted from the interviews, which is in the form of subthemes of creative content, novel content, appealing content, information elaborateness (detailed, short), message sidedness, message valence (positive, negative).

4.7 The seventh main theme: aesthetic appearance

Visual beauty is another main theme that is explained in the form of subthemes of visual aesthetic (picture, video and info-graphics) and auditory aesthetic (voice and music).

5. Discussion

5.1 Theoretical implications

The aim of this study was to identify and better understand the message characteristics of eWOM communication due to the literature gap and heterogeneity of research results in this field. The findings of the present study shed light on the message characteristics of eWOM communication in the social network contexts. Theoretically, this study created new insights on eWOM communication by exploring the features of messages with a qualitative approach. The present study has focused on the importance of eWOM in social media as a dominant paradigm in the discussion of engaging customers with corporate marketing activities, and its effect on the important and key issue of the effectiveness of messages exchanged in the field of eWOM. Based on the results, seven main themes were identified as key factors in the effectiveness of the message in e-WOM on social networks. These main themes include 1 = message sender, 2 = aesthetic appearance, 3 = choosing the right content, 4 = message sending strategy, 5 = message usefulness, 6 = correct targeting and 7 = the type of information. These main themes also include eight selective codes containing specifications of a good message: applicable, make curiosity, correctness, elaborateness, sidedness, valence, visual aesthetics and audio aesthetics.

In this section, we try to express the theoretical contributions of this study by comparing the results of the present study with other studies and highlighting its differences. Some subthemes extracted from this study existed in the research literature and some were not. The first main

theme is the message sender specifications, which include trust, sender resume, number of followers, authenticity, profile photo, sender's reputation and sender's level of expertise. The literature has also emphasized variables such as trust (Ismagilova *et al.*, 2019), sender expertise (Baber *et al.*, 2016) and sender reputation (Castellano and Dutot, 2017) as determinants of eWOM messages, but other subthemes such as sender resume, sender authenticity, profile photo and number of followers have not been mentioned in the previous studies. In addition, the second main theme, type of information, includes subthemes of consumer experience, logicity, persuasiveness, applied (educational, scientific), entertaining, curiosity (contests, sensitization), brand development, realism, personal life, informative and emotion. The literature emphasized variables such as consumer experience (Babar *et al.*, 2016), practicality (Alhaidari and Coughlan, 2014), entertainment (Leung *et al.*, 2017), awareness and emotion (Alhaidari and Coughlan, 2014), persuasiveness (Chang *et al.*, 2015) and realism and rational (Park *et al.*, 2007) as antecedents of eWOM messages, but other subthemes such as personal life, curiosity and brand development have not been mentioned in previous studies.

The third main theme extracted in this study is correct targeting and includes subthemes of needs, lifestyle, perceptual system, work environment, culture, gender and age of audiences. Previous studies showed variables such as needs (Fan *et al.*, 2013), gender (Alhaidari and Coughlan, 2014), age (Montazemi and Saremi, 2014) have an impact on eWOM messages, but other subthemes such as lifestyle, perceptual system, message compliance with the work environment and culture have not been mentioned. Moreover, studies revealed that creating valuable messages (Hidayanto *et al.*, 2017; Al-Haidari and Coughlan, 2014), accuracy (Fan *et al.*, 2013), being up to date (Cheung and Thadani, 2012) and consistency (Cheung *et al.*, 2009) are key factors for eWOM effectiveness, but other subthemes of message usefulness (forth main theme) such as message clarity, number of likes, specialized team for content creating, recognizing competitors and comments tailored to messages have not been mentioned in the studies.

The fifth main theme is the message sending strategy and the sub-themes are message repetition, message quantity, message sending time, repetition in different media and credibility of media. The literature emphasized subthemes such as repetition or volume (Fan *et al.*, 2013; Alhaidari and Coughlan, 2014) time of sending (Topaloglu *et al.*, 2017), but other subthemes such as repetition in different media and the credibility of media have not been mentioned. In addition, studies showed that message valence (Topaloglu *et al.*, 2017), information elaborateness (Cheung *et al.*, 2008) and message sidedness (Cheung *et al.*, 2009) are influential factors in eWOM communications, but other subthemes of choosing the appropriate content (sixth main theme) such as creative content, novel content, appealing content have not been mentioned. Finally, the seventh main theme is aesthetic appearance, which is divided into subthemes of visual aesthetic (picture, video and info-graphics), and auditory aesthetic (voice and music). Appearance features such as visual and auditory appeal and music were not found in the previous literature. However, studies such as Rittippant *et al.* (2009) and Danaher and Dagger (2013) emphasized the higher effectiveness of multimedia messages versus textual messages without visual elements.

5.2 Practical implications

This study provides useful insights for managers and marketing practitioners who seek to create and systematically develop eWOM as a promotional tool. Although some of the factors identified in the present study are beyond the control of businesses, the results suggest that eWOM can be more effective when the recipient of the message (from any source) has good perceptions about the usefulness of the message and perceive the message contents desired. In addition, what is important for the sender (whether marketers or other customers) is to choose the right content to critique or introduce a product or service, which in terms of marketing activities involves adopting appropriate strategies. These strategies include

proper repetition of messages, the proper quantity of messages, proper timing of sending messages, sending messages from different social media and choosing authentic media.

On the other hand, if companies are looking to send their messages through intermediaries such as influencers, they must look at the sender's characteristics such as the sender's resume to customers, sender's number of followers, sender's reputation, sender's expertise and customer trust to senders. Failure to pay attention to such features will naturally reduce the effectiveness of the sent messages. In addition, the content of eWOM is another important factor that has been mentioned in studies. In order for eWOM to be as effective as possible, these messages must include some features. For example, the rationality of the message, the persuasiveness of the message and the scientific nature of the message are the three key characteristics of the effectiveness of e-WOM. Furthermore, marketers should seek to send messages that can be entertaining and, to some extent, provoke sensitivities in the recipients.

5.3 Limitation and further research direction

In this study, a qualitative method is used for doing research. It would be better to test the assumptions presented in this study in a quantitative study in order to generalize the results of the research to larger communities. In addition, the relationships between these themes at different levels can be measured through semi-experimental testing and manipulation of variables. The existing literature on features of eWOM messages has been very limited, and we hope to extend the research background by studying this concept in various fields. The high cost of implementing research and data collection prevented the consideration of different types of industries, social networks and respondents. And consequently, in this study, we could not take advantage of comparative studies. It is suggested to future studies examine features of eWOM messages in various industries such as tourism, healthcare, high-tech vs low-tech industries. On the other hand, with regard to ethnic diversity, cross-ethnic research can be conducted to see whether ethnic stereotypes have any impact on the manifestation of such behavior among consumers or not. Furthermore, today, with the prevalence of social networks among different ages, one can investigate the impact of the cross-generational gap among individuals and see whether the age limit on individuals is meaningful or not with respect to the nature of social networks. Finally, it should be noted that although the number of interviews conducted in the qualitative section was more than the standard mentioned in the sources, and the interviews were stopped by reaching the data saturation, the more the interviews are the more you are able to increase the accuracy that is required to compare the results of the data.

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The influence of COVID-19 on employee ergonomics and employee engagement of banking employees

The influence
of COVID-19
on bank
employees

13

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Abstract

Purpose – The paper aims to provide insights into the influence of COVID-19 on employee engagement and ergonomics in the banking sector. The purpose of this study is understood from the perspective of impact of the pandemic on banking employees.

Design/methodology/approach – Data for the study are collected from the employees working in the banking sector of India. The study applied the partial least squares (PLS) method of analysis to understand the relationship between employee engagement and ergonomics in the banking sector.

Findings – The findings of the study suggest results with regards to change in the perception of the employees in the bank and its influence on the work ergonomics due to pandemic. The findings indicate that banks need to develop measures and strategies for improving employee engagement programs and work ergonomics at banks.

Research limitations/implications – The study is confined to the banking employees working in a specific region. Therefore, future research could focus more on the influence of Covid-19 on the organizational culture of the banking system and provide insight into this direction of research.

Practical implications – This study provides directions for human resource management for developing effective practices for improving the performance of the employees in the banking sector.

Social implications – This study offers support to the banking sector by providing insights into how it can improve the working environment and, thereby, enhance working in the banking sector.

Originality/value – This is the study that attempts to provide insights into how ergonomics is important for working in the banking sector, especially during a pandemic. The findings provide important implications for the banking sector and improve work ergonomics.

Keywords Employee engagement, Ergonomics, Banking sector, COVID-19

Paper type Research paper

Introduction

The concept of ergonomics is associated with the occupational health and safety of employees (Dul and Neumann, 2009). Ergonomics plays an important role in the performance of the employees in the organization; hence, organizations need to develop the right ergonomic tools and techniques for effective performance on the job (Law *et al.*, 2011).

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Employee engagement is an emerging concept in the domain of work ergonomics of the organization (Iqbal *et al.*, 2017). Employee engagement is also associated with the health and safety climate at the workplace (Law *et al.*, 2011; Uddin *et al.*, 2019).

The work ergonomics in the organizations have changed due to COVID-19 (Chanana and Sangeeta, 2020). The situation of COVID-19, which is termed as the pandemic, has influenced various human resource management practices, especially work ergonomics, which has become one of the most challenging factors for organizations (Risley, 2020).

This pandemic situation has changed the work setting thereby changing the workspace in the offices. The pandemic situation has promoted employees to adopt online work and operations through the home. These changes have influenced the ergonomics and operational activities in organizations (Chanana and Sangeeta, 2020). Apart from ergonomics, other factors are associated with ergonomics, such as work hazards, work contents and psychological factors, and these factors also influence the employees (Uddin *et al.*, 2019).

The study conducted by Junkin (2020) mentions that organizations were not prepared for the changed situation due to COVID-19, and most of the organizations have undertaken measures for the COVID-19 scenario. Organizations have developed sustainable ergonomics policies and strategies for improving employees' ergonomics due to COVID-19 (Uddin *et al.*, 2019).

In the same vein, the study conducted by Ren *et al.* (2020) mentions that employees working in the banking sector have shown great courage and ensured financial transactions during the COVID-19. In the context of pandemic situations, banking employees' ergonomics played an important role by applying measures such as social distancing, sanitation, wearing of masks, exploring the digital option of banking operation, etc. (Arora and Suri, 2020).

Further, the study conducted by Chanana and Sangeeta (2020) mentions that employee engagement is one of the most important tools for human resource managers and practitioners to engage employees with the changed work situations during a pandemic.

One of the objectives of ergonomic design is to optimize work, avoid adverse effects on the worker's health and contribute to the productivity and efficiency of the organization (Lager *et al.*, 2021). When we mention occupational risks, the main one that has been detected is the ergonomic risk related to the use of information and communication technologies, where employees are spending long hours on these technologies (Sasangohar *et al.*, 2020).

Additionally, a study indicated that digital technology application in the work also influences the work ergonomics and employee engagement, as the employee working for long hours with the digital technology has an impact on the health and well-being of the employees (Salmon *et al.*, 2021).

The study related to the banking sector indicates that the employees' work ergonomics has changed significantly and thereby there was a change in the engagement strategy for the banking firms (Prajapati and Pandey, 2020). Therefore, it is worth understanding the ergonomics and employee engagement from the perspective of the banking employees.

Hence, considering the above discussion, the present study aims to understand the following aspects: *first*, the perception of the banking employees towards the work during a pandemic; *second*, to understand the factors influencing employees working in banking sectors during the pandemic and *third*, the effectiveness of employee engagement programs on ergonomics during COVID-19 in the banking sector.

To understand the relationship between the ergonomics and employee engagement in the pandemic scenario, the study is presented with the following sections: (1) Literature review, (2) Conceptual model and hypotheses, (3) Research design, (4) Results, (5) Theoretical contribution, (6) Managerial contribution and (7) Conclusion.

Literature review

Turbulent times such as war, famine, floods, earthquakes and the pandemic, such as COVID-19, influenced the most on the business and employees (Andrew and Sofian, 2012). Holding employees engaged during the pandemic with the right ergonomics is an important factor for maintaining the performance of the organization (Andrew and Saudah, 2012).

Employee engagement and ergonomics can be used as mediators to develop the right attitude and behavior of employees to improve work performance (Chanana and Sangeeta, 2020). The present literature review is focused on the banking sector as they provided service to the organizations and individuals during the COVID-19 pandemic. The literature review also provides insights into the banking sector and research gaps with regards to ergonomics, engagement, work and hazards on the job.

Banking sector and COVID-19

Banks are an important player in the economy and support the growth of the economy, as banks support financial transactions in both internal and international transactions (Korzeb and Niedziółka, 2020).

COVID-19 has influenced the banking sector and has also impacted the banking performance, the factor influencing the banking sector include both financial and non-financial (Berger and Demircuc, 2021).

The financial impact on the banks includes nonperforming loans and write-offs and large applications of digital technology (Elnahass *et al.*, 2021). The nonfinancial factors include the impact on customer service, bank employees' performance, safety and health (Elnahass *et al.*, 2021).

From the perspective of employees working in the banking sector, COVID-19 has changed their work ergonomics as employees in the banks have to maintain social distance, wear a mask and have to protect from the pandemic hazards while providing service to customers at the bank. These changes in ergonomics have impacted employees as they are experiencing physical and psychological health challenges (Anderson *et al.*, 2020).

Further human resource practices with regards to bank employees changed due to the pandemic were the safety of the employees become paramount important to the banks (Agarwal *et al.*, 2020). Additionally, the human resource strategy for employee skill development also changed by adopting online training sessions to manage stress and training on improving customer satisfaction through online banking (Snehal and Pratibha, 2020).

Pandemic and employee challenges in the banking sector

The pandemic has influenced the lives of the people and livelihoods, and the banking sector is no exception. As a result of the pandemic, human resource practices in banking sectors have changed in three ways: first, the structures of the banking organization have changed from a hierarchical structure to agile structures, wherein the employees are delegated with more autonomy and are more flexibility at the workplace. Second, there is a shift in the talent from surplus to shortage to support service to the customers. Third, aggressive training programs are undertaken by the banks to reskill the employees with new technology to support the needs of the customers (Kanitkar, 2020; Nemteanu and Dabija, 2021).

These changes in the banking sector have challenged the work environment in the banks. The challenges influencing the employees working in the banking sector due to the pandemic are as follows: (1) upskilling the employees based on the changed situation needs right strategy and infrastructure to prepare the workforce to work in the pandemic scenario, (2) workforce are from all the age groups, hence providing the right infrastructure and

ergonomics needs accurate planning and investment for changed ergonomics, (3) the pandemic has influenced the organizational culture, hence preparing employees to the changed culture needs the intervention of right change management strategy and (4) employee engagement programs in the banks have been changed due to the pandemic (Haapio *et al.*, 2021; Rudolph *et al.*, 2021; Arora and Suri, 2020).

The discussion indicates that the banking workforce is experiencing unprecedented workforce disruption due to the pandemic; hence, banking companies are developing measures and strategies to cope with this new challenge in the banking sector.

Influence of COVID-19 on employee engagement and ergonomics in the banking sector

Work structure in organizations has changed due to the pandemic, and the same applies to the banking sector (Sarkar *et al.*, 2020). The changed work structure includes (1) rise in the hybrid workforce (2) balancing data intelligence with data privacy (3) individualizing the employee experience and (4) aligning from the business world to business imperative (Sarkar *et al.*, 2020).

These changes influence the engagement programs for the employees in the organization (Gaur, 2020). Further with the change in the employee engagement programs, work ergonomics is also influenced at the workplace (Oakman *et al.*, 2022).

The study conducted by Rehman *et al.* (2021) mentions that the service industry has reconfigured the employee workspace to maintain the health and safety of the workforce, and the banking sector is no exception and has developed measures to upgrade the ergonomics due to pandemic.

The study by Gaur (2020) showed that ergonomics has influenced employee engagement in the banking sector of India. The change includes the application of online training, technology-driven work and working in virtual teams (Afroz and Haque, 2021).

Further, a study on employee engagement indicates that changed engagement programs have influenced the organizational culture in the organizations, and the same is related to the banking sector (Ghaffari *et al.*, 2021).

Additionally, employee engagement programs have a direct relationship with ergonomics at the workplace (Mishra *et al.*, 2021), the reason being the changed engagement programs need the right infrastructure for the implementation of changed ergonomics in the organization (Ghaffari *et al.*, 2021).

The above discussion indicates that COVID-19 has influenced employee engagement and ergonomics in the organization. Therefore, studies are needed from the perspective of employee engagement and ergonomics among the banking employees for deeper understanding of the perspective of employees (Mishra *et al.*, 2021).

The discussion with regards to the above studies provides three research gaps: first, the pandemic has changed the human resource practices in the banking sector; hence, there is a change in the perception of the employees towards the work. Second, employees working in the banking sector are facing unprecedented disruption due to the pandemic; hence, the factors influencing the workplace in the banking sector have changed due to the pandemic. Third, research directions are needed to understand the employee engagement program on work ergonomics in the banking sector.

Conceptual model for the study and hypothesis development

In this section of the study, studies related to the role of ergonomics in the banking sector and employee engagement in the banking sector are presented in this section. Further, this section also indicates the influence of COVID-19 on ergonomics and employee engagement in banking sector. Finally, in this section, hypotheses for the study are framed, and development of the conceptual model is presented in the section.

Ergonomics in the banking sector

The banking sector is one of the demanding sectors where employees in the bank are working at a higher level of risk due to the pandemic (Falahat *et al.*, 2019). Design of workstation and giving right ergonomics is an important aspect for effective performance on the job (Suhel *et al.*, 2020). Apart from the impact of the design of the workstation, the right ergonomics also has an impact on the health of the employee (Arefin and Islam, 2019).

Additionally, the changed situation due to the pandemic has created an uncertain situation among the employees. The factors associated with these uncertain situations in the banking sector are working for long hours on the digital platform of banking, a higher level of dependence on technology and fear of COVID-19 while working offline in the banks (Mishra *et al.*, 2020).

These changes have influenced the office ergonomics in banks. Further, due to the change in ergonomics, the performance of the employees has also influenced the job. The changed factors due to pandemic are changed communication patterns with higher authorities and co-workers, and another factor that changed is the working conditions and working in a team (Prasad *et al.*, 2020).

Hence, these changes in the work situation demand understanding from the perceptive of bank employees towards ergonomics and working in the banks.

Employee engagement in the banking sector

Employee engagement is a mental and emotional connection between the employees' feeling towards the work and organization; this connection with the organization can be either strong or weak based on the employees' perceptions towards the organization (Aktar and Pangil, 2018).

The concept of employee engagement is important for the employees and making the business successful, as highly successful organizations have a highly engaged workforce (Aktar and Pangil, 2018).

In the context of the banking sector, employee engagement was a challenge to the banking sector before the pandemic, and after the outbreak of the pandemic, the challenge with regards to banking employees has become bigger (Yogesh *et al.*, 2020). These changes in the banks are putting pressure on the human resources professionals in managing employees at job (Rastogi, 2020).

The changes in the banking industry include a change in the business models due to the pandemic, and this influences the engagement programs in the banks. Second, this disruption has increased the application of real-time data and understanding employees' needs on regular basis to hold the morale and motivation during a pandemic. Third, the level of reskilling required by the employees for the new role is due to the pandemic (Cooke *et al.*, 2019).

Employee engagement is the variable that human resource practitioners focus on unleashing employees' knowledge, skills and capabilities through effective tools and techniques of employee engagement (Aktar and Pangil, 2018). Hence, these changes demand an understanding of employee engagement from the perceptive of banking industry employees.

Hypotheses for the study

The pandemic situation has put a lot of pressure on the banking sector to provide service to the industry and individual customers. The bank employee is subjected to this situation wherein they have to provide service to customers (Yogesh *et al.*, 2020). The situation of pandemic demands for ergonomics that supports the work process in the banks. This supports safety at the bank for employees and even to the customers (Aktar and Pangil, 2018), thus considering the pandemic situation, ergonomics and work content.

Considering the present context, hypotheses for the study are developed to contemplate the following aspects: (1) perception of the bank employees towards the changed work due to pandemic, (2) work challenges faced by the bank employee during pandemic, (3) perception towards the work ergonomics at workplace, (4) challenges at work and its relationship with regards to bank ergonomics and (5) relationship between ergonomics and employee engagement in banks.

To formulate the hypothesis for the study, the study developed a methodology based on the following steps: (1) *claim for the formulation of hypothesis*: to understand the impact of the pandemic on the work ergonomics and employee engagement in the banking sector. Based on this claim, null and alternative hypotheses were formulated in the study, (2) *criteria*: the criterion for the decision was based on the level of significance, which is less than 5%; this shows that the probability of obtaining a sample mean is less than 5% if the null hypothesis were true, then we conclude that the sample we selected is too unlikely, and so we reject the null hypothesis, (3) *sampling*: the study applied random sampling method with the participants as employees working in the banking sector and (4) *inference of the hypothesis*: the study applied partial least square (PLS) method to decide for the hypothesis with the significance value of p -value is undertaken to evaluate the results for the study (Muisyo *et al.*, 2022; Ababneh, 2021; Garmendia *et al.*, 2021).

Employees' perception towards work due to the pandemic

The pandemic has an unprecedented shock on the lives and livelihoods of individuals around the globe (Dubey and Tripathi, 2020). The impact is felt with fear of infection and greater uncertainty through the contraction in the economic activities and widespread shock to the labor market (Lazim *et al.*, 2020).

Perception of the employees towards the work changed, and the changes are as follows: (1) change in the job content as the operations in the organizations changed due to pandemic (2) work ergonomics changed due to remote working arrangements and (3) long hours of work as there was a change in the process of work (Gigauri, 2020).

In such an unprecedented uncertainty, the perception of the workforce changed towards the work content and job; hence to understand the impact of a pandemic on the perception of employees towards, the hypothesis is formulated as.

H1. Pandemic changed the perception of the workforce towards the work.

Influence of the pandemic on work challenges

The pandemic has influenced the working landscape to a large extent. The concept of work-from-home (WFH) has been provided to employees to work and complete the work obligations (Wang *et al.*, 2021). Apart from WFH, organizations have given more liberty to the employees to adjust their work schedule and meet the challenges faced due to the pandemic (Caligiuri *et al.*, 2020).

Further, the opportunity to WFH has become a buzz phrase with most organizations (Abualfadl *et al.*, 2021). The challenges are through down to workforce with regards to upskilling and reskilling on a war foot basis without giving any time, or else they may become vulnerable to the exercise of trimming the workforce by the companies (Almaiah *et al.*, 2020).

In the same vein as the uncertain situation due to COVID-19, work hazards have increased in the banks. The hazards include a serious threat of virus infection among the employees working in the banks. Those working online have longer hours on digital platforms and a higher level of dependence on technology (Mishra *et al.*, 2020).

Hence, considering the above discussion we formulate the following hypotheses for the study:

- H2. There is a direct relationship between the pandemic and work challenges at the workplace.

Perception towards the work ergonomics at the workplace

The ultimate aim of workplace ergonomics is to generally ensure employee safety and enhance performance. Beyond these objectives, many other benefits are known to accrue to an organization when management commits to the development and maintenance of ergonomics in the workplace. These benefits according to Alyan *et al.* (2021) include increased productivity, increased work quality, reduced turnover, reduced absenteeism and increased morale. From a safety perspective, Gyekye (2006) emphasizes that environmental conditions affect employee safety perceptions, which impact employee commitment. Similarly, extensive scientific research conducted by Roelofsen (2002) has also yielded indications suggesting that improving key ergonomics factors in the working environment results in a reduction in several complaints and absenteeism and an increase in productivity. Bentley *et al.* (2021) suggests that the key ergonomics factors that affect employee productivity and performance are office furniture, workspace design, noise/vibration, light intensity and ventilation/humidity. In the light of the above discussion, we formulate the following hypothesis as follows:

- H3. Perception of employees towards work ergonomics has an impact on the job.

Challenges of work in banks due to ergonomics

For several years now, banks have been going through enormous changes in organization and structure. New technology and new ways of structuring the operation have left their mark on the working conditions and daily lives of employees (Wardani and Oktafiansyah, 2020).

Deregulation of labor markets, emerging technologies and new types of jobs have significantly reshaped working lives by continuous changes in employment and working conditions. Such a scenario has a relevant impact not only on companies' organizations but also on the working population's health (Wijewantha *et al.*, 2020).

The banking sector is particularly well-deserved of a specific and thorough analysis because of the recent increase in psychosocial disorders of employees. This may be related to the major organizational changes affecting this sector and, in particular, to the restructuring processes resulting from the global economic crisis.

With this in mind, through a review of the literature, we selected the main studies dealing with work-related stress in banking so that we could reach a better understanding of the phenomenon as it relates specifically to this set of workers (Behraves *et al.*, 2020). Based on the above discussion, we formulate the following hypothesis:

- H4. Work challenges and ergonomics are related to working at the workplace.

Relationship between ergonomics and employee engagement in banks

The banking sector has witnessed considerable change in office ergonomics due to COVID-19 (Kaushik and Guleria, 2020). These changes have also influenced the work content and employee engagement programs of the banks (Kaushik and Guleria, 2020). In the context of ergonomics and work hazards, deeper studies are needed to understand employee engagement programs (Gaur, 2020).

The situation of COVID-19 has enhanced the risk level among the bank employees as they have to attend the bank work through offline mode and provide the services to organizations

and individuals; therefore, engaging bank employees during the pandemic situation is a challenge to banks (Dutta and Fischer, 2021)

These changes influence the employee engagement program; hence to understand the impact of employee engagement and ergonomics, the study frames the following hypothesis.

H5. Work ergonomics and employee engagement are related during the pandemic.

The above discussion with regards to conceptual framework and hypothesis developed are presented in Figure 1.

Research design

Data collection and procedure

The study adopted a survey methodology to capture the influence of work ergonomics and employees among the banks. We administered a survey questionnaire to the bank employees through hard-copy format and email, and we received survey responses from three cities Mumbai, Bangalore and Belgaum. The response from other cities was received due to lockdown situations and excess workload in the bank due to limited hours of work in the banks. To select our respondents, we listed the number of banks operating in these cities and established contact through telephone for a response from employees, a questionnaire was distributed among these employees for the response and a total of 438 valid questionnaires were received for the study. All measures in the study were rated on a five-point Likert Scale, ranging from 1 = strongly disagree to 5 = strongly agree. All 600 questionnaires were sent to the respondents, and 438 valid responses were received by the study; this yielded a response rate of 71.33%.

Sample description

The respondents in our sample include male $N = 252$, 58%, and female $N = 186$, 42%. The educational level of the respondents includes $N = 291$, 66% with bachelor's degree, master degree $N = 89$, 20% and other educational degrees with $N = 58$, 13%. The work experience of the respondents includes less than three years of work experience with $N = 58$, 13%, five years but less than ten years of work experience is $N = 66$, 15%. Employees with work experience of 10 years but less than 15 years $N = 77$, 18%, respondents with more than

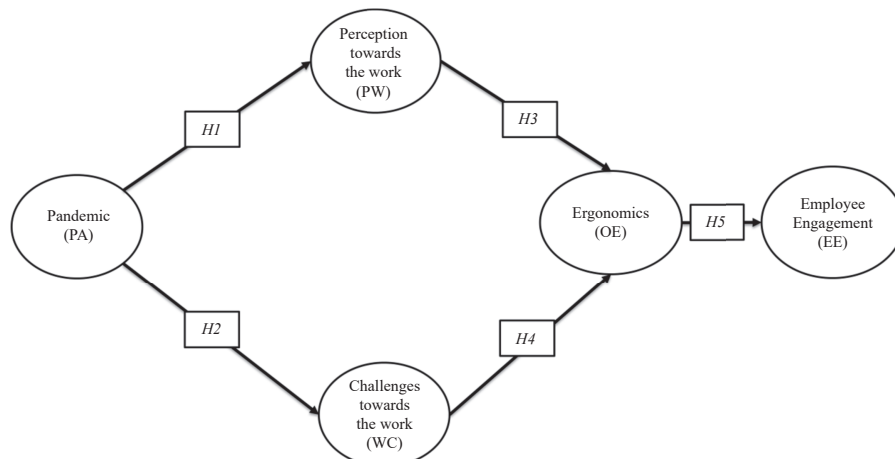


Figure 1.
Conceptual framework
of the study

10 years but less than 15 years of work experience $N = 98$, 22% and study participants with more than 15 years of work experience are $N = 139$, 32%. Designation of the respondents includes cashier $N = 91$, 20%, officer $N = 218$, 50% and manager $N = 129$, 30%.

Measures

Pandemic and work: The pandemic influenced all levels of the organization, which includes managerial and operational levels (Prasad *et al.*, 2020). Constructs associated with the study are based on the study of Ramasubramanian *et al.* (2020), and they are (1) biological threat due to pandemic (PA1), (2) change in technology (PA2), (3) higher level of stress (PA3), (4) physical stress (PA4) and (5) changed ergonomics (PA5).

Perception towards work: This measure includes the roles, responsibilities and reporting structure in the organization (Sadhna *et al.*, 2020). Factors related to our study are related through the study of Yogesh *et al.* (2020): (1) role clarity (PW1), (2) responsibility (PW2), (3) reporting (PW3), (4) communication (PW4) and (5) structure (PW5).

Challenges towards the work: It refers to a situation within the workplace that has the potential to cause injury or adverse health effects for working in the office or factory (Goodell, 2020). Factors assorted with regards to the banking sector and work hazards are captured by the study conducted by Mishra *et al.* (2020); hence, we have developed constructs for study based on this study; they are (1) influence on organization culture (WC 1), (2) employee recognition and reward (WC2) (3) employee involvement on the job (WC3) (4) career growth and development (WC4) and (5) safety at work (WC5).

Ergonomics: The concept which is related to the study of space and practice at the workplace. The most fundamental emphasis of ergonomics is to understand the people's needs and their space to interact with co-workers and also to provide physical space to work (Wilson, 2000). Based on this understanding following studies (Kaushik and Guleria, 2020; Schulte *et al.*, 2020), the constructs related to the study are as follows: (1) workstation comfort (OE1), (2) work environment (OE2), (3) lighting at the workplace (OE3), (4) sufficient rest periods at work (OE4) and (5) social distancing (OE5).

Employee engagement: It is a workplace approach resulting in the right conditions for all members of an organization to give their best each day, committed to their organization's goals and values, motivated to contribute to organizational success, with an enhanced sense of their well-being among the workforce. The study included the following constructs related to employee engagement based on the research of Aktar and Pangil (2018): (1) engaged work (EE1), (2) commitment to work (EE2), (3) positive attitude (EE3), (4) motivation to work (EE4) and (5) better relationship on the job (EE5).

Nonresponse bias

We evaluated nonresponse bias by comparing the response from the early respondents and late respondents in our study (Armstrong and Overton, 1977; Chen and Paulraj, 2004). Based on the response, we conducted a *t*-test for both respondents, and the results did not find any difference between the respondents and nonrespondents (i.e. $p > 0.1$). Hence, the non-response bias is a non-response bias in the study.

Common method bias

In the studies which include self-reported data, there is a possibility of common bias from multiple sources data; therefore, a common method bias study is recommended for the study (Podsakoff and Organ, 1986). The study adopted Harman's one-factor test for common method bias. The results from the total variance extracted by one factor exceed 50%, and then common method bias is present in the study (Podsakoff and Organ, 1986). The results

from our study showed 16.9%, which is less than 50%. Hence, there is no common method bias in the study.

Data analysis and results

The study applied WarpPLS 8.0, which is the most accepted PLS tool used for path-analysis models (Kock, 2017). This tool supports the methodological development of paths in comparison to the traditional PLS tool and thus supports building the gap between factor-based and composite-based structural equation modeling techniques. The study also applied Cronbach alpha to understand the reliability analysis of the constructs derived for the study.

Measurement model

The study findings from Chen and Paulraj (2004) suggested a three-stage process for measuring reliability, validity and unidimensionality. To evaluate the reliability for the constructs, we applied average correlation among the items in the scale; the results are indicated in Table 1, and the Cronbach's alpha value (α) for the items and scale were well above 0.7, which is higher than the recommended value of (0.6) (Cronbach, 1951). We also noted that all the individual factor loadings (λ_i) are greater than 0.5, the scale composite reliability (SCR) coefficients are greater than 0.7, and the average variance extracted (AVE) is greater than 0.5 (see Table 1). This supports that our constructs have adequate convergent validity (Fornell and Larcker, 1981; Chen and Paulraj, 2004).

Results

PLS does not assume a multivariate normal distribution. Hence, traditional parametric-based techniques for significance tests are inappropriate. PLS uses a bootstrapping procedure to estimate standard errors (SEs) and the significance of parameter estimates (Peng and Lai, 2012). We report the PLS path coefficients and p -values in Table 2. The estimated path coefficients are interpreted as standardized beta coefficients, and the same is presented in Figure 2, which shows the final PLS model.

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The study tested hypotheses: H1 (Pandemic \rightarrow Perception towards the work) ($\beta = 0.54$, $p = 0.01$), H2 (Pandemic \rightarrow Challenges towards the work) ($\beta = 0.67$, $p = 0.01$), H3 (Perception towards the work \rightarrow Ergonomics) ($\beta = 0.88$, $p = 0.12$), H4 (Challenges towards the work \rightarrow Ergonomics) ($\beta = 0.63$, $p = 0.24$) and H5 (Ergonomics \rightarrow Employee engagement) ($\beta = 0.59$, $p = 0.07$). The results indicate that H1 and H2 are supported ($\beta = 0.54$, $p = 0.01$; $\beta = 0.67$, $p = 0.01$) for the study hypothesis.

Discussion of results, implications for research and managers

The empirical results indicated with regards to the influence of ergonomics on employee engagement, Sarkar *et al.* (2020) argues that during the pre-COVID-19, employee engagement programs in the organizations were more focused on work-life balance. However, due to the COVID-19 situation, engagement programs have changed; hence today, the focus is more on the application of online tools to engage employees at the job (Gaur, 2020). Further, the work hazards have changed due to this pandemic, and banks are not exceptional, and work safety measures have changed from work hours to the biological threat on the job and physical

						The influence of COVID-19 on bank employees
Constructs and latent variables	Indicators	<i>A</i>	<i>λ_i</i>	SCR	AVE	
<i>Pandemic and work</i>						
Biological threat due to pandemic	PA1	0.71	0.807	0.82	0.63	
Change in technology	PA2	0.85	0.850			
Higher level of stress	PA3	0.77	0.836			
Physical stress	PA4	0.69	0.613			
Ergonomics	PA5	0.93	0.714			
<i>Perception towards the work</i>						
Role clarity	PW1	0.88	0.755	0.88	0.58	
Responsibility	PW2	0.89	0.650			
Reporting	PW3	0.73	0.642			
Communication	PW4	0.70	0.680			
Structure of work	PW5	0.68	0.787			
<i>Challenges towards the work</i>						
Influence on organization culture	WC1	0.89	0.714	0.94	0.81	
Change in employee recognition and reward	WC2	0.82	0.810			
Employee involvement on the job	WC3	0.77	0.517			
Career growth and development	WC4	0.79	0.763			
Safety at work	WC5	0.85	0.614			
<i>Ergonomics</i>						
Workstation comfort	OE1	0.71	0.641	0.95	0.75	
Work environment	OE2	0.73	0.654			
Lighting at workplace	OE3	0.75	0.555			
Rest duration	OE4	0.88	0.911			
Social distancing	OE5	0.75	0.903			
<i>Employee engagement</i>						
Engaged work	EE1	0.88	0.832	0.75	0.55	
Commitment to work	EE2	0.76	0.719			
Attitude toward work	EE3	0.87	0.693			
Motivation towards work	EE4	0.88	0.802			
Relationship on job	EE5	0.91	0.730			

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Table 1.
Cronbach's alpha, SCR
and AVE

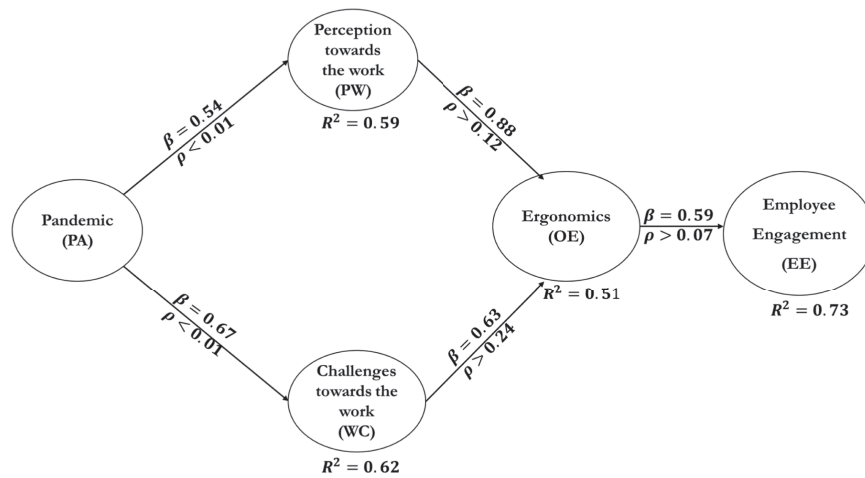
Table 1.
Cronbach's alpha, SCR
and AVE

Hypothesis	Effect of	Effect on	β	<i>p</i> - value	Results
H1	Pandemic	Perception toward the work	0.54	0.01	Supported
H2	Pandemic	Challenges towards the work	0.67	0.01	Supported
H3	Perception towards the work	Ergonomics	0.88	0.12	Not supported
H4	Challenges towards the work	Ergonomics	0.63	0.24	Not supported
H5	Ergonomics	Employee engagement	0.59	0.07	Not supported

Table 2.
Structural estimates

safety at work (Dutta and Fischer, 2021). From the work content perspective, the application of the online mode of work has changed the work dynamics in the organization (Mishra *et al.*, 2020). Considering these background studies, this study provides more insights by integrating ergonomics, work contents, hazards and engagement among the bank employees.

First, we found that pandemic has a significant effect on the perception of the employees working in the banking sector. This finding can be explained by the argument that the work



Note(s): The study tested hypotheses: *H1* (Pandemic → Perception towards the work) ($\beta = 0.54, p = 0.01$), *H2* (Pandemic → Challenges towards the work) ($\beta = 0.67, p = 0.01$), *H3* (Perception towards the work → Ergonomics) ($\beta = 0.88, p = 0.12$), *H4* (Challenges towards the work → Ergonomics) ($\beta = 0.63, p = 0.24$) and *H5* (Ergonomics → Employee Enagagement) ($\beta = 0.59, p = 0.07$). The results indicate that *H1* and *H2* are supported ($\beta = 0.54, p = 0.01$; $\beta = 0.67, p = 0.01$) for the study hypothesis

Figure 2.
Final PLS model

process in the banks has changed from the offline mode to online mode for major activities in the bank. Hence, there is a change in the perception of the employees towards the work.

Second, the pandemic has a significant influence; hence, challenges towards the work have increased in the banking sector. This finding indicates that banks have to take measures to reduce the challenges towards work during a pandemic. Measures include sanitation, social distancing and monitoring the health of the employees.

Third, the perception of the employees towards work ergonomics in the banks has indicated negative effects; hence, more measures are needed in the banking sector to improve work ergonomics during the current pandemic scenario at work.

Fourth, challenges towards the work have increased due to lack of ergonomics measures in the banks; hence, the results have indicated negative results in the study. This finding is supported by the fact that COVID-19 has influenced the work hazards on the job; hence, organizations are findings measures to over this challenge on the job.

Fifth, the results of the study with regards to the banking sector indicate that ergonomics and engagement programs need more understanding to improve the present ergonomics at the bank and improve engagement programs in the bank.

Based on our expectation, the present study found that ergonomics in the bank have changed due to the pandemic situation, and banks have taken measures to protect the bank employees from the threat of COVID-19. These measures include social distancing, sanitation, social distancing and monitoring the health of the employees. The study's insights on the finding of employee engagement measures have changed due to COVID-19; hence, there is an influence on the organizational culture, communication pattern and motivation level of employees in the banks. Another insight of this study indicates that hazard levels have increased in the banks due to the pandemic situation; however, banks need to develop measures and tools which will support the employee engagement programs in the bank.

Theoretical contributions

The role of ergonomics and work safety and employee engagement is well discussed in the literature (see Kaushik and Guleria, 2020; Prasad *et al.*, 2020 Aktar and Pangil, 2018). What is less understood is how ergonomics influence employee engagement due to pandemic situations, such as COVID-19 in the banking sector. The key aspects of this study signify our main contribution to the literature on ergonomics, work safety and engagement. First, our study is one of the few studies to integrate ergonomics and work safety and employee engagement from the perspective of COVID-19 and the banking sector. Before this study, research conducted by Mishra *et al.* (2020), and Ghaffari *et al.* (2021) have integrated ergonomics and work safety and employee engagement from the pre-COVID-19 perspective in the organizations. Second, our study provides an insight from the influence of COVID-19 on banks concerning changed work culture, fear of biological threat, changed communication in the banks and the influence of technology in the banking operations. Hence, our results provide an initial step for research to evaluate the influence of ergonomics on workplace safety and employee engagement in the banking sector.

Managerial implications

Our research findings can offer useful guidance to management and banking employees. First, office ergonomics in the bank has to be improved with regards to social distancing at banks, a limited number of customers in branch and encouraging customers to use online platforms of banking for the safety of employees and customers. This would benefit in improving the safety of the employees in the banks.

Second, psychological factors among the banking employees have been influenced due to COVID-19, and the stress level has increased among the bank employees. Therefore, banks have to take measures to reduce stress. The stress among the employees can be reduced through training programs on health and safety and also by encouraging employees to work from home.

From this perspective, we understand that ergonomics, work safety and employee engagement programs in the organization provide directions to improve the organizational culture and enhance the performance of the employees in the bank.

Conclusion and future directions for research

The above studies indicate that COVID-19 has changed the process and procedures in the banking sector of India; this would also influence engagement programs and ergonomics in the banks. Therefore, COVID-19 demands more attention of the bank employees developing continuous strategy concerning the health and safety of employees. Overall, study results indicate that the pandemic has changed the perception of the employees in the bank and has also influenced the work ergonomics. This has demanded developing measures and strategies to improve engagement programs and improving work ergonomics at banks. Further, future studies could focus more on the influence of COVID-19 on the organizational culture of the banking system and provide insight into this direction of research.

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Personality traits, assessment centre quality and management development among Nigerian telecoms managers

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Abstract

Purpose – Personality profiling in today's business world has become an essential organisational development practice targeted at identifying a set of employees' traits, which differentiate an employee from one another. Given the assumption that personality traits form an essential indicator of developing the potential of an individual workforce, possible to establish how employees function in a certain job role and their suitability for the particular tasks in an organisation. This study aims to explore the relationship between personality traits, assessment centres (ACs) quality and management development in Nigeria telecommunication organisation among its managers.

Design/methodology/approach – The study employed multi-stage sampling techniques and further stratified the hierarchy of the management and finally used a simple random sampling strategy on each stratum. A combination of 482 managers in Nigerian telecommunication organisations participated in this study. The study investigated 12 hypotheses and 1 mediating postulation. Multiple scales were adapted to measure dimensions of endogenous and exogenous variables along the path of mediating variables of the study. The study employed a cross-sectional survey approach to administering the research instrument across all the departments among the managers of the organisations. A structural equation model of assessment was used to analyse the data collected from managers of the telecoms organisations.

Findings – The outcome of the study was significant, 10 of the postulated hypotheses were found to be significant while 3 were not significant. The study revealed that a combination of openness to experience, conscientiousness, neuroticism, agreeableness and extraversion personality have no significant relationship with the AC. Also, employees who are high in neuroticism like being emotionally unstable did not find a significant relationship with the AC. In a similar situation, the combined effect of all the big-five personalities was not significant in management development among the managers of the telecommunication industry. The AC is discovered to mediate between personality traits and management development. Individually, the big-five model finds a significant relationship with AC and management development, respectively.

Research limitations/implications – The study is restricted to managers of the Nigerian telecoms industry alone and not all the entire workforce. It adopted cross-sectional analysis to make an inference on all the managers of the organisations. The implication is that the period of the view of a particular point in a sequence of the event may not be representative. Another implication is that the results from the cross-sectional design are for the relationship, and they do not indicate causation.

Originality/value – In practice, this study has shown that personality profiling is important to managing organisational behaviour to highlight a set of traits of employees suitable for peculiar roles. This study implies that personality elements constitute a vital signal of the potential development of the workforce. It helps to illuminate an individual functioning style in a certain task situation, therefore determining both professional and managerial suitability in performing a given role.

Keywords Personality traits, Big-five inventory model, Assessment centre, Nigerian telecoms industry, Management development

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1. Introduction

In a dynamic business environment, managerial development appears to be an essential recipe for managing an organisation for survival. It stimulates, drives employee productivity and enhances organisational goal accomplishment. Effective managers need to strive to become good leaders, and good leaders also require cogent managerial skills to be efficient and effective. For every high-performing organisation, management development is established as a factor of business success (Lagat and Makau, 2018). For several decades, management development has been on the front burner of human resource management (HRM) discourse (Dhar, 2021), and efforts have been to enhance management and managerial development in corporate organisation. Management development is rather expressed as a management revolution, an organised and regular process of management training and growth by which employees aspire to move up the managerial ladder of management. It enables the individual to acquire and apply necessary skills, experience, knowledge, capability, insights and the right attitudes to drive other managers, the workforce and work organisations effectively (Dhar, 2022). Elembilassery and Chakraborty (2021) perceived management development through the lens of leadership in focus and argued that it is systematic, deliberate, guided and directed action taken by a manager to assist himself to become more competent in his present position.

Management development seems to be one of the core areas of human capital development policy which provides a basis for sustainable competitive advantage, and a strategy for organisational change (Payambarpour and Hooi, 2015). In furtherance of this, Shaik and Dhir (2021) alluded to the fact that the concept of management development fosters nurturing managers in corporate firms to stimulate the achievement of goals and assists in promoting the capability of the managers needed to respond to present and future challenges accordingly. Developing managers in an organisation characterizes the provision of a roadmap for future directions of the organisation. It enables organisations to carefully consider the possible consequences for the internal structure, workplace environment, styles of management, human resource policies and work procedures (Larsson *et al.*, 2020). The dynamics of the business environment and the concern on the role of HRM in organisational effectiveness have increased the attention given to management development by organisations. Managerial capability, competence, skills and strength are likely to be essential for accomplishing an advantage over competitors. Thus, organisations are utilizing diverse management development programmes to nurture this category of human capital in contemporary organisations (Carvalho *et al.*, 2021). Moreover, corporate organisations make a frantic effort in nurturing and developing their leaders to effectively enhance the quality of leadership in the organisations for possible positioning advantage in their industry.

As it is essential to develop management capability and skills that will respond to present and future challenges in a business environment, it is vital to note that there are some fundamental ingredients that managers and who-would-be managers must possess if favourable organisational outcomes will be achieved. The personality of managers plays a vital role in nurturing managerial knowledge and skills appropriately. There are few personality traits peculiar to individuals in the organisation and these traits determine how an individual reacts to situations and events in the organisation. Personality traits prescribe an individual identity and speak volumes about who a person is. Tran and Von Korflesh (2016) affirmed that personality traits play a major role in predicting the behaviour of a manager in the workplace. In view of the persistent nature of the relationship between personality and managerial outcomes which has been extensively recognized and accepted, the personality composition of an individual appears to predict the prevailing situations and a particular behaviour in which such an individual is capable of exhibiting (Zisser *et al.*, 2019). The majority of study in this area has attempted to relate management development outcomes with observable physical expression or characteristics and measurable traits of the

well-known five-factor model or Big five. Personality trait makes what an individual is, it is what distinguishes an individual from another person. Revelle and Wilt (2013) put it differently that, a personality trait is a distinctive form of thinking, feeling and acting which is persistent over time and across relevant situations. It is an individual's unique constellation of stable behavioural traits. Personality traits have been found to associate with leadership and management success as well as its failure (Damian *et al.*, 2018). Personality traits along with psychometrically valid and trait scores help to understand how managers in the organisation got engaged with the firm. It helps to track and monitor the rationale, how, where and why they were promoted to management levels (Kerr *et al.*, 2018). In furtherance of the above explanations, Revell and Condon (2015) argued that personality and cognitive ability along with peculiar drives shape skills, knowledge and the disposition to get promoted in the workplace.

However, to establish the stability of the personality traits of managers and leaders in organisations, there is a need for assessment centres (ACs) in order to fully understand what is the personality that best explains an individual manager for possible knowledge and skills development. Therefore, an AC is a procedure in which participants carry out and commence a sequence of job-related exercises under observation, such that the competence, skills and personality traits of an individual can be examined. An AC is a strategy that several organisations adopt to establish management potential and ascertain individual suitability for higher functional positions (Francis-Smythe and Smith, 2016). It is always employed in management development procedures as a technique to examine individual candidates' personality traits and competencies (Aguado *et al.*, 2016; Tripathi, 2016). It assists to understand those areas and aspects that call for development. Specially trained assessors, appraise each participant in line with fixed and scheduled measures and standards. An AC is referred to as a process of evaluating an individual's knowledge and skills utilizing a multiple progression of exercise created to produce an array of responses (Christiansen *et al.*, 2013). The point of departure is to commence an in-depth job analysis and core competencies of an individual candidate for a certain role. Thereafter, exercises are created that are expected to provoke the behaviours considered most essential and critical for the success of the job. The AC is synonymous with incubators where managerial core competence is identified, his/her potential will be hatched and brought to life in order to use it for business success and improve organisational business strategy. Meanwhile, assessors in the AC are trained for that purpose to observe, appraise and take note of participants' performance in the course of these activities using designed response forms. The outcome of a standardized test is usually used to complement evaluators' observations. Thereafter, evaluators meet to develop a consensus assessment of individual participants based on certain measures of interest before distributing the outcome of the exercise to the participants. Regularly, an explicit strategy for proficient advancement is also provided. With this procedure, participants' present capabilities and future potential are evaluated consistently and meticulously as appraisers keenly watch the individual's prominent discussion, provide solutions to issues and exhibit related leadership roles (Bangerter *et al.*, 2012). In line with this early narrative on AC, the management AC is also on a multiple sequences of tests, interviews, simulations and activities structured to determine how suitable management candidate will perform in a certain job role. Management or leadership development from an AC lens is a process for identifying and detecting an individual's exceptional physiognomy concerning leading, managing and directing others in the workplace and how such features are suitable for a given role prerequisite (Lievens, 2017).

It is worthy to establish the reason this study is of interest to the authors of this research. The essence of this study is to investigate the relationship between managers' personality traits and the quality of ACs as well as management development construct. In management assessment, the key focus is largely a diagnosis of managerial qualities in those that have

been earmarked for a management position, assessing their managing central issues such as independence, delegating and communication among others. The goal of bringing an AC along with managerial personality traits is to get a good understanding of the managerial qualities of a management candidate and establish how such an individual would perform in a management position in the Nigeria telecoms business environment. This study also employs the Big-Five personality traits of openness to experience, conscientiousness, extraversion, agreeableness and neuroticism (OCEAN). Therefore, this study is to investigate the link between personality traits, ACs and management development in the Nigerian telecoms industry.

2. Literature review

2.1 Theoretical framework and hypotheses development

2.1.1 Trait activation theory (TAT). Trait activation theory (TAT) is deeply rooted in the historical discourse of personality and social psychology on the comparative significance of traits and situations as a basis for behavioural variability. The concept of TAT can be linked to Murray (1938), where it was argued that situations provoke trait expression from employees in the workplace (Tett and Burnett, 2003). Tett *et al.* (2013) further extended the works of Murray (1938) and summed the key contributions of other proponents of the theory that were earlier postulated and influenced TAT (Simonet and Tett, 2013). The theory starts with the notion that an individual's intensity of trait is expressed as trait-related behaviour in the workplace. An essential fundamental assumption of the theory is that traits will be revealed as an expression of work behaviours only when trait-associated cues are in existence (Tett and Burnett, 2003). In line with TAT, these traits-relevant cues can be grouped into three major interconnected groups: task, social and organisational. This illustrates that specific task features (e.g. a messy desk), social features (e.g. difficult colleagues) and organisational features (e.g. team-based organisational culture) are argued to affect when and how traits manifest as behaviour.

In other words, situations function as an activator to particular traits that an individual hold-on to. A particular trait may choose not to show forth until a situation comes up that demands it (Greet and Turban, 2015). This belief follows the interactionist approach, as positioned in the literature, and moves a step ahead in arguing an approach in which traits and situation interacts (Barrick and Mount, 1991; Gil *et al.*, 2017). This illustrates that traits function in a passive mode and exist as steady and constant qualities but demand the active influence of an appropriate situation that activates them into action and impacts a person's behaviour. TAT argues for situational peculiarity; meaning that if a trait predicts better performance, it is contingent upon the context or otherwise the context is suitable for performance that relies on the trait (Judge and Zapata, 2015). Hence, the advocates of the TAT claimed that trait-significant situations produce enhanced performance than situations that are trait-insignificant. A favourable illustration in support of this narrative is given in a workplace situation, whereby an individual may be offered a role that solely holds situations that are not considered to inspire this individual's certain traits. Such an employee, thus, may be perceived as unsuccessful, when there is the likelihood that the employee would perform better in another role behaviour that produces trait-significant situations with higher control.

The practical implication of this theory is that organisations must clearly understand how various firms' cues provoke the expression of traits, hence, this awareness allows firms to establish the situations that stimulate the traits they are most appreciated, select individuals according to those traits they most value. Nevertheless, to fully grasp the traits required for different professional and occupational roles, including team contexts, scholars have recommended that organisations needed to conduct personality-based work evaluation, through AC procedure, to enhance the selection and promotion processes into any higher

position in the workplace (Kell *et al.*, 2010). Organisations can use TAT to enable the firms to ascertain positive applicant experience. Adopting TAT, firms can devise their recruitment procedures in such a manner that candidates engage with current employees with whom they are likely to relate.

Consistent with the above discourse, the relevance of this theory is seen in its connection with personality traits and ACs variables of this study. It succinctly connects the personality profiles of the individual with the AC which is under investigation in this present study. AC dimensions and personality traits focus on a similar set of behaviours and that is the importance of the theory in this present study. Therefore, the study proposes the following hypotheses as follows:

- H1.* Openness to experience personality will be associated with AC process among managers of the Nigeria telecoms Industry
- H2.* Conscientiousness personality will be associated with AC process among managers of the Nigeria telecoms Industry
- H3.* Neuroticism personality will be associated with AC process among managers of the Nigeria telecoms Industry
- H4.* Agreeableness personality will be associated with AC process among managers of the Nigeria telecoms Industry
- H5.* Extroversion personality will be associated with the AC process among managers of the Nigeria telecoms industry
- H6.* Openness to experience, Conscientiousness, Neuroticism, Agreeableness and Extroversion personality jointly associated with AC among managers of Nigeria telecoms industry

2.1.2 Person-organisational fit theory. Person-organisation (P-O) fit was originated from Argyris (1958) and proposed that organisations were distinguished by their nature of climates, which played a dominant role in the attraction and selection of employees and members of the organisations. The theory indicated that an organisation must hire the right set of people that fit for particular task or job role. The emphasis of Argyris (1958) was to match the right round pegs into right square holes for a job or position in the selection process. Person-organisation fit theory stresses suitability between an individual and that of the organisation (Kristof, 1996). This theory has assisted organisational development experts in fixing the right candidate with the right position in organisations. The theory enhances job-seeking procedures (Cable and Judge, 1996), socialization procedures (Scheider, 1987) and its association to long-last effects, like employee attitudes to work. The theory postulates compatibility that occurs between individual personalities and organisations when (1) at least one person offers what the other person needs or (2) they share the same vital characteristics or both exist together (Anderson *et al.*, 2008). It further clarifies that an individual personality trait will give an understanding of how well such a person will be adaptable to an organisation. This theory resonates with personality traits and the selection of managers for possible managerial roles in the organisation. The theory helps to understand what kind of personality can best be suitable for the management development role in the workplace.

However, lately, researchers have suggested approaches based on cohesive perspectives to illustrate P-O (Morley, 2007; Swider *et al.*, 2015). Kristof (1996) offered a robust P-O fit standard and claimed that personality and organisation not only possess basic characteristics but also possess individual pre-requisites and available resources. This combined model integrates all person-organisation fit concepts and also put into consideration the viewpoints of supplementary fit and complementary fit. This cohesive

approach to person-organisation fit is also described by Muchinsky and Monahan (1987). They also demonstrated the dual impact of advancing person-organisation fit as supplementary and complementary fit. The supplementary fit was illustrated as similarity of features between individual and company, that is, the goals and values congruence. The complementary fit occurs when an individual or organisation has resources that the other entity is in dire need of. A favourable illustration in support of this is when an organisation wants to fill a vacuum of a management position with the requisite skill set that the company lacks. Another one is when a company needs a human resource manager with peculiar experience and the organisation has a deficiency in such area (Guan *et al.*, 2011). The key emphasis here is that an individual must possess competencies to fulfil organisation expectations or demands. It is golden to understand that personality of an individual will determine such a person degree of competence, skills and knowledge. Hence, the study proposes the following hypotheses as follows:

- H7. Openness to experience personality has a relationship with management development among managers of the Nigeria telecoms Industry
- H8. Conscientiousness personality is related to management development among managers of the Nigeria telecoms Industry
- H9. Neuroticism personality is related to management development among managers of the Nigeria telecoms Industry
- H10. Agreeableness personality is related to management development among managers of the Nigeria telecoms Industry

2.1.3 Trait theory. The trait theory was propounded by Carlyle (1841) and later went through diverse refinement processes from Allport (1937), who was popularly remarked for the dispositional trait approach, and described trait as a disposition to life experience. Eysenck (1957, 1967) introduced three spectra of personality elements as neuroticism, extraversion-introversion and psychoticism. These elements are measured with a self-report instrument. He initiated high-order dimensions of the three-factor personality model. Cattell (1973) credited 16 personality factors. His groundbreaking study on personality is highly notable in psychology. It pursues an explanation of a person's differences in all aspects of life from psychometric profile measures of cognitive capacity, motivation, personality and disposition. Allport, Eysenck and Cattell were founding fathers of trait theory in psychology (Matthews *et al.*, 2003).

However, Carlyle (1841) is considered to be the first person to carry out a study on the trait personality of an individual utilizing an approach in establishing natural ability, skills and physical features of individuals who got to the peak. Like Allport (1937) proposed, trait theory is otherwise known as dispositional theory, a method for the study of human personality. However, the focus of the trait theorists was basically on the evaluation of traits, which are referred to as habitual patterns of behaviour, reasoning ability and feelings (Read *et al.*, 2010). In line with this proposition, traits are part of the personality that are reasonably consistent for a long period and vary across humans (for instance, some are naturally extrovert, sociable and outgoing while some are not). Traits are conversely to state that is largely transient dispositions. Trait theorist argues that every formation of personality traits make two distinct key beliefs. The first one holds that traits are consistent over time. It is naturally understandable that a person's behaviour differs from time to time, but uphold that there is key stability that explains an individual real nature, the constant marks of a leopard (Smillie *et al.*, 2013). In other words, there exist across several events and occasions, differences between visible individuals. The second assumption is that traits affect behaviour. If an individual unexpectedly launches himself into a good spirit, one may describe such a

situation that the individual is in delighted disposition. Such a claim is most definitely premise on the unstable ground due to its circularity (Smillie *et al.*, 2012). The proponents of trait theory typically associate and enlist management qualities to effective management behaviour in the workplace. Kirkpatrick and Locke (1991) illustrated trait theory in managerial concept as drive, wide properties that comprise accomplishment, motivation, ambition, persistence, vigour and resourcefulness. While the manager's motivation, the need to lead but not to be power-conscious as an end in itself, honesty, integrity, self-confidence (related to emotional stability), mental capability and knowledge of the business (Smillie, 2014). Though, their study indicates less clarity for traits like charisma, creativity and flexibility. However, trait theory resonates with this study given its large bearing on human personality and management development which is the focus of this study. Trait theory explains and predicts the link between personality traits, AC quality and management development of this research. Therefore, this study postulates the following hypotheses as follows:

- H11. Extroversion personality is related to management development among managers of the Nigeria telecoms industry.
- H12. Openness to experience, Conscientiousness, Neuroticism, Agreeableness and Extroversion personality jointly related to management development among managers of the Nigeria telecoms industry.
- H13. AC mediates the relationship between personality traits and management development among managers of the Nigerian telecoms industry.

2.2 Conceptual framework

See Figure 1.

2.2.1 Openness to experience and management development. Openness to experience personality type prescribes an individual that is always open to new ideas, experience, innovation and creativity. Largely, individuals who are high on the openness to experience are curious, sensitive, sociable and always brighten up the workplace, while those on the other continuum of the openness category are conventional and experience comfort in their familiar terrain (Zopiatis and Constanti, 2012). Individuals with a high tendency of openness to experience are found to be eager and curious, result-driven in the workplace and have been noted to have a large spectrum of interests in everything around them (Hudson *et al.*, 2012). The emphasis on the openness to experience category is that those individuals with such personality traits are always better suited for a managerial position in the workplace. Studies

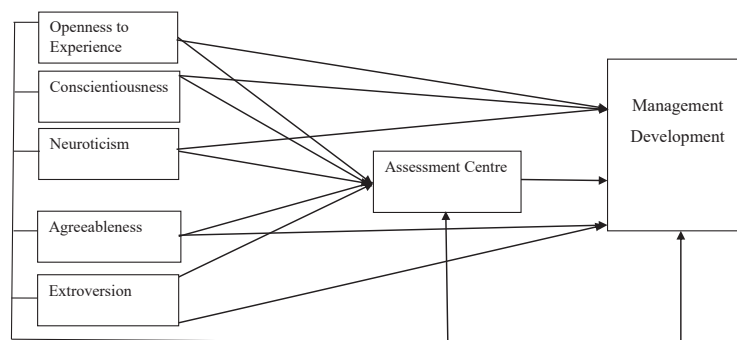


Figure 1.
Personality traits,
assessment center and
management
development
framework

Source(s): Developed by Authors for this study, 2021

have shown that people with high openness to experience may be characterized by cerebral abilities and flexibilities (Nieß and Zacher, 2015), which often time enable them to quest for mental stimulation in their chosen career and engage in challenging tasks at the executive level in the organisation (Woods *et al.*, 2013). However, given the desire for new experiences, challenges and opportunities, people with high openness to experience are inclined to engage and move into different work environments and positions. They welcome change and are predisposed to hopping from one job to another, and they have been discovered to demonstrate increased job instability than other personality types (Wille and De Fruyt, 2014). They may not likely absorb themselves with the organisations and may not give the necessary attention required to nurture the individual, team and the organisation at large.

2.2.2 Conscientiousness and management development. Conscientiousness is one of the big five personality categories been at the heart of personality effectiveness that determine management development in organisations (Arora and Rangnekar, 2016). A conscientious personality is seen to be skilful and experienced, disciplined, dedicated and orderly. People with a conscientious personality usually remain focused and high in achievement drive, exhibit a high level of tenacity for purpose and due diligence which establishes a high significance of this element in career success and management development (Jennifer and Cooke, 2013). Individuals with robust achievement positioning have been discovered to experience high rising career movements which explains its relevance in the management development position of organisations (Cobb-Clark and Stefanie, 2012). High conscientiousness fosters employees to be promoted into jobs attached to greater challenges and esteem. Therefore, it has been established that conscientious personality types may likely be disposed to realize upward job changes into managerial and professional positions (Fletcher, 2013). However, Saha and Sharma (2019) have found that since conscientiousness is also related to duty-bound and deliberation, an individual with high conscientiousness is perceived with high job stability and an organisation with high reliability and sense of responsibility. Moreover, it has been found that conscientious employees are risk-aversion and cautiousness which buttress the fact that employees may be less likely to seek out innovative job opportunities, particularly managerial and professional positions (Hudson *et al.*, 2012). This may constrain the employee from ascending to a managerial position with the necessary career speed required for an employee.

2.2.3 Neuroticism and management development. Neuroticism otherwise called emotional stability, is a relatively consistent ability to respond to negative emotions to threat, frustration or loss and self-consciousness. It describes how an individual can remain stable and maintain balance in the face of turbulent situations. Studies have established that an employee that has high emotional stability is usually calm and deemed appropriate for managerial positions in the organisation (Ali, 2019). Neuroticism is akin to but not the same as being neurotic in the Freudian sense. Some of the psychologists prefer to call neuroticism by the term emotional stability in other words to separate it from the concept of neurotic in a career test (Band *et al.*, 2014). It has been established that individuals who were discovered to be high in emotional stability likely react less emotionally and they do not find to be disturbed or tensed up easily at work (Berglund *et al.*, 2015). However, the fact that these categories of people do not experience negative feelings does not necessarily mean that they always experience positive feelings. While Kesavayuth *et al.* (2015) and Rossberger (2014) have put forward a claim that neuroticism is characterized by items indicating sadness, anger, nervousness, irritability, hostility, uneasiness and vulnerability that have been discovered to be largely associated with one another in factor analyses (Cobb-Clark and Stefaine, 2012). For people who are high on negative neuroticism, such negative feelings of emotional responses to events occur constantly and often out of proportion (Zhai *et al.*, 2013). Furthermore, individuals who are on high neuroticism are overly modest, sensitive to criticism of others and have a feeling of personal incompetence (Ülgen *et al.*, 2016).

2.2.4 Agreeableness and management development. Agreeableness emphasizes the ability to cooperate and lend helping hands to the team in the workplace. It is connected with modesty, altruism, sympathy, trust and a high tendency for compliance. Agreeableness personality is either undesirable or optimistically determined upward career movement into a managerial hierarchy and professional positions. An agreeable person at work is pleasant and naturally gets along well with others (Jackson *et al.*, 2012). They are, therefore, considered exclusively suitable for leadership and managerial positions that require a high level of teamwork and healthy cooperation (Judge *et al.*, 2014). On the other hand, individuals with a high concentration of agreeableness are linked with a need for affiliation, they are not good for competitive behaviour and are less demanding. An agreeable individual appreciates getting along with others than taken-up their self-serving motive. Survey evidence has established that the overall impact of agreeableness on leadership and managerial development in industry market results is negative (Specht *et al.*, 2011; Woods *et al.*, 2013). As much as an agreeable person may be more successful in teamwork, three viewpoints may negate this optimistic influence in the work ecosystem. One, assisting others may decrease employee productive work behaviour. Secondly, an agreeable employee may not be effective when facing negotiation in terms of wage bargaining. This aspect is crucial for leadership and managerial position, who would be managers must have negotiation and bargaining skills to favourably accomplish organisational goals. Lastly, an agreeable employee may engage in unstable, less paid jobs and be more likely to be unemployed (Fletcher, 2013).

2.2.5 Extroversion and management development. Ability to understand how the Big-Five model play a major role in individual life is essential to understanding the social interaction of such a person in the workplace. This offers a basis to know why an individual life is his own and not similar to his partners or neighbours. Extraversion personality is another trait on the Big-Five model that describes attributes of being sociable, capable of quickly forming close associations with others, and their outgoing nature leads to effective group work (Fang *et al.*, 2015). Survey evidence has demonstrated that employees who are high in extroversion may likely lookout for opportunities for social interactions (Benischke *et al.*, 2019). They are always comfortable with others and disposed to take action, engaging with vigour in productive work rather than contemplation (Shaban, 2018). Employees who are high in extraversion are suitable for management roles in organisations (Herrmann and Nadkarni, 2014). The study of Harrison *et al.* (2019) discovered that individuals that possess high quality of extroversion always take up a leadership role in the workplace environment. A number of the elements of extroversion, such as emphatic and self-confidence, ambition, activity and excitement-seeking (Colbert *et al.*, 2014), portends that high scores on these personality variables drive workers to look out for new opportunities and challenges in their careers. Against this backdrop, extroverted employees are prone to actively tackle unsatisfactory work experiences by orchestrating changes (Gupta *et al.*, 2018). Studies have shown that individuals who are high in extroversion often time move from one firm to another (Malhotra *et al.*, 2018) and pursue employment change through job search behaviours (McCrae, 2018). Moreover, extroversion has appeared to be one of the major determinants of productive work behaviour, particularly in jobs that concerned social interaction (de Jong *et al.*, 2019). Therefore, this leads to the hypothesis that:

2.2.6 Managerial assessment centres and management development. An AC is a test incubating environment that evaluates the skills of managers and the workforce of an organisation on a collection of multiple dimensions. It is a constellation of tests, interviews, simulations and events designed to establish how suitable an employee for a management position will perform in a specific task role. The AC helps to understand and detect an individual set of characteristics regarding leadership position, directing and managing organisational affairs. Survey evidence has shown that ACs foster a good association with leadership and management development (Turner and Nichol, 2016). The AC is notably a

technique of quality selection process for senior managers and leaders in both corporate organisations and the public sector. It offers managers' opportunities to exhibit behaviours and skills that are strikingly job associated, the outcome of the assessment is more acknowledged by candidates and by the subordinates they will lead than the results of equally valid objective tests. Triparthi (2016) alluded to the fact that AC provokes positive behaviour and helps managers to demonstrate their skills and competence and highlighted the benefits of AC that it enables managers to grasp a thorough perspective of how others observe them and thus provokes an improvement in their skills, ability and knowledge. It engenders managers to exert more effort towards accomplishing corporate goals. Triparthi (2016) further posited that the AC enhances precision and exactness by allowing the management of organisations a wide spectrum of selection methods to be used during the procedure. It also expedites an assessment of prevailing or current performance and aids in the prediction of future job outcomes (Jorgensen and Els, 2013).

2.3 Gap in literature

Previous studies have investigated the contribution of personality traits as a predictor of job performance (Judge and Zapata, 2015), career advancement and career success (Wille *et al.*, 2013), organisational citizenship behaviour (Kumar *et al.*, 2009), burnout (Alarcon *et al.*, 2009) and psychological contract (Raja *et al.*, 2004). Also, prior studies have attempted to evaluate the nexus between personality dispositions and job associated variables. However, there is a paucity of research explaining the mediating role of ACs between personality and management development. In eulogizing the role of the AC and identifying management training and its effectiveness in selecting better candidates for employment opportunities. The AC process has not been fully explored in research, even in practice, only a few studies used AC procedure to activate personality traits and not for management positions. Besides, there are situations where AC has manifested its attendant shortcomings, an example is where one can use it for selecting individuals for a higher position in the organisation, yet it has proved not effective in selecting the right personality measures for managerial positions (Eurich *et al.*, 2009; Jackson *et al.*, 2016). The majority of organisations are not using AC in evaluating personality measures but rather appraising them through the rule of thumbs (Kleinmann and Ingold, 2019). On preliminary investigation, these are some possible lapses that the study has identified, and if personality measures are integrated into ACs procedure, thereby boosting the management development process of Nigeria telecoms industry. Besides, explaining possible lapses, there is no single study that has examined the relationship between personality traits, AC quality and management development as this present study. Therefore, this present study wants to fill such a gap in understanding the nexus between personality traits, AC quality and management development. Moreover, those studies highlighted above have studied personality elements under various populations such as employees and workforce alone, while the present study explores it from the management perspective lens.

3. Research methods

3.1 Research design

The research design for this study is a cross-sectional design across all managerial levels in the organisations. The rationale for cross-sectional design is that it enables the researcher to survey participants and obtained their opinion at a single point in time. Also, it is appropriate for evaluating the pervasiveness of certain behaviour in the population (Sedgwick, 2014).

3.2 Study population

The study population comprises managers of four major telecommunication companies in Nigeria (Airtel Nigeria, Globacom Nigeria Limited, 9-mobile and MTN Nigeria

communication Limited). It involved a managerial cadre ranging from supervisors, assistant managers, deputy managers and senior managers. The choice of selecting the four major telecommunication firms is based on those firms with requisite experience since the inception of the global system of mobile communication (GSM) in the year 2000 in the Nigerian business environment, and it is believed that the organisations have an enormous wealth of leadership and managerial experience. The population size of the managers in the four chosen telecoms organisations at the time of filing this research report are MTN, 1750 managers; 9-mobile, 1875 managers; Airtel Nigeria, 1,550 managers; and Global communication (Globacom), 1,650 managers, respectively. In total, the population size is 6,825 managers.

3.3 Sampling procedure

The study adopted a multi-stage sampling technique for this research and further used stratified sampling across all the strata of managers' levels in the organisations. Thereafter, the study used simple random sampling at each level of management. The justification for choosing this strategy is that only managers of the telecoms organisations are the emphasis of this study and not the entire employees of the telecoms firms. Thus, it focuses on managers who seem to be due for a managerial position between two to three years. The essence of using a multi-stage sampling strategy is that it helps the researcher to apply cluster or random sampling after determining the group and enables the researcher to select the participants based on their peculiar knowledge of or their certain experience with the study phenomenon (Schutt, 2006).

As earlier enumerated, the number of managers in MTN Nigeria Communication Limited is estimated to be 1,750 managers according to the firm human resource manager. The managerial staff strength in 9-mobile is 1,875 according to the company human resource department and that of Airtel Nigeria, a subsidiary of Airtel Africa, which is within Bharti Airtel International, Netherland and Global Communication (Globacom), an indigenous firm at the time of this survey are 1,550 and 1,650, respectively. Thus, the total population strength is given to be 6,825 managers across the four selected telecommunication organisations. The sample size which is taken from the population size of 6,825 managers is derived by taking 10% of the entire population which is 683. This is supported in the study of Weisberg and Bowen (1977), Roscoe (1975) and Akinwale (2019) who maintained that 3%–10% of the entire population is desirable and acceptable for quality sample size determination, adding that it is adequate for predicting the robust outcome of a study. They further argued that it helps to reduce the error rate and assists in obtaining an acceptable margin of error as low as 1% which is justified in a behavioural study survey.

3.4 Instrument and measure

The study employed a research questionnaire to explore and obtain data from the managers of choosing organisations. The justification for using the questionnaire is that it enables the researchers to reach a large number of the target population. At the same time, it assists the study to obtain a realistic view concerning the subject under consideration (Eaden *et al.*, 1999). It adapted validated scales on each variable of the study that is widely popularised for a personality traits, AC and management development. The scales of measurement were adapted for dimensions of personality traits, ACs constructs and management development. The big five personality inventory – 10 (BFI-10) is adapted from Rammstedt and John (2007). This scale has been tested and validated in both work and social environments and found to be highly reliable. Personality traits were measured with BFI-10 to measure the personality profile of managers and who would-be managers in the telecoms industry. All dimensions in this study have relatively high reliability and are greater than the benchmark value of 0.70, as suggested by Nunnally and Bernstein (1994). The study adopted a composite reliability

strategy. This scale had coefficient stability values as follows: Agreeableness (0.94), Openness to Experience (0.97), Conscientiousness (0.96), Extraversion (0.96) and Neuroticism (0.92). The internal consistency coefficient of the overall scale was 0.80. A revised version of the management development scale by Dussault *et al.* (2013) was adopted to measure the managerial development of managers in the Nigerian telecommunication industry. It contains 21 items that allow managers to respond on a four-point Likert scale. The choice of employing four-point Likert scale on the research questionnaire is in its ability to evaluate the psychometric properties of more reliability and validity of high degree of precision and its freedom from measurement error than the conventional five-point Likert scale. The reliability alpha coefficient for managerial development as reported by Dussault *et al.* (2013) was 0.92 for this scale. The AC scale adapted is obtained from Petrides *et al.* (2010). The scale was measured on nine dimensions ranging along with their corresponding reliability coefficients (a) Managing Resources (0.70), (b) Making Decisions (0.75), (c) Written communication (0.72), (d) Improving Business (0.72), (e) Satisfying Customers (0.78), (f) Oral Communication (0.70), (g) Managing Others (0.79), (h) Managing Self (0.81) and (i) Building Relationship (0.74). All the scales were put together to form a single research instrument against using it in disjointed form. The researchers combined the adapted scales to form a whole questionnaire and were distributed across all managerial hierarchies in the study organisation.

3.5 Statistical analysis

The statistical analysis for the study is the structural equation model (SEM). SEM is a multivariate statistical analysis technique that is used to investigate structural connections among variables of interest. It is the combination of factors and multiple regression analysis, and it is employed to explore the structural link between the measure of the study variables and latent constructs (Hair *et al.*, 2017). The choice of this statistical analysis is to examine the covariance structure among the identified variables of the study (Matsueda, 2012). Moreover, it allows the researcher to test the mediating effect of AC quality between personality inventory profiles and management development constructs of the study. This is otherwise called bootstrapping effect in structural equation modelling. The established variables of this study are in three categories: personality traits, ACs and management development with several dimensions, and there is a need to analyse the covariance of these dimensions.

4. Data analysis and results

Table 1 presents descriptive statistics, inter-correlations, reliability and validity of the research instrument for this study. Discriminant validity and composite reliability were used in other to ensure that the instrument measure what is intended to investigate also to obtain the internal consistency of the instrument. Discriminant validity otherwise called divergent validity prescribes that conceptually two concepts must indicate significant differences (DeVelis, 2017). Discriminant validity was employed to ensure that the dimensions of the instrument measure what it intended to measure and indicate the rate at which a construct is distinguished from other constructs (Hair *et al.*, 2019). While composite reliability ranges from 0 to 1, where a greater value illustrates a higher degree of reliability. According to Bagozzi and Yi (2012), composite reliability values should be within the limit of 0.70 or higher than 0.70 (Hair *et al.*, 2019). Thus, the essential condition of higher internal consistency is achieved on the latent constructs of this study as produced in Table 1. All the constructs are greater than 0.70. In the same vein, the estimates for average variance extracted were also above the threshold limit of 0.50 (Fornell and Larcker, 1981), as illustrated in Table 1.

Table 2 indicates the socio-demographical profile of the managers in the Nigerian telecoms industry. On the gender of the managers and who-would be managers, 310 represents male of

Table 1.
Descriptive statistics,
composite reliability,
correlations and
discriminant validity

Correlations Factor	Mean	SD	CR	AGREN	OPTE	CONS	ETRA	NEURO	ASS-CENT	MANA-DEV
1. AgreN	2.61	0.65	0.939	(0.722)						
2. OPTE	3.09	0.54	0.974	0.825**	(0.842)					
3. CONS	2.62	0.54	0.966	0.721**	0.831	(0.782)				
4. EXTRAV	2.59	0.63	0.963	0.649**	0.712**	0.815**	(0.728)			
5. NEURO	2.12	0.63	0.921	0.798**	0.945**	0.838	0.814**	(0.704)		
6. ASS-CENT	3.44	0.75	0.913	0.623**	0.596 **	0.752**	0.783*	0.746**	(0.725)	
7. MAN-DEV	3.39	0.69	0.920	0.531**	0.645**	0.639*	0.754**	0.600**	0.696**	(0.700)

Note(s): ** $p < 0.01$. Square root AVE (italics values) are displayed in parenthesis showing discriminant validity
SD: Standard Deviation; **AGREN:** Agreeableness; **OPTE:** Openness to Experience; **CONS:** Conscientiousness; **ETRAV:** Extraversion; **NEURO:** Neuroticism; **ASS-CENT:** Assessment Center; **MAN-DEV:** Management Development; **AVE:** Average Variance Extracted; **C.R.:** Composite Reliability

Profile	Frequency	Percentage (%)	<i>n</i> = 482	Personality traits, assessment centre quality
<i>Sex</i>				
Male	310	64.3		
Female	172	35.7		
<i>Age</i>				
22–25	46	9.5		
26–35	170	35.3		
36–45	222	46.1		
46–55	38	7.9		
56 and above	6	1.2		
<i>Education</i>				
National Diploma (ND)	14	2.9		
HND/BSc/BA/BED	212	44.0		
Master's Degree	214	44.4		
Ph.D/Professional Certification	42	8.7		
<i>Hierarchy/Managerial Level</i>				
Management Staff	174	36.1		
Supervisory Manager	118	36.1		
Assistant Manager	46	9.5		
Senior Manager	144	29.9		
<i>Departments</i>				
Human Resource	35	7.3		
Finance/Account	36	7.5		
Information Technology	84	17.5		
Sales and Marketing	185	38.4		
Corporate Affairs	31	3.3		
Strategy and Planning	46	9.5		
Risk Management	33	1.7		
Internal Control/Finance	32	6.2		
<i>Work experience</i>				
1–5 years	124	25.7		
6–10 years	166	34.4		
11–15 years	130	27.1		
16–20 years	44	9.1		
20 years above	18	3.7		
Source(s): Field Survey, 2021				Table 2. Managerial demographic profile of the telecoms industry

64.3% and 172 were female which gives 35.7%. The age composition of the managers across the four giant telecoms organisations in the industry offers a relatively young and vibrant dimension. The age range is from 22 years to 56 years. In total, 46 (9.5%) of the managers were in the category of 22–25 years age range; 170 (35.3%) of them fell between 26 and 35 years of age category; and 222 (46.1%) and 38 (7.9%) of the surveyed managers fell between 36–45 years and 46–55 years age range, respectively. The managerial academic profile of the participants also indicates that 14 (2.9%) were holders of a National Diploma certificate, 212 (44%) were having Higher National Diploma, Bachelor of Science, Bachelor of Art as well as a Bachelor of Education degree; 214 (44.4%) of them had a Master's degree in addition to their first degree; and 42(8.7%) had professional qualifications and a doctor of philosophy (Ph.D.). The managerial work experience of the participants spans from 5 years to 20 years; 124 (25.7%) of the managers had 1–5 years of work experience; 166 (34.4%) of them

had 6–10 years of robust work experience on the job; 130 (27%) of them were having 11–15 years of hands-on work experience; and 44 (9.1%) and 18 (3.7%) of the managers were having 16–20 years and 20 years and above work experience. The study surveyed all respondents across all the departments in the organisations.

4.1 Measurement model fit: confirmatory factor analysis (CFA)

A confirmatory factor analysis (CFA) was performed to strengthen the validity of the measurement model. Multivariate normality assumption was also evaluated following the suggestion of Khattre and Naik (1999). There was no challenge concerning the violation of multivariate normality. The study used the maximum likelihood method of estimation and the goodness of fit measures to evaluate the model fit. CFA regulates the theoretical appropriateness and consistency of the model from the survey data collected for the analysis. It also determines if SEM can be further used and examine the causal interaction that exists among variables observed in the hypotheses. Hence, Table 3 shows that the model is fit, and the overall fit parameters as demonstrated indicate acceptable fit indices, with chi-square/degree of freedom (χ^2/df) = 2.3; root mean square, RMSEA = 0.059; NFI = 0.94; CFI = 0.95; GFI = 0.92; AGFI = 0.85; IFI = 0.912 TLI = 0.94; NFI = 0.96. The measurement model shows an acceptable level of best fit with the collected data. These demonstrated statistics sustained the notion of achieving a fulfilling overall model fit for all indices (Hu and Bentler, 1999) (Figure 2).

Table 3.
Summary of
measurement model
fitness indexes

Indices	Threshold/good fit	Estimated results	Fitness/accepted
Chi-square (χ^2/df)	<0.3	0.235	Fit/accepted
TLI	>0.9	0.942	Fit/accepted
CFI	>0.9	0.950	Fit/accepted
GFI	>0.9	0.921	Fit/accepted
NFI	>0.9	0.962	Fit/accepted
AGFI	0.85 < AGFI < 0.9	0.856	Fit/accepted
IFI	>0.9	0.912	Fit/accepted
RMSEA	<0.5	0.051	Fit/accepted

Note(s): χ^2/df = Chi-Square/degree of Freedom, TFI = Tucker Lewis Index; CFI = Comparative Fit Index; GFI = Goodness of Fit Index; NFI = Normed Fit Index; AGFI = Adjusted Goodness of Fit Index; IFI = Incremental fit Index; RMSEA = Root mean square error approximation

4.2 Structural equation model

Table 4 shows all the hypotheses testing for this study, while Table 5 depicts mediation analysis of the model from the SEM. In total, nine of the postulated hypotheses were significant. The outcome of the study regarding H1 hypothesized that openness to experience personality will be associated with the AC process among managers in the Nigerian telecoms industry. This suggests that openness to experience has a positive relationship with ACs in the surveyed organisations and is significant (path coefficient = 0.68). This signifies a robust regression weight of 68% relationship between openness to experience and the use of AC procedure among managers in the Nigerian telecoms industry. The findings also indicate that (H2) conscientiousness personality is associated with the AC process among managers in the Nigerian telecoms industry and this is significant at path coefficient = 0.43, $p = 0.024$. The outcome of the study further shows that the third hypothesis (H3) which is neuroticism personality is associated with the AC personality among managers in the Nigerian telecoms industry. The fourth hypothesis, H4, which postulates that agreeableness personality is

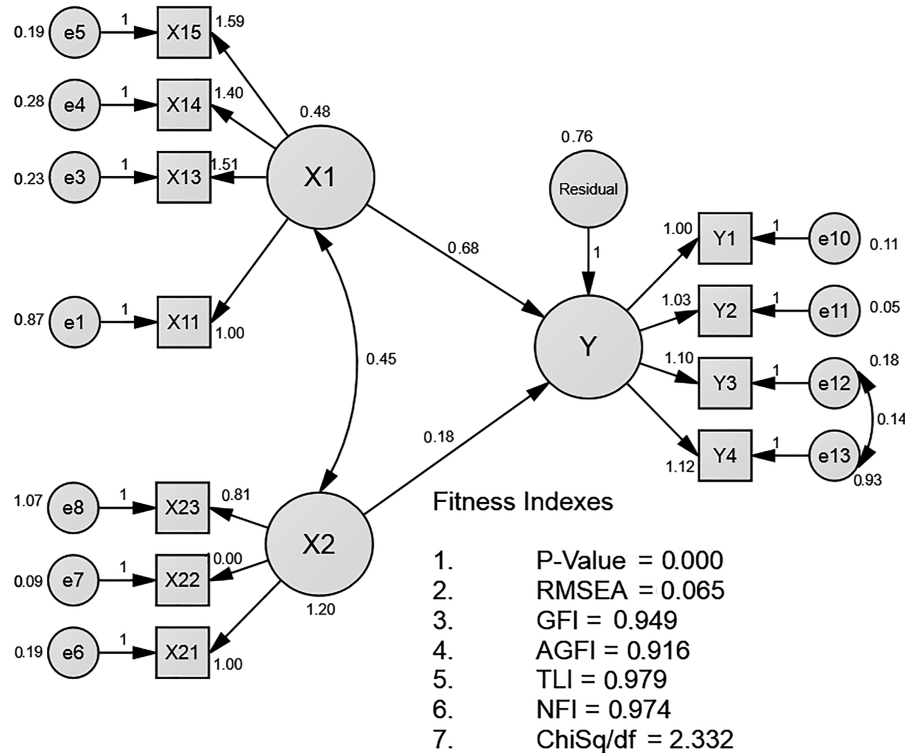


Figure 2.
Measurement model

associated with the AC process among managers in the Nigerian telecoms industry likewise shows a significant value with a regression weight (coefficient path = 0.70; $p = 0.003$). The fifth hypothesis, H5, postulates that, extroversion personality is associated with the AC process among managers in the Nigerian telecoms industry, is also significant with a regression weight of coefficient path = 0.84 at $p = 0.021$. This shows a relationship of 84% relationship between the extroversion personality of the surveyed managers and the ACs process. However, the sixth hypothesis, H6, that reads openness to experience personality, conscientiousness, neuroticism, agreeableness and extroversion personality jointly associated with AC among managers in the Nigerian telecoms industry was found to be insignificant with a regression weight of path coefficient = 0.56, $p = 0.31$. The significant value for the sixth hypothesis exceeded the benchmark P -value of 0.05, though jointly it shows a 56% relationship with the AC process among managers in the Nigerian telecom organisations. The finding further highlights that openness to experience personality has a relationship with managerial development capability among organisations in the Nigerian telecoms industry. The regression weight on hypothesis seven has path coefficient = 0.89, $p = 0.00$. This shows a robust and stronger relationship exists between openness to experience personality and management development dimension of the study. On the eighth hypothesis, conscientiousness personality is related to management development among managers of Nigeria telecoms industry with the regression weight of path coefficient = 0.77, $p < 0.05$. This illustrates that employees who are orderly, dutiful in the work environment and responsible, thoughtful and organised are favourable for managerial positions in the

Table 4.
Summary estimates of
structural equation
model – hypotheses
testing

Hyp. constructs and paths	Estimates	Standardised estimates	<i>p</i> -value = 0.05	SMC (<i>R</i> ²)	Result/ decision
H1. Openness → Assessment Centre	0.48	0.68	0.001	0.46	Significant
H2. Conscient → Assessment Centre	0.60	0.43	0.024	0.18	Significant
H3. Neuroticism → Assessment Centre	0.50	0.45	0.001	0.20	Significant
H4. Agreeablen → Assessment Centre	0.61	0.70	0.003	0.49	Significant
H5. Extrovers → Assessment Centre	0.45	0.84	0.021	0.71	Significant
H6. (Op- Con-Nuer-Agr- Extr) → Assessment Centre	0.67	0.56	0.310	0.31	Not-Significant
H7. Openness → Management Development	0.23	0.69	****	0.79	Significant
H8. Conscient → Management Development	0.37	0.77	****	0.59	Significant
H9. Neuroticism → Management Development	0.45	0.56	0.146	0.31	Not-Significant
H10. Agreeablen → Management Development	0.07	0.78	****	0.61	Significant
H11. Extrovers → Management Development	0.53	0.61	****	0.83	Significant
H12. (Op - Consc- Nuer-Agr- Extro) → MD	0.36	0.15	0.42	0.02	Not-Significant

Note(s): *p*-value = 0.05

Table 5.
Mediating effects of
assessment centre
between personality
traits and management
development

Constructs	Direct effect	Indirect effect	Total effect
H13. AssC → MD	0.74 (0.46)*	0.14 (0.44)*	0.88 (0.90)*

Note(s): AssC: Assessment Centre; MD: Management Development

workplace. The outcome of the study established an insignificant connection between neuroticism and management development among the participated managers in the surveyed organisations. The regression weight indicates path coefficient = 0.56, $p = 0.146$, where the *P*-value exceeds 5% level of statistical significant proportion. It then means that employees exhibiting a high score of neuroticism personality with features of emotional imbalance, anxiety and jealousy will not be a good fit for a managerial position in telecoms organisations. The hypothesis, H10, agreeableness personality is related to management development, depicts a stronger relationship with regression weight (path coefficient = 0.78, $p < 0.05$). This implies that individuals with a high tendency of friendliness social compliance and collaborating power will be a good fit for management development in telecoms organisations. The study outcome further produced, on the 11th hypothesis, portends a powerful and significant relationship between extroversion personality and management with the strongest regression weight of path coefficient = 0.91, $p < 0.05$. The result suggests the highest level of significant relationship among all the 13 hypotheses of this study. While the joint relationship of all the personality traits dimensions, openness to experience, conscientiousness, neuroticism, agreeableness and extroversion were not jointly related to developing managerial competence among those who are ripe or who would-be managers in future in the Nigerian telecoms industry. The regression weight of the 12th hypothesis has path coefficient = 0.15 $p = 0.42$. This implies that the combined connection of all the big-five model dimensions with management development has a weak relationship of 15% and *r*-squared of 2% with a *P*-value of 42% which is higher than the standard *P*-value of 5%. The last hypothesis of this study which is the AC mediates the relationship between personality traits and management development among managers in the Nigerian telecoms industry indicates that there is a direct effect of ACs on management development at the bootstrapping method of 5,000 and an indirect effect. The standardized estimates are

given in parentheses sideways with the size of the effect. The direct effect on how the AC mediates between the five dimensions of personality and management development gives 74% with a regression weight of 0.46, while the corresponding indirect effect shows 14% with a regression weight of 0.44. The total effect on bootstrapping of 5,000 is 88% with a combined effect of 0.90.

5. Discussion of findings

The results of this study have shown a great impact on multinational telecoms organisations in Nigeria. Among all the conjectural statements of hypotheses, 10 of the hypotheses were found to be significant and 3 of them were not significant. The first hypothesis (H1), openness to experience shows a connection with the use of ACs among the managers surveyed in the telecoms organisation. The first hypothesis implies that individuals who are highly creative and intelligent, open-minded, sensitive to inner thoughts and have knacks for innovation are easily detected through the AC process among managers of the Nigerian telecoms industry. The outcome of this hypothesis was in agreement with the study of Lievens *et al.* (2008) whose result established that AC quality fosters trait action robustly especially agreeableness personality compare to the biased judgement nature of the supervisors. The second hypothesis (H2), conscientiousness personality is also related to the use of AC procedure implementation. This implies that individuals with conscientiousness personalities are influenced by their career goals in the company, exhibit a careful tendency regarding planning their future, are very cautious about their operating environment and are self-managed which are easily detected through the process of AC procedure. This result was consistent with the study of Lievens *et al.* (2009) whose study established an AC at a crossroad and transformed the workplace on trait activation of individuals who are high in their career planning and goals through the conscientiousness personality model.

The third hypothesis, neuroticism personality associated with the AC process among managers of the Nigerian telecoms industry. This implies that emotional stability, for an individual to be composed, organised and calm fosters managerial development and the AC process is the only scientific process that can bring this out in an individual in the workplace setting. This result is in line with the study of Zacher (2014) whose finding established that emotional balance predicts career adaptability and subjective career accomplishment through the use of ACs. The fourth hypothesis (H4) proposed that agreeableness personality will be associated with the AC process among managers of the Nigerian telecoms industry. This is highly significant, in which, it shows that individuals with a high degree of collaboration tend to be very accommodating, generous, tolerant, compassionate and more flexible than other identified big-five personality dimensions. More especially, they are always eager to set scores and issues by allowing a win-win situation. This result is diametrically in line with the finding of Arora and Rangnekar (2016) whose outcome indicated that an accommodating personality has a positive influence on career resilience which is easily noticeable as a result of AC evaluation. The fifth hypothesis (H5) is the second robust significant outcome of this study. It shows that extraversion, a highly assertive individual, exhibiting greater energy and being friendly and outgoing, is associated with the AC process among managers in Nigeria telecoms organisation. This implies that an extrovert can make things happen to the advantage of the organisation and this could be easily discovered from AC evaluation. This outcome takes a symmetrical position with the result of Monahan *et al.* (2012) whose findings used a laboratory experiment to evaluate personality traits and established that extraversion personality is robust in productive work behaviour especially in choosing managers and supervisors in organisations.

However, collectively all the big-five personality traits failed to be significant with laboratory evaluation of the AC process. The sixth (H6), openness to experience,

conscientiousness, neuroticism, agreeableness and extroversion jointly did not relate to the use of the AC process. It is only on an individual basis that the big-five model associates with the experiment of the AC, while collectively measuring individuals that may likely have one or two personalities at the same time in his/her way of life seems difficult to assess from the AC evaluation. This finding was in line with the study of Muller and Schwieren (2012) whose study did not find a positive influence on the constellation of the big-five personality among women surveyed. The result of the study cannot find an explanation for the underlying refusal of women to compete for managerial positions in their work roles when investigating the personality big-five model collectively. Regarding the (H7) hypothesis of this study, openness to experience individuals is related to management development in the Nigerian telecoms industry. The emphasis here is that an individual who is creative and intelligent, open-minded and sensitive to inner thoughts is a better fit for management positions in organisations. It shows that such a personality will be favourable in running the affairs and managing organisations appropriately. This result is in connection with the investigations of Nieß and Zacher (2015) and Woods *et al.* (2013) as reviewed in this study, whose finding proved that openness to experience personalities are characterized by cerebral abilities, flexibilities and mental stimulation in a chosen career and assists to involve in highly challenging tasks at the executive position of the organisations.

Another striking outcome of the study is found in hypothesis (H8), conscientiousness personality is related to management development among managers of Nigeria telecoms Industry. The study discovered that high conscientiousness fosters employees to be promoted into jobs attached to greater challenges and esteem. The implication is that conscientious personality type is likely to be disposed to realize upward job changes into managerial and professional positions. This outcome aligns with the study of Saha and Sharma (2019) whose findings established that conscientiousness is related to duty-bound and deliberation, and such personality is perceived with high job stability and an organisation with high reliability and sense of responsibility on the best fit for management positions at the top of the organisation. Hypothesis (H9) of this study demonstrated that neuroticism personality has no relationship with management development among managers of the Nigerian telecoms industry. It shows that managers in the telecoms are exhibiting a high level of emotional imbalance and they are likely to react to their emotions, they are found to be disturbed and always perturbed at the workplace and this is not a good fit for managerial positions. This result agrees with the study of Berglund *et al.* (2015) whose result indicated that emotional instability individual is not suitable for management positions in organisations.

Next (H10), the study discovered that agreeableness personality strongly and positively impacts management development among managers of Nigeria telecoms industry. This illustrates that among Nigerian telecoms managers, an agreeableness personality leads to strong collaboration towards management development. This finding takes a similar position with the studies of Jackson *et al.* (2012) and Judge *et al.* (2014), which demonstrated that an agreeable person is pleasant and naturally gets along with people at work and is exclusively considered suitable for leadership and managerial positions which needs a greater degree of teamwork and healthy cooperation. Another hypothesis (H11), extroversion personality is related to management development among managers of the Nigerian telecoms industry. The emphasis of this finding is that employees who are high in extroversion are likely lookout for opportunities for social interactions which will possibly enhance organisational productivity and performance strategy. A business opportunity is likely to be won and obtained in social interactions among big-wigs during the social relationship. This result agrees with the study of Benischke *et al.* (2019) and Harrison *et al.* (2019), as reviewed in the present study. The outcome of the study stated that individuals that possess high quality of extroversion always take up a leadership role in the workplace environment. Another outcome of this study that marked insignificant is a hypothesis (H12), openness to

experience, conscientiousness, neuroticism, agreeableness and extroversion personality did not jointly lead to management development among managers of Nigeria telecoms industry. This implies that collectively the big-five personality does not determine managerial positions and none of the managers has more than one personality among the surveyed managers in Nigerian telecom organisations. Naturally, some individuals have two or more of the big-five personality in another work environment; however, among the surveyed participants of telecoms organisations, no one has beyond one peculiar personality inclination to advance their career move. This result aligns with the study of van Aarde *et al.* (2017) whose study revealed that five-model personality cannot associate with authentic leadership and managerial position but discovered only openness to experience and extroversion were connected to leadership roles in the South African business environment. The last hypothesis (H13) shows an AC mediate big-five personality traits and management development in Nigerian telecoms organisations. The implication of this is that the AC proved to be a scientific process of fostering a better connection with management development. It shows that it is a prominent strategy with the quality of selecting senior managers, leaders and candidates for management positions in the organisation. This result is similar to the study of Turner and Nichol (2016) whose discovery established ACs enhance and provide managers with a chance to exhibit behaviours and skills that are strikingly connected to management roles.

6. Conclusion and recommendations

The study of the big-five personality model has attracted attention from organisational theorists, human development experts and researchers alike. It has provoked an understanding of how personality is important in fixing individuals in certain and peculiar job roles. This study has demonstrated the AC quality process adopted by Nigerian telecommunication organisations has enabled the organisations in choosing desirable personality traits out of the five-model personality established for managerial positions and management development. The study, in the same vein, established that the AC evaluation has not discovered collective personality type in one employee. This means that an employee has not been able to possess more than one personality for a managerial role in the study. Thus, AC evaluation has become a better strategy and mediator for selecting candidates for the position of management and senior management among the surveyed participants. Hence, the study concludes that selecting individuals for possible managerial roles should not be determined by interviews, personal references, bio-data analysis, background checks and personality inventory, alone but endeavour to use the scientific method of analysis which is AC evaluation in establishing a quality and best candidate. However, this study suggests and recommends that the management of organisations should:

- (1) Ensure that a quality and suitable evaluation process is adopted in selecting candidates and employees for task roles, this will afford the organisations to pick the best for productive performance.
- (2) Management should always ensure that personality trait is evaluated in selecting candidates for any job task aside from management development position in the organisation and not only use job analysis as the basis for selection. As it is clear that personality evaluation is essential for organisational performance to be improved in firms.
- (3) Strive to jettison political influence in the selection of employees into managerial positions; otherwise, they will end up putting the square peg into a round hole.

- (4) Management organisations should cognitively enforce emotional intelligence training schemes for all the employees in the Nigeria telecoms industry.
- (5) Individual employees also have a role to play by constantly embarking on self-effort of upskilling and re-skilling themselves for a possible managerial position in the organisation.

7. Theoretical implication

This study plays an experimental research role that unbundled the connection between personality traits, ACs and management development. Theoretically, this study contributes to TAT. The study contributes to the understanding of how traits could be activated with the aid of AC evaluation to managerial roles and related positions (Swider *et al.*, 2015). Secondly, it has shown that the selection of candidates for such higher positions should be done scientifically and not mere interviews or personality inventories in order to improve selection and promotion processes into higher positions in the workplace.

8. Practical implication

In practice, this study has shown that personality profiling is important to managing organisational behaviour to highlight a set of traits of employees suitable for peculiar roles. This study implies that personality elements constitute a vital signal of the potential development of the workforce. It helps to illuminate an individual functioning style in a certain task situation, therefore, determining both professional and managerial suitability in performing a given role.

9. Direction for future research

This study has laid credence on the nexus between big-five personality traits, AC and management development, and it has indicated how the personality trait model has enabled the firm to identify a suitable personality as the best fit. This study provides an avenue for future research that can benefit from exploring other antecedents that impact the degree of management development as an essential recipe for managing organisations for survival. Future research may investigate the gender implication among managers in the telecoms industry. Taking a cursory analysis of the nexus between managerial gender balance, AC and management development among those who are ripe for management positions in Nigeria telecoms organisations. At the same time, the study may investigate a comparative paradigm shift between the Nigerian telecoms industry and other countries in Africa, like South Africa or Ghana.

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Further reading

- Berglund, V., Johansson Sevä, I. and Strandh, M. (2016), "Subjective well-being and job satisfaction among self-employed and regular employees: does personality matter differently?", *Journal of Small Business and Entrepreneurship*, Vol. 28 No. 1, pp. 55-73.

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Work from home during COVID-19: the role of perceived hope, intrinsic spirituality and perceived supervisor support on job involvement

Work from
home during
COVID-19

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Abstract

Purpose – This study aims to explore the influence of perceived hope, intrinsic spirituality and supervisor support on job involvement at the time of work from home during the COVID-19 pandemic.

Design/methodology/approach – The sample included 263 employees working from home (WFH) for the first time in their careers due to COVID-19. The authors applied structural equation model and multigroup analysis (MGA) in SmartPLS3 to examine the hypothesized relationships, and artificial neural network (ANN) analysis to determine the relative influence of the antecedents.

Findings – Results indicate that both personal (such as perceived hope and intrinsic spirituality) and job (supervisor support) resources determine job involvement during remote working, with a moderating impact of age on the relationship between intrinsic spirituality and job involvement. The ANN analysis shows that perceived hope is the most influential determinant of job involvement when employees work from home.

Practical implications – This study suggests that when employees work remotely, organizations can generate higher job involvement by conveying a higher perception of hope and spirituality and providing supervisor support through planned hope interventions, promoting prosocial behavior and making changes in leadership style (check on instead of check-in).

Originality/value – This study extends the job demands-resources (JD-R) model with new insights into the impact of personal and job resources on job involvement during the new normal remote working era.

Keywords COVID-19, Work from home, Job involvement, Perceived hope, Intrinsic spirituality, Supervisor support

Paper type Research paper

1. Introduction

As the COVID-19 pandemic led to lockdowns in many countries, working from home (WFH) has become a new normal work method in the corporate world. A report by Ipsos in January 2021 revealed that 52% of the employees around the globe started WFH. A paradigm shift has occurred because organizations have realized that WFH is a viable work method. In this

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paper, we argue that employees WFH may feel more trusted by their employer as the working relationship is not closely monitored, and employees are allowed certain degrees of autonomy when WFH; it builds trust and may improve their productivity, performance and job involvement.

Job involvement refers to employees' perception of the overall job situation as being an important element of their life and identity (Kanungo, 1981; Lawler and Hall, 1970; Scrima *et al.*, 2014) that results in a broad spectrum of positive outcomes, including an elevated level of commitment, satisfaction and citizenship behavior (Qureshi *et al.*, 2019), and thus had long been a research focus. The widespread of COVID-19 pandemic has rapidly altered the working landscape, with most organizations except essential service providers shifting to remote working. The drastic transition to WFH compels researchers to revisit forces that may contribute to job involvement (Pattnaik and Jena, 2021). This study seeks to answer that call.

To investigate the job involvement forces when WFH, this study applied the job demands-resources (JD-R) model (Schaufeli and Bakker, 2004). The JDR model explains both motivational and health impairment pathway of workplace performance and employee well-being. The model conceptualizes relationships between job resources and job demands and their interaction, leading to either employee engagement or employee burnout. With regard to the extended JD-R model, the study conceptualizes that (1) WFH is a proxy to job demands, (2) perceived supervisor support is a proxy to job resources and (3) perceived hope and intrinsic spirituality are proxies to personal resources.

Job demands refer to the physical, psychosocial and/or organizational conditions of a job that involves sustained physical and psychosocial efforts and costs (Schaufeli and Bakker, 2004). We consider WFH as a job demand because it results in workplace isolation (Toscano and Zappalà, 2020) that subsequently elevates levels of loneliness (Wang *et al.*, 2021), and thus may affect work outcomes (Allen *et al.*, 2015).

Personal resources refer to an individual's perception of their ability to successfully control and influence their surroundings (Schaufeli and Taris, 2014). Bakker (2011) identified personal resources as a form of psychological capital, exemplified by feelings of self-efficacy, optimism, hope and resilience. These personal resources represent employees' intrinsic characteristics that affect job involvement (Shih *et al.*, 2009). We reason that individual characteristics such as perceived hope (Sunardi and Putri, 2020) and intrinsic spirituality may be more effective tools for improving positive work-related outcomes when employees work under unusual working conditions. Employees' strong sense of hope demonstrates their increased levels of autonomous motivation (Zhang and Li, 2020), and intrinsic spirituality reflects an individual's perception of their life significance (de Klerk, 2005) and guides their way of doing things (Hong *et al.*, 2015).

Job resources are the physical, psychosocial and organizational characteristics of a job that essentially minimize job demands (Schaufeli and Bakker, 2004), simultaneously increase work motivation, personal fulfillment and improvement (Hakanen *et al.*, 2006). Job resources facilitate active learning processes and enhance individual competencies in attaining work goals (Balducci *et al.*, 2011; Schaufeli *et al.*, 2009). We argue that perceived supervisor support is an effective job resource, because it helps foster employee job involvement by reducing stress (Horan *et al.*, 2018) and improving the quality of work-life (Wan and Chan, 2013). Therefore, this study addresses the following research questions:

RQ. Whether or not employees' perceived hope, intrinsic spirituality and perceived supervisor support enhance their job involvement when they work from home, and if so, what matters most?

This study advances theory and knowledge in several ways by bringing new insights and empirical evidence. Firstly, the study provides new insights into the forces that contribute to

job involvement when employees work from home; it adds a new dimension to the JD-R model (Schaufeli and Bakker, 2004) by showing how employees' personal resources (perceived hope and intrinsic spirituality) coupled with job resources (perceived supervisor support) facilitate new role expectations resulting from remote working. Secondly, the study focuses on employees' intrinsic spirituality (Pawar, 2009), an underexplored concept with regard to job involvement, and suggests that intrinsic spirituality could be more effective than that of workplace spirituality when employees work remotely, because employees lack direct supervision and face a high degree of uncertainty in such a situation. Finally, the study finds that the perceptions regarding personal and job resources substantially differ from employees aged over 30 to employees aged under 30 when they work from home.

2. Literature and development of hypotheses

2.1 Perceived hope and job involvement

Hope is "an existential human need, directed at matters of vital interest" (Krafft *et al.*, 2020, p. 4); it provides individuals with purpose, meaning and belief to constitute their psychological capital (Luthans *et al.*, 2005; Peterson and Seligman, 2004; Youssef and Luthans, 2007). It induces individuals toward goal attainment at the time of difficulties (Luthans *et al.*, 2005). Psychological capital is a set of human capacities that generate a positive attitude and help to minimize mental strain during challenging circumstances such as COVID-19 (Turluc and Candel, 2021). As an element of psychological capital, hope exemplifies an internal resource (Ng *et al.*, 2014); it can promote a positive job attitude including job involvement and contribute to positive organizational behavior (Ribeiro *et al.*, 2021) when employees face a higher degree of job uncertainty, a threat to life, poor mental health and a shortage of resources due to remote working.

Prior studies underscore the importance of hope in adverse or difficult situations, suggesting that hope outweighs an individual's knowledge and coping abilities (Fredrickson, 2013; Hong *et al.*, 2015; Peterson and Seligman, 2004; Pruyser, 1986). While a higher perceived hope contributes to job satisfaction and employee well-being (Hasson-Ohayon *et al.*, 2009), low perceived hope causes employees to experience negative emotions and limit openness and personal innovativeness. Since the COVID-19 pandemic has isolated employees from their office environment and forced them to work from home with a lot of uncertainty, we argue that perceived hope can be an effective tool to determine job involvement. Thus, we postulate the following hypothesis:

H1. Perceived hope (PH) has a significant positive effect on job involvement (JI).

2.2 Intrinsic spirituality and job involvement

Spirituality is a relational construct that indicates a wide range of values such as a pursuit for meaning and purpose in life (de Klerk, 2005; Henningsgaard and Arnau, 2008), connecting oneself with the sacred and the divine power (Hong *et al.*, 2015; Kolodinsky *et al.*, 2008; Milliman *et al.*, 2003). Intrinsic spirituality measures "the degree to which one's spirituality guides and directs one's life" (Hong *et al.*, 2015).

Prior findings suggest that spirituality positively influences job involvement by engaging employees in meaningful ways (Word, 2012). In this study, we conceptualize employees' intrinsic spirituality as a vital personal resource (Moon *et al.*, 2020) that may enable them to be resilient in adverse situations (Kim and Seidlitz, 2002). Intrinsic spirituality functions as a source of personal motivation (Hong *et al.*, 2015) and subsequently mitigates the damages of negative work experiences during difficult times (Cash and Gray, 2000). The rapid transmission of COVID-19 pandemic has affected employees physically and emotionally, and

thus intrinsic spirituality might play a vital role in promoting job involvement when people work from home. Therefore, we posited the following hypothesis:

H2. Intrinsic spirituality (IS) has a significant positive effect on job involvement

2.3 Perceived supervisor support and job involvement

Perceived supervisor support refers to the perception of the degree to which a supervisor assists employees, recognizes employee contributions and cares for employee well-being (Rhoades and Eisenberger, 2002). Past studies (Eisenberger *et al.*, 2002; Kurtessis *et al.*, 2017) demonstrate that supervisor support promotes positive employee attitudes (Ahmed *et al.*, 2014). According to the social support theory (Shumaker and Brownell, 1984), supervisors are a key source of social support; they provide rewards, protection and motivation to their employees (Phungsoonthorn and Charoensukmongkol, 2019). In particular, supervisor support plays a positive role when employees face a difficult or new work condition (Kumar and Mokashi, 2020).

During the COVID-19 pandemic, employees in many countries such as in Bangladesh worked from home for the first time in their life. Since the COVID-19 pandemic brought a sudden change in the work condition, employees in those countries had mostly been underprepared to work effectively from home due to a lack of proper physical work setting. In addition, several recent studies suggest that employees WFH suffer from severe work-life conflicts and psychological exhaustion (Palumbo, 2020). Prior literature suggests that supervisor support contributes to positive work-life balance (Kumar and Mokashi, 2020). In particular, supervisor support plays a vital role in improving work morale and employees' psychological well-being during a crisis such as COVID-19 pandemic (Cole *et al.*, 2006; Kumar and Mokashi, 2020). Supervisors help employees cope with job demands (Hu *et al.*, 2016) and connect employees with organizational values. Thus, supervisor support can improve job involvement when employees work from home. We, therefore, propose the following hypothesis:

H3. Perceived supervisor support (PSS) has a significant positive effect on job involvement

2.4 Moderating effect of age

Demographic characteristics are essential factors in the degree of job involvement (Lawler and Hall, 1970). A link between demographic factors such as age, gender, ethnicity and educational level and job involvement is evident in previous research (Rabinowitz and Hall, 1977; Sekaran and Mowday, 1981). For example, Sekaran and Mowday (1981) indicated that job involvement has a negative association with education and a positive relationship with age. Since the COVID-19 has affected older individuals more severely than their younger counter part, understanding the role of age at work when individuals work from home is necessary (Kniffin *et al.*, 2021). In this study, we investigate the moderating role of age on the effects of perceived hope, intrinsic spirituality and perceived supervisor support on job involvement. Although the pre-COVID-19 research found no evidence of age differences in hope (Feldman *et al.*, 2009), a few studies demonstrate that hope varies considerably with age; it is significantly associated with favorable outcomes when it comes to young adults or teenagers (Supervía *et al.*, 2020). Genç and Arslan (2021) reveal that young individuals have lower optimism and hope during coronavirus infection and propose that hope and optimism serve as promotional resources for minimizing the harmful effect on individual mental well-being. Similarly, we believe that young employees may require more support from their supervisor because of their lack of experiences. Therefore, we propose the following three hypotheses. The hypothesized relationships have been shown in Figure 1.

- H4. The influence of perceived hope on job involvement would be more substantial for young adults than for older adults.
- H5. The influence of perceived intrinsic spirituality on job involvement would be more substantial for young adults than for older adults.
- H6. The influence of perceived supervisor support on job involvement would be more substantial for young adults than for older adults.

3. Methods

3.1 Sample and procedure

The sample of this study consisted of working professionals who did home office for the first time in their life as a result of COVID-19 outbreak. Using an online survey in Qualtrics, a self-reported questionnaire was conveniently sent through e-mails to approximately 400 professionals. Each e-mail included a cover letter outlining the study's purpose and essential instructions. A total of 284 responses were received over a 90-day period (July–September 2020) at a response rate of 71%; 21 responses were eliminated because they were either incomplete or identified as outliers. A sample size of 263 was sufficient because over 100 samples were required for reliable PLS-SEM path modeling (Nitzl, 2018).

Respondents' demographic information analyzed with SPSS v25 is presented in Table 1, showing that 76% of the participants were male, just over 48% of them held a mid-level position, 70% had a postgraduate degree and 73% had grown up in urban communities. Approximately 44% respondents were under 30 years of age.

3.2 Measurement

All measures were derived from previous studies; some of the statements were slightly rephrased to fit into the current context. It is worth mentioning that such modifications demonstrated no validity issues while doing a pilot testing. In order to accommodate a diverse group of respondents, the questionnaire was translated from English to Bengali by a professional translator; respondents were offered a choice of language before they began the survey. Experts were consulted to determine the questionnaire's applicability. Altogether, there were 25 statements that the respondents rated on a Likert-type response key ranging from 1 to 7. Table 2 provides details about the study's measurement.

3.3 Bias concern and data normality

We applied several techniques to determine any potential method and response biases. First, as a precautionary measure, the respondents were assured of their anonymity, which enabled them to respond with greater accuracy (Uddin *et al.*, 2019). Second, Table 4 shows that the

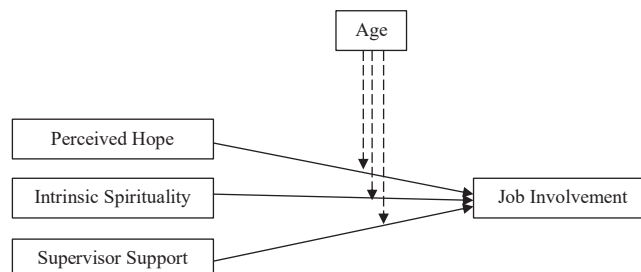


Figure 1.
Proposed research
framework

Table 1.
Respondents'
demographic
information ($n = 263$)

Variables	Category	Percent (%)
Gender	Male	76.0
	Female	24.0
Age (years)	<30	43.5
	30–34	29.5
	35–39	9.5
	≤40	17.4
Community	Urban	73.0
	Suburban	13.3
	Rural	12.9
Job position	Entry level	44.3
	Mid-level	48.1
	Top-level	7.3
Level of education	Undergraduate and others	23.9
	Postgraduate	70.5

Table 2.
Origins of constructs

Constructs	Sources	Sample item	Total items
Job involvement	Cyphert (1990)	"Even in the current pandemic, I consider my job to be very central to my existence"	5
Perceived hope	Krafft <i>et al.</i> (2019)	"In my life, hope outweighs anxiety even in the current pandemic"	6
Intrinsic spirituality	Hodge <i>et al.</i> (2015)	"Spirituality is a master motive of my life, directing every other aspect of my life"	6
Supervisor support	Eisenberger <i>et al.</i> (2002)	"My supervisor is willing to help me if I need a special favor during the current pandemic"	8

largest correlation between two variables (0.384) is lower than 0.90, indicating no response bias (Spector and Brannick, 2010). Third, Harman's single factor test shows that no single factor explains a major portion of the variance, and thus there is no concern for common method bias (Uddin *et al.*, 2019). However, Mardia's multivariate skewness ($\beta = 347.58$, $p < 0.01$) and kurtosis ($\beta = 62.718$, $p < 0.01$) imply that data are not multivariate normal. Thereby, we applied the PLS-SEM technique instead of CB-SEM.

3.4 Analytical approach

We used SPSS software (SPSS 25.0) for calculating descriptive statistics and inter-construct correlation (see Table 4), and SmartPLS3 for PLS-SEM analysis. PLS-SEM, a highly reliable statistical technique, minimizes unexplained variance (Hair *et al.*, 2017b), analyzes and interprets the outputs of a research model in two steps, evaluation of the measurement model and the structural model (Ali *et al.*, 2018). Additionally, the robustness of the structural model was evaluated. Finally, we applied artificial neural networks (ANNs) to examine the relative impact of perceived hope, intrinsic spirituality and perceived supervisor support on job involvement.

4. Results

4.1 Evaluation of the measurement model

Multiple measures of reliability and validity were used to evaluate the measurement model. As shown in Table 3, Cronbach's alpha and composite reliability scores of all variables range

between 0.713 to 0.901 and 0.811 to 0.923, respectively, demonstrating the reliability of measurement items. With few exceptions, all the outer loadings exceed the 0.700 thresholds suggested by Hair *et al.* (2021). It is suggested that outer loadings between 0.40 and 0.70 should be deleted if their elimination improves AVE values above the threshold of 0.5 (Hair *et al.*, 2019). As reported in Table 3, the AVE values of all constructs are above 0.5, indicating convergent validity (Hair *et al.*, 2019). Besides, HTMT values (see Table 4) are below 0.85, indicating the discriminant validity (Henseler *et al.*, 2015).

4.2 Evaluation of the structural model

We performed bootstrapping as the estimation method with a subsample of 5,000 to verify the hypothesized relationships. As exhibited in Table 5, results show significant positive relationships between PH and JI ($\beta = 0.213, p < 0.05$), IS and JI ($\beta = 0.163, p < 0.05$) and SS and JI ($\beta = 0.163, p < 0.05$). Therefore, H1, H2 and H3 are supported. The scores of *VIF*, R^2 , Q^2 and SRMR are used to assess the structural model. There is no evidence of multicellularity in this study as the *VIF* scores range from 1.070 to 1.228 that are substantially smaller than the suggested cut-off value of 5 (Ali *et al.*, 2018). The model explains 14.9% ($R^2 = 0.149$) variance that is sufficient (Falk and Miller, 1992). The SRMR value, an indicator of model predictive power, suggests the model predictive relevance as the SRMR value is below the limit, for example, <0.08 (Hair *et al.*, 2017a). Hair *et al.* (2019) recommend that the endogenous construct's Q^2 should be

Constructs	Items	Loadings	Cronbach's alpha	CR	AVE
Perceived hope	PH1	0.80	0.713	0.811	0.52
	PH2	0.85			
	PH3	0.67			
	PH4	0.71			
Intrinsic spirituality	IS1	0.68	0.818	0.866	0.567
	IS2	0.79			
	IS3	0.86			
	IS4	0.91			
	IS5	0.89			
	IS6	0.76			
Supervisor support	SS1	0.66	0.901	0.923	0.668
	SS2	0.65			
	SS3	0.85			
	SS4	0.74			
	SS5	0.84			
Job involvement	JI1	0.79	0.789	0.846	0.581
	JI2	0.66			
	JI3	0.78			
	JI4	0.65			

Table 3.
Factor loadings and
reliability of the
constructs

Constructs	Mean	SD	PH	IS	SS	JI
PH	5.44	0.81				
IS	5.03	1.02	0.255** HTMT = 0.387			
SS	5.49	1.02	0.384** HTMT = 0.467	0.113* HTMT = 0.167		
JI	5.20	0.95	0.316** HTMT = 0.282	0.232** HTMT = 0.256	0.257** HTMT = 0.269	

Note(s): **, * indicate significant at the 0.01 and 0.05 level, respectively (one-tailed)

Table 4.
Descriptive statistics,
intercorrelation
matrix and
discriminant validity

Hypotheses	Paths	β	p -value	LLCI (5%)	ULCI (95%)	Fit indices	Decision
H1	PH \rightarrow JI	0.213	0.001	0.112	0.333	$R^2 = 0.149$	Supported
H2	IS \rightarrow JI	0.163	0.006	0.069	0.28	$Q^2 = 0.060$	Supported
H3	SS \rightarrow JI	0.169	0.004	0.081	0.288	SRMR = 0.08	Supported

Moderating effect

		<i>Age < 30</i>		<i>Age ≥ 30</i>		<i>Diff in β</i>	<i>p-value</i>	
		β	p -value	β	p -value			
H4	PH \rightarrow JI	0.292	0.000	0.324	0.000	-0.032	0.731	Not supported
H5	IS \rightarrow JI	0.409	0.000	0.144	0.341	0.265	0.023	Supported
H6	SS \rightarrow JI	0.367	0.000	0.289	0.251	0.078	0.971	Not supported

Table 5.Structural model
evaluation and
hypothesis testing

greater than 0 to validate the model's predictive accuracy. The Q^2 value is 0.060, proving the predictive accuracy of the model.

To assess potential moderating effects of age, we performed the multigroup analysis (MGA) (Hair *et al.*, 2017a) where we categorized our respondents into two mutually exclusive groups: young adults (age < 30; 43.5%) and older adults (age \geq 30; 56.5%) (Lowry and Gaskin, 2014). We considered the respondents aged under 30 as young adults, because educated individuals usually start their career at 25–30 years and this demographic group is considered as young professional in Bangladesh. The MGA works well when the two investigated groups are relatively proportionate. As can be seen in Table 5, the difference between the young and older adults is not significant with regard to the relationships between PH and JI ($\beta = -0.032$; $p = 0.731$), and between SS and JI ($\beta = -0.078$; $p = 0.971$), while a significant difference is evident in the relationship between IS and JI ($\beta = 0.265$; $p = 0.023$). Thus, H5 is supported, and H4 and H6 are rejected.

4.3 Robustness check

To investigate endogeneity, the Kolmogorov–Smirnov test with Lilliefors correction (Sarstedt and Mooi, 2014) was initially applied on the scores of independent variables. The results allowed us to proceed with Park and Gupta's (2012) Gaussian copula approach as none of the constructs is normally distributed. All possible combinations of Gaussian copulas are included in the model, and none of them is found significant ($p > 0.05$), supporting the robustness of the structural model (Hult *et al.*, 2018).

To analyze nonlinearity, Ramsey's (1969) RESET test was applied on the latent variables (Svensson *et al.*, 2018), showing that partial regression of JI on PH, IS and SS is nonlinear ($F(6,253) = 0.923$, $p = 0.472$). Besides, the 5,000-sample bootstrap with an interaction term to capture the quadratic effects of the independent variables on JI shows that all nonlinear effects are insignificant.

To examine unobserved heterogeneity, the FIMIX procedure was applied where six segments are extracted following prior recommendations (Sarstedt *et al.*, 2017). As suggested by Sarstedt *et al.* (2017), we checked AIC3 and CAIC followed by AIC4 and BIC to find out whether any pair suggests the same number of segments. We found that only the pair of AIC4 and BIC results in the same segment solution. Therefore, heterogeneity is not observed because the metrics indicate single segment solution (Sarstedt *et al.*, 2017).

4.4 Artificial neural network (ANN) analysis

The ANN analysis was implemented using IBM's SPSS neural network module, where multilayer perceptions and sigmoid activation functions were applied for input and hidden

layers (Sharma and Sharma, 2019). In all, 90% respondents were allocated to training and 10% were allocated to testing procedures (Leong *et al.*, 2018). A tenfold cross-validation procedure obtained the root mean square error (RMSE) value (Ooi and Tan, 2016), shown in Table 6, suggesting a good model fit. In addition, sensitivity was analyzed to estimate each input neuron's predictive power, standardize and report their relative importance in percentage (Karaca *et al.*, 2019). Table 7 demonstrates that PH is the most important predictor, followed by SS and IS that have normalized importance of 85% and 79%, respectively.

5. Discussion

Remote working such as WFH during COVID-19 pandemic is a new work method for many employees across the world. As a result, how employees' job involvement can be ensured when they work from home has become a relevant research topic. Grounded on the extended JD-R model and the social support theory, this study investigated potential individual and organizational forces that may positively contribute to job involvement when individuals work from home. Our results suggest that perceived hope, intrinsic spirituality and perceived supervisor support positively influence job involvement when individuals work remotely.

As hypothesized (H1), our empirical results confirm that perceived hope has a significant positive effect on job involvement. This finding implies that the higher the employees perceive hope, the higher the degree to which they psychologically identify themselves with their job and the lower their personal vulnerability that negatively affects work engagement (Schaufeli *et al.*, 2019). This result aligns with earlier evidence that hope positively impacts employees' work behavior (Youssef and Luthans, 2007) and job performance (Peterson *et al.*, 2009). Our finding is also in line with Fredrickson (2013) and Pruyser (1986) who suggest that perceived hope matters when individuals are presented with difficult conditions and do not believe that they are capable of dealing with them. Since employees were moved from their office to home due to unwanted threat of COVID-19 pandemic, employees experienced not only a shortage in resources necessary to perform job but also psychosocial traumas. Our finding suggests that perceived hope can be an effective tool for enhancing employees' job involvement during difficult times by reducing psychosocial problems.

N	Training		N	Testing		Total sample
	SSE	RMSE		SSE	RMSE	
236	99.907	0.651	27	10.213	0.615	263
239	102.307	0.654	24	8.147	0.583	263
238	103.686	0.660	25	16.290	0.807	263
232	98.601	0.652	31	14.982	0.695	263
230	101.32	0.664	33	10.344	0.560	263
236	102.276	0.658	27	13.785	0.715	263
234	104.931	0.670	29	9.689	0.578	263
238	104.759	0.663	25	4.169	0.408	263
235	101.752	0.658	28	8.221	0.542	263
236	103.605	0.663	27	8.390	0.557	263
	Mean	0.659		Mean	0.606	
	SD	0.005589		SD	0.104544	

Note(s): SSE = Sum square of errors, RMSE = root mean square of errors, *N* = sample size

Table 6.
RMSE values

Table 7.
Sensitivity analysis

Neural network (NN)	PH	SS	IS
NN (i)	89.75%	100.00%	78.94%
NN (ii)	100.00%	88.28%	86.61%
NN (iii)	100.00%	85.40%	46.59%
NN (iv)	78.26%	100.00%	91.76%
NN (v)	100.00%	48.80%	42.82%
NN (vi)	100.00%	88.34%	76.50%
NN (vii)	57.20%	74.54%	100.00%
NN (viii)	88.02%	100.00%	59.27%
NN (ix)	100.00%	40.25%	40.05%
NN (x)	100.00%	52.58%	92.93%
Average importance	0.91	0.78	0.72
Normalize importance	100%	85%	78%
Rank	1	2	3

The result that intrinsic spirituality is positively related to job involvement when individuals work from home (H2) provides new insights, supporting Hong *et al.*'s (2015) proposition that intrinsic spirituality functions as a personal resource and triggers job involvement. However, the result contradicts with Kolodinsky *et al.* (2008) who advocate that personal spirituality has no influence on job involvement. We argue that employees with high intrinsic spirituality tend to show a stronger attachment to their job even when they work remotely since their inherent spirituality influences them to work in a way they are likely to work and interact in their actual physical workplaces (Word, 2012).

The outcome also unveils a significant positive relationship between perceived supervisor support and job involvement when individuals work from home (H3). This result is somewhat consistent with prior studies which suggest that job resources make employees capable of investing their energies into and identifying with their work (Gorgievski and Hobfoll, 2008; Hobfoll, 1989). Remote working during COVID-19 can be stressful for employees for several reasons: first, they work under serious health-related threat (Godinic *et al.*, 2020); second, they lack physical and intellectual resources to work effectively and efficiently. We advocate that job resources such as supervisor support can be particularly effective in increasing employees' morale at difficult times such as when they work from home, because supervisor support reduces employees' stress (Steinhardt *et al.* (2003) and improves job involvement (Charoensukmongkol and Phungsoonthorn, 2021).

The findings further suggest that age does not moderate the effects of perceived hope and perceived supervisor support on job involvement. One explanation may be that WFH during the COVID-19 pandemic is a forced choice for employees of all ages where they encounter similar work conditions such as uncertainty, social distancing and workplace isolation (Kumar *et al.*, 2021; Wang *et al.*, 2021). Therefore, it is not surprising that employees of all age remain hopeful and expect support from their supervisor. Additionally, the moderating effect of age on the relationship between intrinsic spirituality and job involvement is found significant. The result underscores that younger employees demonstrate a higher degree of intrinsic spirituality compared to the older employee. An explanation may be because of the uncertainty caused by the COVID-19 pandemic and the adoption of new work practice such as WFH, younger employees tend to be more resilient and adaptive than older employees.

6. Theoretical and practical contributions

The study advances theory and knowledge in multiple ways by offering new empirical insights. First, we offer fresh insights into the antecedents promoting job involvement at

times when employees work from home. Second, the study adds new dimensions to the JD-R model (Schaufeli and Bakker, 2004); it empirically establishes perceived hope and intrinsic spirituality as important personal resources and perceived supervisor support as an organizational resource to facilitate new role expectations resulting from remote working. We also find empirical evidence for the social support theory that perceived supervisor support has a positive influence on job involvement. Third, the extant literature lacks understanding of how intrinsic spirituality relates to job involvement at difficult times. In this study, we contribute to this gap by confirming that intrinsic spirituality contributes to developing work attitudes. Contrary to the extant literature (Kolodinsky *et al.*, 2008, Word, 2012), we find that intrinsic spirituality matters and contributes positively to job involvement when employees work remotely. We argue that changing working condition may reverse the previously reported relationship between individual spirituality and attachment with a job.

Since employees face higher perceived uncertainty during COVID-19 (Charoensukmongkol and Phungsoonthorn, 2021), we suggest organizations to take practical measures to increase employees' job involvement when they work from home. We advocate that organizations can devise immediate and long-term strategies to foster hope and spirituality, and provide supervisor support for enhancing job involvement. We suggest that planned hope interventions such as psychological training and development of positive events may be beneficial. Reducing the fear of losing job and uncertainty concerning financial rewards could be another way to boost employees' hope and optimism. In addition, physical and mental support from supervisors such as activating prosocial behaviors and providing sufficient technical support to efficiently work from home could be effective in increasing employees' job involvement. A shift in the supervisory style that emphasizes people and relationships over tasks and results (check on instead of check-in) may also be crucial in the new normal work context.

7. Limitations and scope of future research

Although we offer fresh perspectives to the theory, this study has several limitations and identifies scopes for further research. In this study, we investigated potential antecedents of job involvement when employees work from home. We advocate that there could be possible indirect interaction effects. For example, Hong *et al.* (2015) posited that spirituality fosters hope; we believe that this proposition may be appropriate to explore in the context of remote working during the current COVID-19 pandemic. Future research may also focus on longitudinal study capturing both employee and managerial perspectives; they may also look to explore other potential antecedents of job involvement when employees work from home.

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Anchoring on dynamic auditing capabilities to manage small and medium audit practices in a Covid-19-induced turbulent business environment

Dynamic
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capabilities

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Abstract

Purpose – The purpose of the study is to examine how small and medium audit practices (SMPs) in emerging economies build and anchor on dynamic auditing capability to operate in a turbulent business environment occasioned by the Covid-19 pandemic.

Design/methodology/approach – The study adopts an exploratory qualitative methodology using qualitative data collected with the aid of an open-ended instrument. With the help of a qualitative data analysis software QSR NVivo9, data were analyzed following Gioia's methodology with a four-stage coding process that combines both a deductive and an inductive approach.

Findings – The findings of the study show that to manage operations during the Covid-19 pandemic, SMPs developed and anchored on dynamic auditing capabilities. Specifically, the findings show that this required transformation of existing operational capabilities, shiftiness, flexibility and innovativeness of the SMPs as well as leveraging networking and adaptive sub-capabilities.

Originality/value – The study produces a pioneer result of how to develop and anchor on the dynamic auditing capability by the SMP subsector of the audit industry to continue operations in a turbulent business environment the magnitude of the Covid-19 pandemic.

Keywords Dynamic auditing capabilities, Small and medium audit practices, Turbulent business environment, Covid-19 pandemic, Uganda

Paper type Research paper

1. Introduction

A turbulent business environment is a confounding and uncertain operating environment where management has no influence or control over factors causing the uncertainty. Such environment can be triggered by either a natural or man-made crisis, resulting into significant economic and human life disruptions across industries (CRED, 2020). For the audit industry, in addition to the challenges occasioned by natural disasters, man-made crises such as seen from the recent global financial crisis (Sikka, 2009), terrorist attacks (Moser, 2019) and severe political and economic crisis (Mangena *et al.*, 2012) disrupt demand for and methods of delivering audits, and raise questions on the value of audits. The turbulent business environment created by the ongoing Covid-19 pandemic has put to test the capabilities of firms of all sizes and challenged known business assumptions and rules of operation.



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It is still uncertain what will be the final economic and human effects once the pandemic is over.

For the audit industry, the novel “Covid-19 pandemic business environment” emerged at a prime time when many entities were in the process of closing their year ends with attendant year-end audits in progress. And, it is predicted to be the toughest challenge for auditors and their clients since the 2007–2008 global financial crisis (Albitar *et al.*, 2021). Its ultimate impact on auditors and audit quality in view of its effect on audit fees, going concern assessments, audit human capital, audit personnel salaries and audit effort is yet to be fully appreciated. Despite the challenges, regulators still require auditors to follow auditing standards. Although the International Auditing and Assurance Standards Board: IAASB (2020) outlines the performance requirements for obtaining reasonable assurance that the financial statements are free from material misstatements, it does not set specific guidance on how auditors might obtain that assurance in a fast-changing environment. Small and medium audit practices (SMPs) have been exceptionally hit during the Covid-19 pandemic, yet they play a unique role globally. SMPs service an extremely significant segment of the global economy – the small and medium-sized entities (SMEs). More than 90% of the enterprises across the world are SMEs, accounting for approximately 60% of private sector employment and contributing significantly to countries’ gross domestic product (IFAC, 2020). In emerging economies, SMPs are the major source of advice and support to small and medium enterprises (SMEs) who form the bulk of enterprises (Kaawaase *et al.*, 2020), yet it is not fully known how they are withstanding the Covid-19 pandemic.

The dynamic capabilities (DCs) theory is fronted as a theory that can provide explanations of firms’ continuation with operations in a fast-changing environment. This is because DCs are a firm’s ability to integrate, build and reconfigure internal and external competences to address rapidly changing environments (Teece *et al.*, 1997). In situations where firms are facing a fast rate of change and unpredictable events, it is likely that their operational capabilities may rapidly be eroded (Eisenhardt and Martin, 2000). To survive, enterprises must build the capability to adapt to environmental changes according to the continually changing internal and external environment (Ma *et al.*, 2021). This calls for unique DCs to stay afloat, because such capabilities can generate and modify operational routines and practices of a firm (Zollo and Winter, 2002), thereby leading to organizational survival (Shah *et al.*, 2019).

Since Teece *et al.* (1997) extensive research has shown, the value of DCs in firm competitive performance and survival in turbulent times (see Bitencourt *et al.*, 2020; Fainshmidt *et al.*, 2016). International retailers with DCs were found to cope better with high-speed changing legal environment in China (Cao, 2011); SMEs possessing DCs are more resilient to environmental turbulences (Shah *et al.*, 2019) and achieve higher performance (Orobia *et al.*, 2020), while multiplicity of DCs was found to be necessary in volatile, uncertain, complex and ambiguous environments in India (Pandit *et al.*, 2018). However what DCs are and how they affect performance is still an open question up for examination, more so in turbulent environments (Helfat *et al.*, 2007). And, calls are made for the DC theoretical arguments to be complemented by more country- and industry-specific empirical studies (Døving and Gooderham, 2008; Aimilia *et al.*, 2011), moreover using qualitative methods (Easterby-Smith *et al.*, 2009). It is expected that this will provide more insights based on the different settings and conditions. Studies underpinned by the DC theory in accounting and auditing literature in developing countries are incipient. For example, Kaawaase *et al.* (2020) document results that show the importance of DCs in the performance of SMPs through professionalism. Orobia *et al.* (2020) indicate that DCs, through managerial competence, lead to a positive change in the performance of SMEs. Omeke *et al.* (2021) post results that show that DCs are vital in promoting the growth of financial cooperative enterprises. All the sprouting studies continue to call for further research and have ignored the disrupting effects of a turbulence in

the operating environment of firms in emerging economies. To answer the calls and fill the void, the current study considers the Covid-19 pandemic as an opportunity for a DC underpinned study in the audit industry, specifically the SMPs from an emerging economy. The study adopts an exploratory qualitative methodology with an open-ended question survey of 213 SMPs registered in Uganda (ICPAU, 2020a) to provide initial evidence of how such firms develop and leverage on dynamic auditing capabilities in a turbulent business environment within an emerging economy.

The study has important implications to the academia, society and the policy makers. First, the study adds to the body of existing literature on the importance of DCs in explaining firm survival and growth. Second, the study alerts managing partners, members of the accounting profession, government and professional accountancy bodies on how audit firms can integrate resources to ensure survival. Lastly, the study illuminates the important DCs for the SMPs in a turbulent environment.

The rest of the paper is organized as follows. The next section is literature review providing the study setting, a theoretical framework and a review of existing empirical literature forming a basis of our research question. Section 3 provides the methodology, while Section 4 provides the findings of the study that are discussed under Section 5. The final section provides conclusions and implications of the study.

2. Literature review

2.1 Study setting

Uganda provides an interesting setting for a study on DCs and SMPs. SMPs are the main providers of audit and advisory services to SMEs in Uganda. The SMEs are spread across all sectors, accounting for 49% of service sector, 33% in commerce and trade, 10% in manufacturing and 8% in other fields and contribute 20% of the gross domestic product (Ojiambo, 2016). Of the 223 audit firms licensed in Uganda, the majority (213) are SMPs. The International Big 4 audit firms – *PriceWaterhouseCoopers*; *Ernst & Young*; *Deloitte & Touché* and *KPMG*, as well as next-tier international network firms (*BDO* and *Grant Thornton*) also have offices in the country (The ICPAU, 2020a). The audit profession is self-regulated under the Accountants Act (2013), by the Institute of Certified Public Accountants of Uganda (ICPAU). The country adopted International Accounting Standards and International Standards on Auditing in 1998 (ICPAU, 2020b). The profession is still nascent, and anecdotal evidence points to operational challenges of many member firms of the institute (ICPAU, 2020c).

2.2 The pre-covid status of small and medium audit practices

Pre-Covid-19, SMPs in Uganda were already faced with a number challenges impacting on their performance, including inability to keep up to date with regulations and standards, technological developments, staff constraints and inability to retain clients (Kaawaase *et al.*, 2020; Otete, 2018). Empirical evidence indicates that the annual revenue for a majority of SMPs (92%) prior to Covid-19 was less than US\$1m, with an average number of clients billed per SMP of below 60 (Otete, 2021). The register for accounting practicing firms shows that even before the onset of the Covid-19 pandemic, specifically for the period 2012–2016, an average of 5% of SMPs dropped out of the practice (ICPAU, 2016). Further, although the advantages of automating operations are clear, SMPs in Uganda and within the East African region are reported to be slow with uptake and adoption of ICT in particular audit software. This is attributed to the high associated costs (Otete, 2020; Katamba *et al.*, 2017). It remains a valid question how SMPs are able to withstand such challenges and even continue operations even in a Covid-19-induced turbulence.

2.3 Theoretical framework

Ability to perpetuate operations by firms of all sizes can be explained by both resource-based view (RBV) and DC theories. RBV explains a need for firms to have both tangible and intangible resources so as to continue operations. And that, such resources should be peculiar, rare, heterogeneously present and inimitable to drive performance (Barney, 1991). However, RBV has been criticized as too static and may not be able to explain performance of firms during a turbulent environment (Williamson, 1999). Teece *et al.* (1997) introduced the DC concept as an extension of RBV to focus on how firms could maneuver the turbulent and dynamic environments and stay afloat.

DCs enable organizations to integrate, build and reconfigure their resources and competencies and, therefore, maintain performance in the face of changing business environments (Teece *et al.*, 1997). DCs create capacity for an organization to purposefully create, extend or modify its resource base (Helfat *et al.* (2007) in such environment. Firms need both operational/ordinary and DCs to perform a particular activity or function (Newey and Zahra, 2009). Operational capabilities help a firm to perform basic functional activities and to ensure day-to-day operational efficiency, DCs on the other hand help to transform and reconfigure operational capabilities by enabling the creation, extension and modification of operational resources (Teece *et al.*, 1997; Zollo and Winter, 2002; Pisano and Teece, 2007).

DCs as a high-order construct have sub-capabilities that have been identified over time (Table 1) and could further be sub-grouped into internally focused (within the entity) competencies and externally focused competences (Døving and Gooderham, 2008).

2.4 Building dynamic capabilities

DCs have to be developed before they can support an entity sail through a turbulent environment. Zollo and Winter (2002) indicate that this requires a learning process that involves accumulation of experience, articulation of knowledge and the codification of knowledge through a process of integration, reconfiguration, acquisition and release of resources. Teece (2007) guides that the process of developing DCs requires (1) detecting and shaping opportunities and threats; (2) using capabilities based on the choice of product architecture and business models, outlining organizational boundaries, defining decision-making rules and building employee loyalty; and (3) maintaining, strengthening, integrating, protecting and, if necessary, reconfiguring intangible resources. Cyfert *et al.* (2021) extend these studies and empirically show that the five components interact to develop DCs. These components include adaptation (whose manifests include transformation of business model, ensuring flexibility of the organizational structure, managing organization identity); searching for opportunities (manifested by awareness of changes in environment, ability to create new ideas, ability to analyze the environment so as to meet customer needs); configuration and reconfiguration (indicated by implementing new technologies, acquiring and creating resources and capabilities, integrating resources, innovation and disposing/releasing redundant or unnecessary resources); coordination (manifested by building employee engagement, managing strategic alliances, building stakeholder reality, creating consistent decision-making rules); and knowledge management (encouraging innovation and experimentation, acquiring/learning new knowledge, transferring new knowledge within the organization, allocating and storing knowledge). It is these elements that combine to positively influence economic activity of an enterprise.

The impact of the ongoing Covid-19 pandemic on auditing and audit firms is not yet fully known. It is, however, reported to be impacting audit fees payable to audit firms, ability of audit firms to assess going concern of audit clients, availability of audit human capital and ability to meet audit personnel salaries (Albitar *et al.*, 2021). Emerging studies, for example Kend and Nguyen (2022) show that a small proportion (3% of total audit procedures)

Type and meaning of sub-DCs	Manifests of the capability	Authors
Adaptive	<ul style="list-style-type: none"> Identifying emerging opportunities Capitalizing on the opportunities Flexibility of the firm's resources Firm's own flexibility in applying resources 	Sanchez (1995), Wang and Ahmed (2007), Cyfert <i>et al.</i> (2021)
Absorptive	<ul style="list-style-type: none"> Transforming the business model Recognizing value in new external information Assimilating new external information Taking advantage of the new external information 	Zahra and George (2002), Wang and Ahmed (2007), Cohen and Levinthal (1990)
Innovative	<ul style="list-style-type: none"> Exhibiting innovative behavior Practicing innovative behavior Implementing innovative behavior Exhibiting innovative processes Practicing innovative processes Implementing innovative processes 	Wang and Ahmed (2004), Lazonick and Prencipe (2005), Figueiredo and Piana (2018), Jakhar <i>et al.</i> (2020)
Improvisational	<ul style="list-style-type: none"> Spontaneously reacting to unfolding environment Reconfiguring resources in real time as environment unfolds Building new operational capabilities to match environment 	El Sawy <i>et al.</i> (2008), Cyfert <i>et al.</i> (2021)
Networking	<ul style="list-style-type: none"> Developing relationships with other entities Exploiting the relationships to access resources 	Walter <i>et al.</i> (2006), Parida <i>et al.</i> (2016)
Sensing	<ul style="list-style-type: none"> Exploiting the relationships to meet demands of the business environment Identifying opportunities in customer needs Assessing opportunities to meet customer needs Identifying threats to customer needs Assessing threats to customer needs 	Teece <i>et al.</i> (2016), Teece (2017)
Seizing	<ul style="list-style-type: none"> Technological opportunities/threats to meet customer needs Mobilizing needed resources Capturing value from resources 	Teece <i>et al.</i> (2016), Teece (2017)
Transforming/Shifting	<ul style="list-style-type: none"> Quick implementation of new approaches Quick implementation of other essential changes to the strength existing DCs Continuous renewal of exiting capabilities Continuous aligning of existing capabilities Undertaking necessary investments to match environment 	Teece <i>et al.</i> (2016), Teece (2017)
Source(s): Literature review		

Table 1.
Types of dynamic capabilities

undertaken during the year 2020 were designed to address audit risks associated with the Covid-19 pandemic, but smaller practitioners reported much less audit procedures related to Covid-19 audit risks than most larger audit firms. Specifically, in a Covid-19-induced turbulence, Dovbischuk (2022) posts results that show that it is firms with greater levels of capacity to innovate that will achieve significantly different dynamic resilience.

2.5 Dynamic capabilities and a turbulent environment

The focus of this study is on how SMPs develop and anchor on dynamic auditing capabilities to navigate and operate in a turbulent business environment occasioned by the Covid-19 pandemic. A turbulent environment has a lot of unpredictability arising from unexpected and sudden changes in both an external environment and internal business environment (El Sawy *et al.*, 2008). This affects both supplies of resources and customers' needs and behaviors. There is evidence confirming the importance of DCs to meet challenges of both competitive and turbulent business environments. In the USA, an early study by Tripsas (1997) shows that only firms in the typesetting industry with DCs were able to survive discontinuous technological change by developing the required technological capability fitting shifting environmental conditions. In Taiwan, Wu (2006) posts results showing that resources influence performance of firm through exercising DC.

On the other hand, if resources are tested in direct way with performance, the results are not supported. Wang and Ahmed (2007) show that the more a firm demonstrates its absorptive capability, the more it exhibits DCs. Døving and Gooderham (2008) document results that show DCs have a distinct impact on the scope of services for Norwegian small firm accountancy practices. Bitencourt *et al.* (2020) provide meta-analysis results showing that DCs mediate the relationship between resources, knowledge management and learning, alliances/networks, environment dynamism and firm performance. Kaawaase *et al.* (2020) document results that show the boosting nature of DCs in the performance of SMPs through professionalism. DCs through managerial competence lead to a positive change in the performance of SMEs (Orobica *et al.*, 2020). Omeke *et al.* (2021) post results that show DCs are vital in promoting the growth of financial cooperative enterprises, especially with the presence of networks.

In view of the above, it is proposed that developing and anchoring on unique auditing DCs could provide the answers to the observed heterogeneity of operation of SMPs during the Covid-19 pandemic-induced turbulent environment. To examine this proposition, the current study put the following specific question to partners of SMPs in Uganda:

RQ. What has enabled you to continue with (prevented you from continuing with) audit work during Covid-19 period?

3. Methodology

To answer the research question, the study adopts an exploratory qualitative methodology with an e-mailed open-ended question to allow cross-case comparisons. Qualitative inquiry has been widely used in DC studies across industries (Koch, 2010; Narayanan *et al.*, 2009; Newey and Zahra, 2009; Bruni and Verona, 2009). Specifically, the open-ended survey responses methodology is used in organizational research to gather new information about an experience and to explore different dimensions of respondents' experiences (Sproull, 1988). In comparison to interviews or focus group discussions, the methodology offers greater anonymity to respondents and often elicits more honest responses (Erickson and Kaplan, 2000).

3.1 Data collection and sampling

3.1.1 Data collection instrument. The preamble of the data collection instrument introduces the study and assures respondents of anonymity and confidentiality. It also provides phone

and e-mail contacts of the researchers for ease of contact by the respondents. Section 1 collects data about the respondent's profile: gender, age, academic and professional qualifications, work experience and position in the audit firm. Section 2 collects data on the profile of the audit firm: number of partners in the firm, firm age, firm size and number of ongoing audits, and Section 3 collects data from the open-ended question.

3.1.2 Sampling and data collection. The study adopted a three criterion-based sample selection method (LeCompte *et al.*, 1993) where by a potential sample of 213 SMPs was identified from a population of 223 registered and authorized audit firms in Uganda (The ICPAU, 2020a). First, the audit firm is a member firm of the Institute of Certified Public Accountants of Uganda and listed as such. Second, the firm has a valid license for the year 2020, and the third criterion, the firm is a typical SMP with no more than two partners and not a member in an international network of audit firms.

The data collection instrument was e-mailed to partners of the selected 213 SMPs on April 21, 2020. Partners in small audit firms are responsible for management of the firm and ultimately take all decisions affecting the firm. Moreover, developing new concepts within organizations requires an approach that captures meaning from people living the experience of interest (Gioia *et al.*, 2012). Follow-up and clarification phone calls were made; however, by the time of easing the second lockdown (July 2021), only 15 firms had responded. Responses were subjected to preliminary review as they trickled-in, and it was noted that no new ideas were emerging from SMPs by the 21st response. It was, therefore, concluded that the saturation cutoff point had been realized (Miles and Huberman, 1994) by the 21st response, thereby limiting the final sample of the study to 21 respondents.

The approach of probing for new ideas up to a point when nothing new is being elicited is widely accepted and applied in qualitative studies of small businesses (e.g. see Orobia *et al.*, 2013; Halabi *et al.*, 2010). Further, the response rate for our study is typical for online surveys (Amany and Krishna, 2017; Yan and Fan, 2010), but specifically, being a qualitative inquiry meets the recommended threshold for a small sample of at least 12 responses, provided a saturation point is reached (Vasileiou *et al.*, 2018; Patton, 1990). The study, therefore, fulfills the sample size criteria suggested for exploratory research (McCracken, 1988).

Table 2 provides details of the respondents. In total, 81% were male, while 19% were female, meaning that there are more male SMP partners than females. With exception of four respondents, all were above 40 years of age. For education level, diploma holders are 5%, bachelor's degree (24%), masters' degree (61%) and 10% have a third degree (PhD). All respondents possess an additional professional qualification in accounting, with CPA as the most dominant (71%), the rest (29%) hold the ACCA qualification. Majority (76%) of the respondents have worked for at least 11 years. All respondents (100%) are at a level of a partner in the audit firm. Collectively, these results suggest that respondents were highly knowledgeable and experienced in auditing and hence provided reliable and useful responses.

Table 3 provides details of the respondents' audit firms. All are typical small and medium-sized audit firms of not more than two partners, 90% of the firms have less than 15 members of staff. However, majority (76%) have been in existence for more than ten years, and 62% had ongoing audit work during the Covid-19 pandemic compared to 38% that could not continue with audits. The profile of the respondents and their respective firms provides support to the assertion that appropriate and relevant data were collected for this study.

3.2 Data analysis and validity

Data from the open-ended question was saved in a Word file per respondent. A qualitative data analysis software QSR NVivo9 was utilized. We follow prior qualitative studies on survival of small businesses and the Covid-19 pandemic (e.g. Rashid and Ratten, 2021) and utilize the Gioia methodology of data analysis (Gioia *et al.*, 2012). Following this methodology

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Table 2.
Characteristics of the
21 respondents from
study audit firms

Category	Item	(100%)
Gender	Male	17 (81%)
	Female	4 (19%)
Age of the respondent	30–39 years	4 (19%)
	40–49 years	9 (43%)
	50–59 years	6 (28%)
	60 and above	2 (10%)
Highest academic qualification	Diploma	1 (5%)
	Bachelor's degree	5 (24%)
	Master's degree	13 (61%)
	PhD	2 (10%)
Professional qualification	CPA	15 (71%)
	ACCA	6 (29%)
	CIMA	0 (0%)
	Others	0 (0%)
Work experience	5 years and below	1 (5%)
	6–10 years	4 (19%)
	11–15 years	5 (24%)
	16–20 years	4 (19%)
	20 years and above	7 (33%)
Position in the audit firm	Auditor	0 (0%)
	Senior auditor	0 (0%)
	Audit manager	0 (0%)
	Partner	21 (100%)
Source(s): Primary data		

Table 3.
Characteristics of the
21 audit firms in
the study

Category	Item	(100%)
No. of partners in the firm	1 partner	9 (43%)
	2 partners	12 (57%)
	3 and above	0 (0%)
Age of the audit firm	5 years and below	1 (5%)
	6–10 years	4 (19%)
	11–15 years	5 (24%)
	More than 15 years	11 (52%)
Firm size (no. of staff) (exclusive of partners)	1 to 5 staff	5 (24%)
	6 to 10 staff	12 (56%)
	11 to 15 staff	2 (10%)
	16 to 20 staff	1 (5%)
	21 and above	1 (5%)
No. of ongoing audits	None	8 (38%)
	1 to 5 audits	10 (48%)
	6 to 10 audits	2 (9%)
	Above 11 audits	1 (5%)
Source(s): Primary data		

and Miles and Huberman's (1994) steps for qualitative data analysis, we deploy a four-stage coding methodology that combines deductive and inductive approaches underpinned by a *priori* understanding of DCs and their manifests (Table 1).

In the first stage of coding, we discover the relevant concepts from empirical data. At this stage, the "raw" concepts identified were broad as they emerged from the SMP's responses.

In the second stage of coding, the first-stage concepts were narrowed, specified and grouped into what we referred to as the second-order themes. In the third stage, the emerging second-order themes were further grouped to culminate into the construct of interest – *dynamic auditing capability* in the fourth and final stage, as presented in Figure 1.

Given that data were sourced from a single informant (the partner of the SMP), it was potentially susceptible to common methods bias. To minimize the problem of bias, we followed the guidance offered by Podsakoff *et al.* (2003) and assured respondents of confidentiality and anonymity. In addition, to increase validity and reliability of the findings, the coded data were subjected to a second review by an independent but knowledgeable party for agreement of the ascribed themes from each respondent, in line with guidance for inter-rater reliability by Stake (2000).

4. Findings

The results in Table 3 show that majority of SMPs (62%) had ongoing audit assignments compared to 38% that did not have any audit assignments. This result suggests that majority of the SMPs in the study were able to continue with operations during the Covid-19 pandemic. This finding resonates with Otete (2021) who indicates that despite the pandemic, SMPs within East Africa, who are able to operate during the pandemic, have registered an annual revenue increase of 28%.

The findings in Figure 1 show that continuing with operations during the Covid-19 pandemic was possible by SMPs developing and anchoring on dynamic auditing capability. Specifically, the findings show that SMPs developed this capability by transforming existing operational capabilities, shiftiness and innovativeness. And that while the DC theory advances various sub-DCs, developing auditing capabilities requires more of transformation/shifting, flexibility, networking, innovativeness and adaptive sub-capabilities. This supports the proposition that in times of turbulence, SMPs will need more than one DC to withstand the storm. This is because when DCs act jointly and along with operational capabilities, successful innovations to survive a volatile and complex environment will be implemented (Pandit *et al.*, 2018). This requires a firm to focus both internally (on existing resources) and externally toward adapting to the fast-changing environment.

4.1 Transformation of operational capabilities

The findings reveal three core operational resources that SMPs leveraged and transformed into an auditing DC: Information Communication Technology (ICT) (hardware and software), human resources and social capital. This was done through a number of ways and required quick actions by the SMPs to implement the necessary changes to address the unfolding circumstances.

4.1.1 Information Communication Technology hardware and soft ware. SMPs tapped into existing ICT hardware and software capacity but also were able to identify and utilize untapped value in such existing resources as attested to by the following respondents:

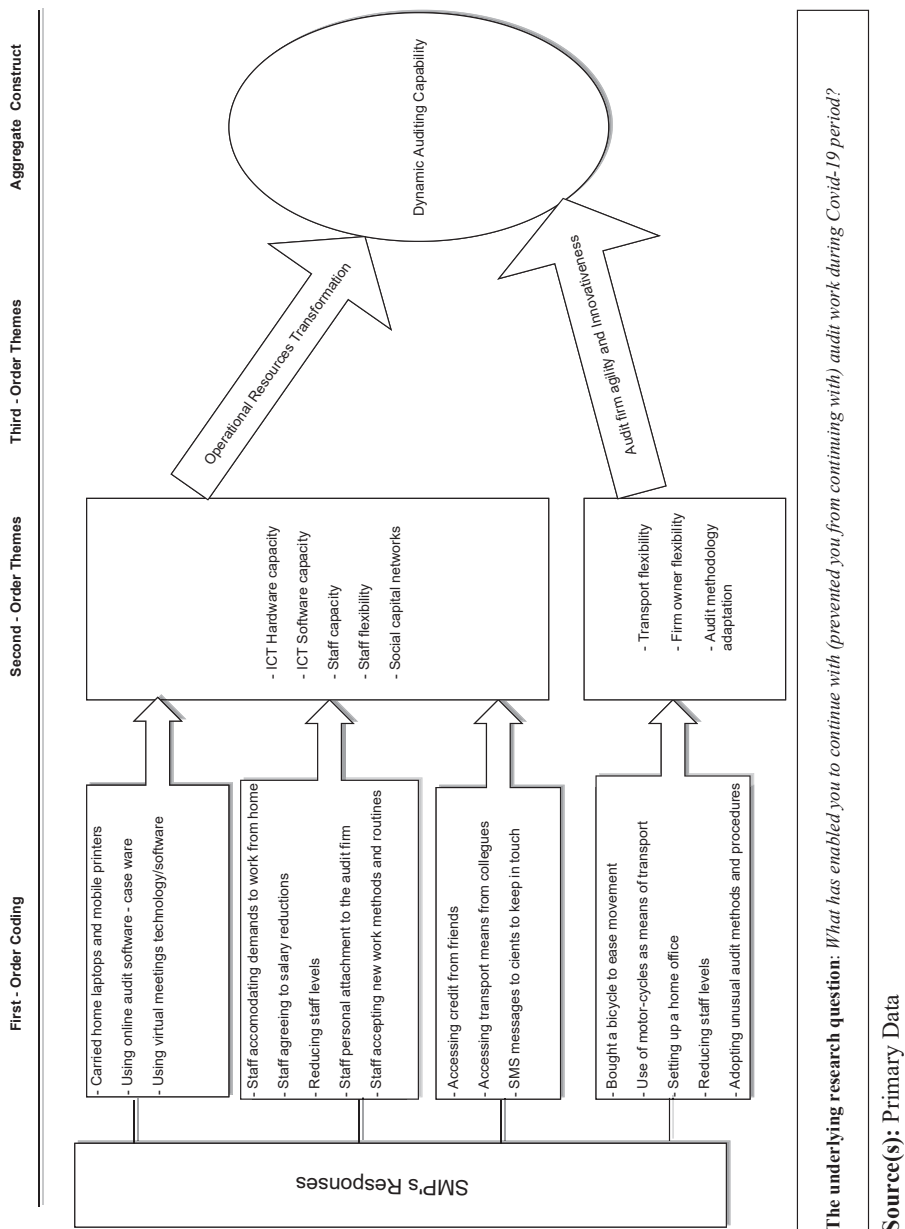
[...] we carried home the necessary ICT hardware like laptops and mobile printers that has helped us a lot. Covid-19 has actually enabled us to realize that we were not fully utilizing our equipment [...]
[...] we had not explored tools like Zoom we are now using (*Respondent 1*).

[...] luckily we use an online software–Case ware cloud–that allows us to work remotely on many aspects [...] Working online has helped especially on payrolls and accounting work (*Respondent 6*).

I have found the mobile phone to be handy in these times and used a lot of Zoom meetings in some cases and increased use of Google drive to access scanned audit evidence (*Respondent 12*).

At first using digital meeting tools like Skype, Zoom and Teams was a challenge as staff had not been exposed to them, with continued guidance it became easy and we could conduct some exit meetings

Figure 1.
Data analysis and
structure



with clients and also discuss audit evidence subject to extra confirmation as necessary after lockdown (*Respondent 18*).

4.1.2 Staff capacity and flexibility. Staff are an important and critical resource and ought to be on board, flexible and buy into the suggested ways if an SMP is to survive a business turbulence. Sample responses below attest to this finding:

Staff agreed to a salary reduction, we are only able to pay about 50% of their normal salary [...] has helped the firm to survive within the available cash flows [...] (*Respondent 9*).

We are a “family” and staff are part of that family [...] We took staff safety as a critical factor, we briefed and prepared them for the lockdown implications and availed them with some sanitizers and safety information about Covid-19 and other resources to face the challenge. (*Respondent 13*).

[...] [Staff] readily accepted the new normal and work methods. It was interesting to see them willing to use their homes to do office work [...] (*Respondent 19*).

4.1.3 Social capital networks. Existing social networks and relationships were revealed to be very useful to meet the demands of a changing environment, provided one is able to tap into them as pointed out by the following respondents:

[...] borrowed funds from a colleague to meet some of our financial needs (*Respondent 1*).

We were able to access us a movement permit using connections of one of our clients under audit [...] With this movement sticker our office car could move, station key staff and even deliver reports for signing [...] (*Respondent 20*).

[...] Having our pool van helped with the transportation of core staff during the time when public transport was not allowed ... (*Respondent 9*).

4.2 Audit firm agility and innovativeness

Small audit firm practitioners revealed quick and seamless adaptation and integration of unusual ways of getting around the challenges occasioned by the pandemic in mobility, collecting and analyzing audit evidence. Such means are associated with agility, flexibility and innovativeness of the SMPs as a firm and its owner, which are core manifests of dynamic audit capability. The following partners exemplify this capability.

4.2.1 Audit firm flexibility and innovativeness. Audit firm and owner flexibility and innovativeness are highlighted by the following:

[...] I bought a bicycle and have used it as an alternate means of transport to pick important information from office and clients (*Respondent 3*).

[...] Covid 19 notwithstanding we have continued to look out for tenders and writing proposals for audit service from home. From the word go [...] for some of our clients we had to consider their reporting needs a top priority [...] to meet their requirements (*Respondent 11*).

I set up a fully-fledged office at home which enabled me to attend to [...] on-going audits. I have also encouraged staff to see the silver linings in the challenges especially how we have been able to deliver some assignments and move on with search methods [...] (*Respondent 18*).

4.2.2 Audit methodology adaptation. Small audit firms implemented novel audit gathering means and processes to ensure work gets done during the Covid-19 pandemic as attested to by the following small audit firm partners.

I have gone through a “back and forth” experience of having to scan documents of the work in progress and discussing with my team on-line to agree to a finding or otherwise based on the scans [...] (*Respondent 3*).

[...] one of our clients opted to deliver all hard source documents and books of accounts using a boda-boda (motor cycle transportation) to a staff member's residence to continue with [...] [audit work] (*Respondent 8*).

For some clients we requested them to authorize banks to send bank confirmations electronically instead of the usual hard copy letters [...] We have had to place a direct phone call to the banks to verify that the emails are indeed from the respective banks (*Respondent 9*).

I have found the mobile phone to be handy [...] and increased use of Google drive to access scanned audit evidence (*Respondent 12*).

4.3 Inability to operate due to a lack of dynamic auditing capability

SMPs that had not developed the requisite dynamic auditing capabilities found themselves unable to continue with audit work during the Covid-19 pandemic, as highlighted by this partner:

We are unable to conduct audit field work due to ban on private transport [...] audit personnel were classified as non-essential services hence have no movement stickers [...] We witnessed a reduction in networking opportunities to seek new [...] Government postponed our payments [...] hence locking up our liquidity (*Respondent 5*).

5. Discussion

Theoretically, this study is based on the realization that RBV fails to support continued SMPs operation in a turbulent business environment, and that the DC theory could offer the support. The findings of the study indicate that to operate in a turbulent business environment occasioned by the Covid-19 pandemic, SMPs require to build and anchor operations on dynamic auditing capability. This is because in such environment, survival depends more on DCs than on operational capabilities (Wu, 2010).

The process SMPs followed to build dynamic auditing capabilities is in agreement with that proposed by earlier scholars (Zollo and Winter, 2002; Teece, 2007; Cyfert *et al.*, 2021). The current study has, however, isolated adaptation, configuration and reconfiguration of resources, and innovativeness as the most important route in the development of DCs. This reinforces the DC theory (Teece *et al.*, 1997), which recognizes that having operational capabilities is important; however, organizations need to purposely integrate, build and reconfigure those operational resources and competencies to maintain performance in the face of changing business environments that takes = DCs. The finding also supports Pandit *et al.* (2018) and Døving and Gooderham (2008) that it takes a firm a multiplicity of DCs to survive in volatile, uncertain, complex and ambiguous environments and the complimenting effect of internal competencies like human capital, properly configured routines and systems and a range of alliances with external networks for small accounting firms to diversify their operations. This is a cornerstone of the DC theory that organizations have to focus on both their internal perspectives (i.e. modify the layout of existing resources) and their external perspective to orient toward adapting to and following a dynamically changing environment (Cyfert *et al.*, 2021).

The finding that SMPs will require to develop and anchor on dynamic auditing capabilities in turbulent environments is in agreement with a stream of earlier scholars who have posted results to the effect that it is the heterogeneity of dynamic capabilities that ultimately defines which firm will survive a turbulent environment, and that investing in DCs positively impacts on firm's outcomes (Bitencourt *et al.*, 2020; Zou *et al.*, 2018; Fainshmidt *et al.*, 2016; Karna *et al.*, 2016). Specifically, for small firms, the study supports Shah *et al.* (2019) who post results that SMEs possessing DCs are more resilient to environment

turbulence. The study supports Otete (2021) who reports the results of increased revenues for SMPs who were able to operate during the Covid-19 pandemic.

To leverage on the *transformational/shifting capability*, the current study has identified that it is critical to align and adjust existing operational capabilities and resources to the environment as critical. Resources have been recognized as an important antecedent of DCs (Fallon-Byrne and Harney, 2017) because they are a key element for creating and sustaining competitive advantage (Teece *et al.*, 1997). The study revealed the importance of owning ICT hardware, ICT software and flexibility of the human resources of the firm and of the firm itself to match the environment in a turbulent environment. Firms need flexibility in developing new and existing resources and capabilities to meet changing conditions in the environment (Pettus *et al.*, 2009). The current study supports Otete (2020) who highlights ICT adoption as very critical in audit work, and other authors (Koch, 2010; El Sawy *et al.*, 2008; Neumann and Fink, 2007; Wu, 2006) who have reported supportive results of ICT in developing and leveraging DCs. Parida *et al.* (2016) indicate that the criticality of ICT is also evident across other capabilities: adoptive, adaptive, networking and innovative capabilities.

Further, the study has illuminated a need to anchor on *networking capabilities* is illuminated as essential for continued operations of SMPs in a turbulent environment. This supports Bitencourt *et al.* (2020) who document the results of a mediating role of DCs in relationship between alliances/networks, environmental dynamism and firm performance. It also supports Omeke *et al.* (2021) who post the results that show DCs are vital in promoting the growth of financial cooperative enterprises but more so in the presence of networks. This is because alliance and networks confer access to a variety of resources (Døving and Gooderham, 2008). In a turbulent environment, the current study has indicated that this lies in the ability to exploit social capital and relationships.

On agility and innovativeness, the study identified improvisation and implementation of unconventional means, processes and methods of work as the most underlying way to leverage the capability. This finding supports earlier scholars (Ma *et al.*, 2021; Jakhar *et al.*, 2020; Figueiredo and Piana, 2018) who have posted results that show executives of firms do seek unusual and novel solutions to challenges they face. Spontaneous reaction and reconfiguring existing human and other resources also stand out as a requirement for developing dynamic auditing capabilities and survive a turbulence. It further supports El Sawy *et al.* (2008) who suggest that because there is often insufficient time for formal planning in a highly turbulent business environment, managers must spontaneously adapt to new conditions on-the-fly by acting outside their formal plans and processes. Specifically, in a Covid-19-induced turbulence, the study supports Dovbischuk (2022) to the extent that it is firms with greater levels of capacity to innovate that achieve significantly different dynamic resilience.

6. Conclusion and implications

Anchored by the DC theory, the goal of this study was to fill a gap in the application of the theory to a specific industry (audit), specifically the continuation of audit work by SMPs in a turbulent business environment occasioned by the Covid-19 pandemic. One specific question was posed: *What has enabled you to continue with (prevented you from continuing with) audit work during this Covid-19 period?* The findings have shown that developing dynamic auditing capability out of exiting operational capabilities and by being agile and innovative is extremely important for SMP firms to continue operations in a turbulent business environment. Specifically, while the DC theory advances various sub-DCs, developing dynamic auditing capabilities in a turbulent business environment is underpinned by transformation/shifting flexibility, networking, innovativeness and adaptive capabilities.

The contribution of this study is, first, it adds to the body of existing literature on the importance of DCs in explaining firm survival and growth. And with caution of generalizing

to the whole auditing profession, it directly answers calls by Aimilia *et al.* (2011), Easterby-Smith *et al.* (2009) and Helfat *et al.* (2007) for industry-specific examination of DCs by putting forward the construct of “*Dynamic auditing capability*.”

Second, the study has major practical implications for the owners of SMPs. It is recommended that partners of SMPs in emerging economies should prioritize investment in digital ICT programs and human resources. These have been identified as major drivers that underpin development and exploitation of DCs. SMPs need to pay attention to the specific ways of reconfiguring and flexing available resources to develop and take advantage of the DCs essential for continued operations in a turbulent environment.

Third, to policy makers, the study has illuminated the underpinnings of dynamic auditing capabilities as specific ways that require targeted emphasis when developing and implementing policies governing the audit profession.

The main limitation of this study is that it is restricted to SMPs within the audit profession in a specific country. This could affect the generalizability of the findings. Although precautions were taken to buttress the validity of the study, a future wider quantitative research could utilize a larger sample size to offer valuable insights into building dynamic auditing capabilities.

In addition, data were collected through an emailed instrument to respondents; this limited further follow-up questions as would have been possible in a face-to-face interview. To mitigate on the problem, respondents were given an opportunity to reach the researcher by phone for any clarifications; however, future studies may adopt face-to-face interviews and focus group discussions to allow for deeper probing of the concepts.

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Examining the effects of demographic, social and environmental factors on entrepreneurial intention

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Abstract

Purpose – Creating employment for all seems to be impossible in emerging nations as the unemployment rate is rising faster than the number of job openings available. Studies on the other hand show that creating jobs is simple if the right resources and opportunities are made available. The present study aims to examine the effects of various demographic social and environmental factors on the entrepreneurial intention of engineering undergraduates in Chhattisgarh state.

Design/methodology/approach – Correlational research design was incorporated in the present study. The author applied stratified random sampling to collect samples of 1,000 engineering undergraduates enrolled in their third and fourth years in different technical colleges/universities in Chhattisgarh state. Structural equation modelling and confirmatory factor analysis were applied to analyse the data.

Findings – The results revealed that demographic, social and environmental factors greatly influenced engineering undergraduates' entrepreneurial intention. However, age and occupation do not predict their self-employment intention.

Originality/value – The present research itself is a novel study, especially in Chhattisgarh state, where the area of examining the effects of demographic, social and environmental factors on entrepreneurial intention among technical undergraduates has been limitedly explored.

Keywords Entrepreneurship, Entrepreneurial intention, Demographic factors, Social factors, Environmental factors, Engineering undergraduates

Paper type Research paper

1. Introduction

Emerging nations like India, where a greater number of graduates are produced but less opportunities are available, unemployment has risen to become one of the most serious concerns in the country. As stated by Pandey (2019), the unemployment rate in India has climbed around 1.9 times since 2014, reaching 7.6% in April 2019, which is the highest rate in the past two years. This is based on data from the State of India's Environment (SoE) 2019 report. The unemployment rate in rural regions has also hit a record high of 7.61%, which is the highest in the country. The National Sample Survey Office (NSSO) has announced the results of its periodic labour force survey for 2017–2018, which shows that the unemployment rate has increased with the education level of youths.

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Bhagchandani (2017) has reported that talented and skilled youth and graduates are the ever-growing problems, as they are continuously searching for job instead of starting up a new business. The requirement of delivering guidance and mentorship to new and mature entrepreneurs remains unrecognised, and self-financing is hugely fragmented, isolated to a few cities and significantly low in quantum nationwide. Also, a lack of culture that is not an environment to become creative, innovative and entrepreneurial leads to stopping India from becoming the most prominent start-up ecosystem hub. Chaudhary (2018) mentioned that science and technology could contribute significantly to India's economic growth and development. As the former president, Dr. A. P. J. Abdul Kalam strongly believed that science and technology inventions could pave India's way. He also emphasised the idea to encourage the young ignited minds of India to achieve their goals.

There are several studies in the literature showing the effects on self-employment intention or entrepreneurial intention, but demographic, social and environmental factors should be considered underpinning variables in determining entrepreneurial behaviour among nascent entrepreneurs. Wu and Li (2011) researched the influencing factors towards the formation of entrepreneurial intention via studying an individual's cognitive process and found that perceived benefits of entrepreneurship have a significant influence on the perceived value of entrepreneurship. Turker and Selcuk (2009), in their study on university students in Turkey, identified two significant factors (perceived educational support and perceived structural support) affecting the intentions of the university students. Bhandari (2006) researched university students' entrepreneurial intention in India and found six factors: lead other people, put innovative ideas into practice, be my boss, determination, personal challenge and non-business education as imperative factors for starting a new business.

There are various demographic elements that influence a person's choice to pursue a career as a professional entrepreneur (Ashley-Cotleur and Solomon, 2009). Few studies have looked at the role of demographic variables in developing students' entrepreneurial inclinations and those that have done so have found mixed results (Wang and Wong, 2004). In addition, the results are not in agreement with one another. It is still unclear whether or not demographic or personal variables have a significant impact on the establishment of entrepreneurial intentions. In addition, individuals' intentions to pursue an entrepreneurial career are influenced by a variety of social variables, which may either encourage or hinder them. Individuals' life professions, whether they are in entrepreneurship or salaried employment, are influenced by a variety of factors, including their family history, education, prior job experience, risk attitude, over-optimism, the inclination for independence and the norms and values of a society (Sanditov and Verspagen, 2011). Elali and Al-Yacoub (2016), on the other hand, revealed that social networks have a key impact on the development of entrepreneurial intents. The opposite is true, as revealed by Wang *et al.* (2010), who found that social networks had an indirect influence on the desire to start a business. As stated by Begley *et al.* (1997), the social condition of entrepreneurship emerges as a good predictor of entrepreneurial interest. Similarly, Lu *et al.* (2021) discovered that university assistance had an impact on the desire of college students to start a new enterprise. Audretsch *et al.* (2021) argued that the organisation of institutions helps to strengthen the entrepreneurial environment in urban areas. Other research have shown that an individual's entrepreneurial desire is influenced by educational and structural assistance (Turker and Selcuk, 2009; Su *et al.*, 2021). According to Lee *et al.* (2005), each nation must give a personalised entrepreneurial education that takes into account the unique cultural circumstances of its citizens.

Thus, in order to better understand the inclination of technical graduates towards entrepreneurship in Chhattisgarh state, it becomes crucial to determine the factors that cause them to choose entrepreneurship as a career. The present study examines the effect of demographic, social and environmental factors on entrepreneurial intentions among engineering undergraduates at different technical institutions.

2. Theoretical grounding and hypotheses development

2.1 Demographic variables and self-employment intention

2.1.1 *Age, gender and locality of stay.* In the past, it has been suggested that demographic variables like age and gender have an influence on entrepreneurial inclination (Kristiansen and Indarti, 2004; Vamvaka *et al.*, 2020; Gomes *et al.*, 2021; Borges *et al.*, 2021). In general, women have been found to have weaker entrepreneurial aspirations than their male counterparts. According to Crant (1996), males are far more likely than women to declare a goal or desire for establishing their own enterprises or to work for themselves. The study by Zhao *et al.* (2005) finds that women are less likely than males to be interested in starting their own business. Other studies have also shown that women are less likely than men to start their own businesses (Phan *et al.*, 2002; OECD/The European Commission, 2019; Global Entrepreneurship Monitor, 2020; Nguyen, 2021).

Some research, on the other hand, found that there was no statistically significant difference between men and women when it came to their aspirations to establish enterprises (Kourilsky and Walstad, 1998; Shay and Terjensen, 2005; Wilson *et al.*, 2007; Smith *et al.*, 2016; Chaudhary, 2017; Ferri *et al.*, 2018). These findings call into question previous study findings that female students performed worse on entrepreneurial aspects when compared to male students. Daim *et al.* (2016) also give insight into the entrepreneurial intentions of students in terms of gender and country of residence variations, as well as the entrepreneurial intentions of students overall. The research investigates whether or not students in 10 different nations believe something is feasible or desirable. The entrepreneurial position is evaluated based on its acceptability and viability for both men and women. The findings reveal that gender has an effect on entrepreneurial intention, and the manner in which it has an impact is determined by the nation from which the students are selected (Daim *et al.*, 2016). Due to the fact that the influence of age, gender and locality of stay on entrepreneurship is still mainly inconclusive, the evidence recommend further study to be conducted in this area.

H1. Age would emerge as a significant predictor of entrepreneurial intention.

H2. Gender would emerge as a significant predictor of entrepreneurial intention.

H3. Locality of stay would emerge as a significant predictor of entrepreneurial intention.

2.1.2 *Family income.* Seemingly, there were very limited studies conducted examining the impact of family income on self-employment/entrepreneurial intention. Some of them (Henley, 2005; Talas *et al.*, 2013; Nandamuri and Gowthami, 2013; Topping and Tariq, 2011; Alibaygi and Pouya, 2011; Kothari, 2013; Zeb *et al.*, 2021) explain the positive effect of family income on self-employment intention. It means the higher the family income of students, the higher their self-employment intention would be. On the other hand, there are few other studies (Wang and Mellington, 2011) that predicted the negative effects of family income on self-employment intention. The rise in the family income loses their desire to start a new venture due to the fear of non-fulfilment and vice versa. Unexpectedly, Sharma (2014) and Alexander and Honig (2016) measured no impact on entrepreneurial intention among individuals. Thus, the findings of the effect of family income on entrepreneurial/self-employment intention are scattered which leads to further study in this area.

H4. Family income would emerge as a significant predictor of entrepreneurial intention.

2.1.3 *Occupation.* The findings of research done by Pablo-Lerchundi *et al.* (2015) revealed that the profession carried out by parents has an impact on the entrepreneurial intents of students, with the children of entrepreneurs being more inclined to pursue an entrepreneurial career

than the children of public officials. Several studies in recent years have proved the importance of role models in the entrepreneurial process in several professional categories, such as academic entrepreneurs (Fernández-Pérez *et al.*, 2015) and active entrepreneurs (Fernández-Pérez *et al.*, 2015; Bosma *et al.*, 2012; Fritsch *et al.*, 2012). While some researchers have found no statistically significant relationship between entrepreneurial parental role models and children's decision to pursue an entrepreneurial career (Rodríguez *et al.*, 1999; Kim *et al.*, 2006), other studies have found a negative relationship, particularly, in situations where the family business has failed (Rodríguez *et al.*, 1999; Kim *et al.*, 2006; Scherer *et al.*, 1989; Mungai and Velamuri, 2011). Nguyen (2021) found no significant relationship between family background with students' entrepreneurial intention. Hence, due to scattered findings of family occupation on the desire towards entrepreneurship among students, it leads to conduct further study in this area.

H5. Occupation would emerge as a significant predictor of entrepreneurial intention.

2.2 Social factors and self-employment intention

Social factors (including parental role model, cultural role and family support) have been found related to self-employment/entrepreneurial intention in different studies. Levenburg and Schwarz (2008) researched to determine undergraduate students' entrepreneurial intention considering the impact of cultural, educational and environmental factors in India. They found that despite the social and cultural factors within India, numerous effort, in recent years, indicates a changed mindset of Indian youths regarding entrepreneurship who were found to show a significant interest in starting new ventures than their US counterparts. The term "role modelling" refers to the process of learning by examples rather than through direct experience. In role modelling, the person imitates the behaviour via inadvertent and informal observation (Tkachev and Kolvereid, 1999). According to Crant (1996), being raised in an entrepreneurial family has a major influence on people's intents to establish their own enterprises. Other studies have also shown that the children of entrepreneurs learn about the variables that go into operating a business and regarding starting a new organisation as a natural career choice alternative (Cooper *et al.*, 1994; Sandberg and Hofer, 1987; Megibaru, 2014).

Business-owning parents serve as a positive role model and provide managerial expertise for their children, who will later become entrepreneurs themselves (Papadaki *et al.*, 2002; Deaprida, 2021). According to Mcelwee and Al-Riyami (2003), children who grew up with entrepreneurial parents were more likely to pursue a profession as self-employed person themselves as adults. In a similar vein, Fairlie and Robb (2007) discovered that entrepreneurs were more likely than non-entrepreneurs to have a self-employed mother or father in their family. According to Alsos *et al.* (2011), a family business may play an important role in fostering the growth of entrepreneurship among members of the family. The most recent research by Chaudhary (2017) reveals that having a self-employed family history has a favourable link with entrepreneurial intention. Because several research studies have shown the significant role of parental role model, cultural role and family support on entrepreneurial intent, the present study suggests the following hypothesis.

H6. Social factors (including parental role model, cultural role and family support) would emerge as a significant predictor of entrepreneurial intention.

2.3 Environmental factors and self-employment intention

Entrepreneurial environment refers to the immediate surrounding factors which cover all the happenings and tends to affect entrepreneurs. The mind's propensity to take

entrepreneurship as a career option is likely to be affected by the surrounding factors of the environmental concern. With the increasing role of environment or surroundings, acknowledging the role of environment in shaping an entrepreneurial career has substantially increased (Vondracek, 1990; Higgins, 2001; Savickas, 2002; Young *et al.*, 2002). Individuals' personality traits and environmental factors affect intentions. Environmental factors often are regarded as "gap fillers" in the connection between personality traits and entrepreneurial intentions (Luthje and Franke, 2003). An entrepreneur's behaviour is affected by individuals' social environment in which they live, as regarded by the social and cultural approach (Light and Siegel, 2008). Newman *et al.* (2019) identified cultural and institutional environment, firm characteristics, education and training, work experience, role models or mentors and individual differences as antecedents of entrepreneurial self-efficacy. Further self-efficacy dimension affects entrepreneurial intentions and emotions. Entrepreneurial behaviour, performance and creation of venture are the resultant of entrepreneurial intention. There are reviews available in the literature suggesting that environment directly affects the process of entrepreneurial learning (Toutain *et al.*, 2017). Environmental factors significantly influence students' entrepreneurial intentions. However, the university environment does not significantly influence intention (Sesen, 2013). Also, factors like students' proactive personality and university support environment (such as concept development support, business development support and education support) influence students' entrepreneurial intention (Mustafa *et al.*, 2016). However, Lucky and Ibrahim (2014) found environmental factors as insignificant in predicting students' entrepreneurial intention. Hence, the current knowledge about the direct effect of environmental factors (i.e. economic resources and institutional environment) on entrepreneurial intention is still limited. Thus, the present study proposes the following hypothesis.

- H7. Environmental factors (including economic resources and institutional environment) would emerge as a significant predictor of entrepreneurial intention.

2.4 Conceptual model of the present study

Based on the previous literatures studies, the authors propose the following conceptual model for the present study (see Figure 1).

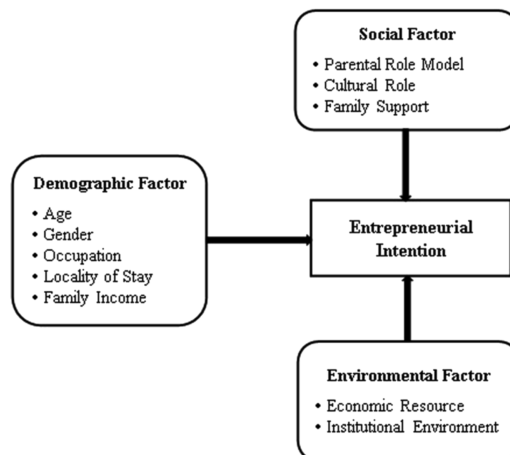


Figure 1.
Conceptual model

2.5 Operational definitions

2.5.1 Social factor. Social factors like a parental role model, cultural role, family support, community support, etc. are considered control variables about the influence intention of entrepreneurs (Birley, 1985; Aldrich and Zimmer, 1986; Dubini and Aldrich, 1991; Greve and Salaff, 2003). It can be described as the underpinning environment which influences directly or indirectly an individual towards entrepreneurial inclination.

2.5.2 Parental role model. As stated by Gibson (2004), "The term 'role model' draws on two prominent theoretical constructs: the concept of role and the tendency of individuals to identify with other people . . . and the concept of modeling, the psychological matching of cognitive skills and patterns of behavior between a person and an observing individual".

2.5.3 Cultural role. It is key to entrepreneurial success. It is created through the required leadership, values, beliefs, traditions, behaviours and interactions among classmates/equals/colleagues which contribute to the emotional and relational environment (Sidekicker, 2020).

2.5.4 Family support. Family support can be of two types, i.e. emotional/rational and economic/financial, both can be considered essential resources to encourage self-employment intention, which contributes to entrepreneurial and economic growth (Shen *et al.*, 2017).

2.5.5 Environmental factor. Environmental factors such as economic resources, lack of employment opportunities, political climate, etc. are considered control variables in the way of creating a direct impact on the entrepreneurial intention (Roure and Maidiue, 1986; Brenner *et al.*, 1991; Kolvereid and Oibloj, 1994).

2.5.6 Institutional environment. It is composed of rules, regulations, customs and numerous norms that existed in the institution/organisation imposing to shape the recipient behaviours (Swaminathan and Wade, 2016).

2.5.7 Economic resource. Economic resources are those factors which help in producing goods or rendering services. In other words, it is the primary factor which helps an entrepreneur to create things or render services to potential customers (Chapel, 2015).

2.5.8 Entrepreneurial intention/self-employment intention. Entrepreneurial intention is the involvement in or the intention of an individual to start a business venture (Drennan *et al.*, 2005; Souitaris *et al.*, 2007). Entrepreneurial intention is defined as individuals' willingness to perform entrepreneurial behaviour, engage in entrepreneurial action, be self-employed or establish a new business (Dohse and Walter, 2010).

3. Methodology

3.1 Research design and sampling

The study's primary respondents were engineering undergraduates belonging to any technical college/university/institution offering engineering programmes in Chhattisgarh state. The correlational research design was applied in this study. For collecting the data, a stratified random sampling method was incorporated. A sample of 1,000 respondents was considered for the study as shown in Table 1.

3.2 Research instrument

The present study adapted or modified the items/constructs as per the current research needs. Table 2 represents the constructs and measurement items along with its supporting literature in which social factor dimensions (i.e. parental role model, cultural role and family support), environmental factor dimensions (i.e. institutional environment and economic resources) and entrepreneurial intention/self-employment intention are displayed. After the identification and development of the measurement items, the researcher sent the questionnaire to the three subject experts to examine its content validity. A few items were modified as per the expert suggestions. After that, a pilot study was administered to check its content validity and whether the questionnaire is prepared to take participants' responses. No major changes were needed after the pilot study.

					Examining the factors influencing Students EI
Demographic characteristics	Variable	Frequency	Percent	Total sample size	
Age	19–22 years	813	81.3	1,000	
	23–25 years	111	11.1		
	26–29 years	30	3		
	30 years and above	46	4.6		
Gender	Female	571	57.1	1,000	
	Male	429	42.9		
Father’s occupation	Government service	306	30.6	1,000	
	Private service	138	13.8		
	Business	168	16.8		
	Cultivation	221	22.1		
	Others	167	16.7		
Locality	Rural	434	43.4	1,000	
	Urban	566	56.6		
Family monthly income	<Rs. 30,000	320	32	1,000	
	Rs. 30,001–50,000	330	33		
	Rs. 50,001–70,000	210	21		
	>Rs. 70,000	140	14		

Table 1.
Demographic description

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Table 1.
Demographic description

3.3 Scale validation

The present study incorporated partial least square confirmatory factor analysis for the validation of a scale. In Table 3, Cronbach's alpha (Nunnally, 1978) and Rho A value is indicated as more than 0.7 for all the variables which explain a fair measure of the reliability of the scale. For validity measure, convergent validity's value must be more than 0.7 (Hair *et al.*, 2010; Bagozzi and Yi, 1988) and the average variance extracted (AVE) value must be greater than 0.5 for all the variables as indicated in Table 3. Thus, the results produce fair measures for reliability and validity of the scale.

3.4 Data analysis

Structural equation modelling (SEM) and confirmatory factor analysis (CFA) were run to analyse the data.

4. Analysis and results

SEM was run to determine the effect of demographic factors (i.e. age, gender, locality of stay, family income and occupation), social factors (i.e. parental role model, cultural role and family support) and environmental factors (i.e. economic resource and institutional environment) on entrepreneurial intention of engineering undergraduate students of Chhattisgarh state which is as shown in Table 4 and Figure 2. The result explains that social factors predicted a positive relationship with parental role model ($\beta = 0.672, p < 0.001$), cultural role ($\beta = 0.848, p < 0.001$) and family support ($\beta = 0.756, p < 0.001$). Similarly, an environmental factor also predicted a significant connection with economic resources ($\beta = 0.865, p < 0.001$) and the institutional environment ($\beta = 0.795, p < 0.001$). Demographic variables such as gender ($\beta = -0.097, p < 0.001$), locality of stay ($\beta = 0.06, p < 0.05$) and family income ($\beta = -0.08, p < 0.01$) provided to be a significant predictor of entrepreneurial intention, whereas age ($\beta = 0.044, p > 0.05$) and occupation ($\beta = -0.044, p > 0.05$) were found insignificant for creating self-employment intention among engineering undergraduates towards entrepreneurship. Likewise, social factor ($\beta = 0.49, p < 0.001$) and environmental factor ($\beta = 0.25, p < 0.001$) also contributed positively to creating self-employment intention among engineering undergraduate students.

Previous literature suggests that the value of $GFI \geq 0.95$; $CFI \geq 0.97$; $SRMR \leq 0.05$; and $RMSEA < 0.05$ indicates a perfect fit and $0.90 \leq GFI \leq 0.95$; $0.90 \leq CFI \leq 0.97$;

Table 2.
Theoretical construct
and measurement scale

<i>Parental role model</i>	Self-structured
1 My parents encourage me to take on challenges	
2 My parents run their own business, and I am willing to run my own business as well	
<i>Cultural role</i>	Adapted from Díaz-Casero <i>et al.</i> (2012)
1 In my country/region, the national culture is highly supportive of individual success achieved through own personal efforts	
2 In my country/region, the national culture emphasises self-sufficiency, autonomy and personal initiative	
3 In my country/region, the national culture encourages entrepreneurial risk-taking	
4 In my country/region, the national culture encourages creativity and innovativeness	
5 In my country/region, the national culture emphasises the responsibility that the individual (rather than the collective) has in managing his or her own life	
<i>Family support</i>	Gelaidan and Abdullateef (2017)
1 If I decided to be an entrepreneur, my family members will support me	
2 If I decided to be an entrepreneur, my friends will support me	
<i>Institutional environment</i>	Modified from Schwarz <i>et al.</i> (2009)
1 In my institution, people are actively encouraged to pursue their own ideas	
2 The courses provide students with the knowledge required to start a new company	
3 There is a well-functioning support infrastructure in place to support the start-up of new firms	
4 The creative atmosphere inspires us to develop ideas for new businesses	
5 The education in an institution encourages me to develop creative ideas for being an entrepreneur	
<i>Economic resources</i>	Modified from Kickul and D'Intino (2005)
1 I can develop and maintain favourable relationships with potential investors	
2 I can develop a working environment that encourages people to try out something new	
3 I can identify potential sources of funding for investment	
<i>Self-employment intention</i>	Adapted from Ismail <i>et al.</i> (2013)
1 I will choose my career as an entrepreneur	
2 I prefer to be an entrepreneur rather than to be an employee in a company	
3 I am prepared to do anything to be an entrepreneur	
4 I will make every effort to start and run my own business	
5 I have thought seriously to start my own business after completing my study	
6 I have strong intention to start my own business as soon as possible after graduation	

0.05 \leq SRMR \leq 0.1, and 0.05 $<$ RMSEA $<$ 0.08 reports acceptable fit (Kline, 2005). The obtained values for fit indices $\chi^2/\text{df} = 1.882$, GFI = 0.93, CFI = 0.89, SRMR = 0.08 and RMSEA = 0.08 suggest an acceptable value of fit indices. Thus, the proposed model is said to have a good fit.

5. Discussion

The results (H1–H5) of the study explained that the demographic factors such as gender, locality of stay and family income have been found to be significantly associated with entrepreneurial intention. However, family income is negatively correlated. The findings also showed no significant relationship between age and occupation on students' entrepreneurial intention (Table 5).

The positive correlation between the locality of stay and entrepreneurial intention (IC² Institute, 2021) indicates that people who live in more developed and resourceful environments will be more inclined to entrepreneurship and vice versa. This means that engineering undergraduates are predominantly from more developed and resourceful environments, which influences them to pursue entrepreneurship as a career. As has been discovered in previous studies (Shapero and Sokol, 1982; Louw *et al.*, 2003; Liñán *et al.*, 2005; Lo *et al.*, 2012; Shinnar *et al.*, 2012; Vamvaka *et al.*, 2020; Gomes *et al.*, 2021; Borges *et al.*, 2021), gender demography has also been found to be positively associated with entrepreneurial intention. However, a negative link between family income demography and entrepreneurial intention shows that students from impoverished families have a greater tendency to start their own businesses than students from wealthy families and vice versa (Wang and Mellington, 2011).

However, results provided that there is no significant relationship between age demography and entrepreneurial intention (Nguyen, 2021) among engineering undergraduates. Previous researchers (Kristiansen and Indarti, 2004; Vamvaka *et al.*, 2020) explain that the increase in age among people decreases their intention to pursue an entrepreneurial career. Arguably, the present study's results state that age does not matter if

Factors	Cronbach's alpha	Rho A	CR	AVE
Parental role model	0.771	0.716	0.773	0.519
Cultural role	0.735	0.796	0.764	0.521
Family support	0.709	0.731	0.742	0.501
Institutional environment	0.773	0.757	0.762	0.551
Economic resource	0.744	0.751	0.776	0.549
Entrepreneurial intention	0.812	0.827	0.817	0.531

Table 3.
Measurement results

Predicted relationship	Path coefficient (β)	C.R.	<i>p</i> -value
SF → PRM	0.672		
SF → CR	0.848	19.993	***
SF → FS	0.756	19.473	***
Env. F → ER	0.865		
Env. F → IE	0.795	9.364	***
Age → Intention	0.044	1.641	0.101
Gender → Intention	0.097	3.581	***
Occupation → Intention	−0.044	1.627	0.104
Locality → Intention	0.06	2.224	0.026
Income → Intention	−0.08	2.952	0.003
Env. F → Intention	0.25	7.329	***
SF → Intention	0.49	14.018	***

Note(s): Where *** indicates significance level at 0.001

SF = Social Factor; PRM = Parental Role Model; CR = Cultural Role; Env. F = Environmental Factor; ER = Economic Resource; IE = Institutional Environment

Table 4.
Effect of demographic
factors, social factors
and environmental
factors on
entrepreneurial
intention

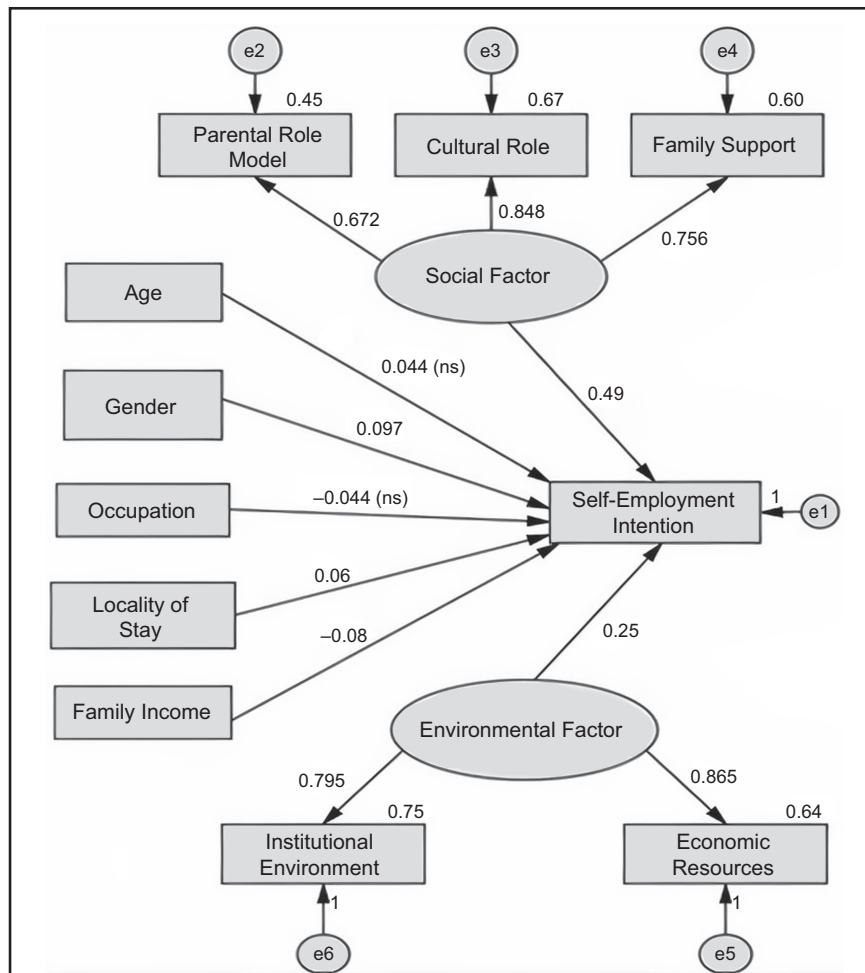


Figure 2.
Path coefficient of
demographic factor,
social factor and
environmental factor
on self-employment
intention

one is determined to create a new entrepreneurial venture, and it denies the fact that people/students at younger age can only have a higher inclination to start a new venture. Similarly, no significant association was found between family occupation and entrepreneurial intention, which explains that family background/occupation also does not matter when it comes to choosing entrepreneurship as a career. Hence, there might be some other factors in play affecting their inclination towards the entrepreneurial venture.

Statistically significant results (H6) were obtained from an investigation into the impact of social factors (Birley, 1985; Aldrich and Zimmer, 1986; Dubini and Aldrich, 1991; Greve and Salaff, 2003; Megibaru, 2014; Deaprida, 2021) on students' entrepreneurial intention (H6), indicating that a positive role model as parents, a positive cultural role and family support have all play an important role in encouraging students' entrepreneurial desire. A supportive family environment for a business venture, particularly when the entrepreneur's parents are role models, fosters a positive culture around the students and encourages them to engage in productive discussions about business ventures, which in turn encourages them to be more inclined towards entrepreneurship.

			Examining the factors influencing Students EI
Hypotheses	Statements	Results	
H1	Age would emerge as a significant predictor of entrepreneurial intention	Not Confirmed	101
H2	Gender would emerge as a significant predictor of entrepreneurial intention	Confirmed	
H3	Locality of study would emerge as a significant predictor of entrepreneurial intention	Confirmed	
H4	Family income would emerge as a significant predictor of entrepreneurial intention	Confirmed	
H5	Occupation would emerge as a significant predictor of entrepreneurial intention	Not Confirmed	
H6	Social factors (such as parental role model, cultural role and family support) would emerge as a significant predictor of entrepreneurial intention	Confirmed	
H7	Environmental factors (such as economic resources and institutional environment) would emerge as a significant predictor of entrepreneurial intention	Confirmed	

Table 5.
Hypotheses outcomes

The findings (H7) of the study of the influence of environmental variables, which included the institutional environment and economic resources, revealed that students' entrepreneurial intention was substantially associated with these elements. The institutional environment (in the form of institutional support facilities, a conducive atmosphere, encouragement and so on) positively stimulated undergraduates' intention to become entrepreneurs (Luthje and Franke, 2003; Kraaijenbrink *et al.*, 2010; Newman *et al.*, 2019). Integration of investor links, development of a working environment and identification of prospective financing sources for investment are all factors that favourably influence self-employment intentions among engineering students.

6. Contribution of the study

The problem of unemployment has become a major problem for all the governments, and it is expected to worsen in emerging nations, particularly India, as a result of the current Covid-19 conditions. At this point, the only option is to generate more entrepreneurs in conformity with present circumstances in order to provide employment to the country's citizens. The findings clearly show the relevance of demographic, social and environmental aspects in technical students' entrepreneurial inclination. The research demonstrates that family support, parental role model, cultural role, institutional environment and economic resources all have a significant impact on the individual's inclination to pursue entrepreneurship as a profession. When addressing such a problem or achieving the goal of producing entrepreneurs, the government and concerned authorities should take these elements into account.

In addition, every year millions of technical students graduate and begin looking for work in the labour market rather than pursuing their own entrepreneurial endeavours because they do not have sufficient social and environmental elements working in their favour. But, according to the findings of the current research, technical students have the capacity to open up new channels and become successful entrepreneurs if social and environmental elements are in their favour and work to their advantage. The government and concerned authorities must implement specific policies and take specific concrete measures that take these factors into consideration, as the research shows that increasing the number of entrepreneurs has a direct influence on the decrease of unemployment.

7. Conclusion

Despite the fact that India has the youngest population among the world's top countries, job creation has been critical in attaining fair development. The issue is that there are not enough

jobs available and that graduates do not have the necessary employability skills when they join the workforce. Consequently, it becomes critical to recognise the pressing need of the hour, which is to create the proper environment in terms of social and environmental elements as well as demographic aspects in order to turn latent entrepreneurs into active ones. Studies have shown that engineering students, as opposed to students from other disciplines, are more likely to become entrepreneurs during or after their studies. The present study also explored the effect of demographic, social and environmental factors on entrepreneurial intention among engineering undergraduates of Chhattisgarh's various technical institutions. The results revealed that demographic, social and environmental factors significantly affected engineering undergraduates' entrepreneurial intention except for age and occupation variables. Hence, it can be predicted that demographic, social and environmental factors help create entrepreneurial intention among engineering students.

7.1 Limitations

In this research, cross-sectional data were collected. With longitudinal data, it would be much more beneficial to examine the changes that occurred from the beginning of their courses to the third and fourth years of their courses, experimenting with students' entrepreneurial attitudes and intentions changes that may occur/have occurred.

7.2 Avenues for future research

Future researchers should be more willing to collect longitudinal data to better understand the changes that have happened among engineering students in terms of entrepreneurial attitude and intention.

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