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Article

A study on how generational differences impact certain behavioural antecedents of employee creativity in Saudi Arabia

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Abstract: Empirical evidence suggests that generational cohorts display behavioral differences due to rapid advancements in science and technology and enhanced living standards. However, systematic studies examining the behaviours of different generations and their impact on creativity and its various antecedents are scant. This study was undertaken to bridge this gap in the literature by focusing on how generational differences could impact a few behavioural antecedents and employee creativity. The antecedent behaviours examined include self-efficacy, organizational commitment, employee empowerment, and work engagement. Data for the study was collected online using structured, standardized questionnaires. Data were collected from 432 samples and analyzed using Smart-PLS. The results show that most of the proposed antecedents impacted creativity. However, generational differences did not moderate the relationship between the antecedents and creativity. The study will interest scholars and social scientists, as it is the first to be conducted in Saudi Arabia. The study also discusses the implications and limitations. It is expected that the findings of this study will trigger more studies.

Keywords: commitment; creativity empowerment; engagement; generational differences; self-efficacy; SEM

1. Introduction

Substantial literature exists on the various generational cohorts in the workforce, which differ in multiple ways (Kwiecińska et al., 2023). The generational cohort is an "identifiable group that shares birth years, age location, and significant life events at critical developmental stages" (Kupperschmidt, 2000). These sociocultural events could include wars and their consequences (Noble and Schewe, 2003), technological changes leading to societal changes, economic development, and significant changes to family and work patterns (Layard and Mincer, 1985). These generalizations have never been challenged or questioned and are used extensively in management and social science literature (Macky et al., 2008).

Generational studies classify the various generations as Baby boomers, X, Y, and Z (Singh and Weimar, 2017). Though a precise characterization of the individual generation is complex, the following classifications are used while considering social aspects. This classification includes the Baby Boomer generation (born between 1946 and 1964), Generation X (born between 1961 and 1981), Generation Y (born between the mid-1980s and mid-1990s), and Generation Z (late 1990s and into the new millennium). In addition, some social scientists classify those individuals born between 1901 and 1925 as the GI Generation and those born between 1925 and the mid-1940s as the Silent Generation. These classifications have emerged prominently in almost all scholarly discussions, and multiple empirical studies prove this (Cho and

Hu, 2009; Yan, 2003). These generations display different attitudes, value orientations, and a range of lifestyle choices (Cho and Hu, 2009).

A marked difference is witnessed in the thought patterns of people born in various generations. These generational differences are due to rapid advancements in science and technology and enhanced living standards. Interest in generational studies has emerged due to the multiple features that distinguish them from other cultural generations. While evidence points out that different generations display behavioural differences (Cho and Hu, 2009), systematic studies examining their behaviours and their impact on creativity are scarce. Creativity results from several processes, including individual, cognitive, emotional, behavioral, and environmental (da Costa et al., 2015). Based on the Triangular Theory of Creativity, Kaufman and Glăveanu (2021) identified that knowledge, skills, emotions, and cognitive styles influence creativity. According to them, these components interact and can change across generations. Taking cues from their study, the researchers consider that self-efficacy, commitment, empowerment, and engagement could influence creativity. Though studies exist about the association between employee creativity and its various antecedents, there is scant evidence about the generational difference in its impact on creativity and its antecedents. The current study intends to bridge this gap in the literature by focusing on how generational differences could impact a few behavioural antecedents and employee creativity in Saudi Arabia. Based on this gap, the study's objectives are to identify the creativity levels based on the different generations and to find the relationship between a few behavioural antecedents and creativity. The antecedents identified for the study are self-efficacy, organizational commitment, employee empowerment, and work engagement. The current study intends to bridge this gap in the literature by focusing on how generational differences could moderate the relationship between a few behavioural antecedents and employee creativity in Saudi Arabia. Based on this gap, the study's objectives are to determine the difference in creativity exhibited by employees from different generational cohorts. Examine the impact of self-efficacy, organizational commitment, employee empowerment, and work engagement on employee creativity. Examine whether generational differences moderate the relationship between these behavioral antecedents and employee creativity. These variables are vital to any organization's constant strive toward excellence. All these aspects are antecedents of employee creativity. It is expected that generational differences would impact these variables and creativity.

1.1. Review of literature

1.1.1. Theoretical underpinning

A good theory is consistent with the existing empirical data and suggests ideal and testable questions. It will make the contradictory and seemingly challenging scholarship easier to understand. This section presents the theoretical background of the study. Investigations about generational values originated in the middle of the previous century (Mannheim, 1952). Early literature specified that a 'generation' is not simply a cohort clustered by a bounded year of birth but is a group of contemporaries who share a history and a set of experiences that have marked their formative life. According to Strauss and Howe (1991):

> "History creates generations, and generations create history. The cycle draws forward energy from each generation's need to redefine the social role of each new phase of life it enters. And it draws circular energy from each generation's tendency to fill perceived gaps and to correct (indeed, overcorrect) the excesses of its elders."

Thus, generational theory proposes that a person's birth era influences the formation of their unique worldview. Using this theory, one can predict how each generation will approach the next life stage. Theoretically, generational differences develop due to significant impacts on the environment in which human socialization occurs. These differences impact the development of personality, values, beliefs, and expectations, which, once developed, are stable throughout life (Macky et al., 2008). The generational approach occurs due to the sociocultural milieus, wherein highly salient events experienced in one generation may not happen in the other (Noble and Schewe, 2003; Twenge, 2000). Other significant events include the emergence of corporate multinational capitalism, business cycles, high unemployment rates, and the loss of job security due to downsizing, restructuring, privatizations, and offshoring. Furthermore, socioeconomic events caused by shortage or security may also result in generational variations (Egri and Ralston, 2004). As each generation matures through such events, they develop qualities that distinguish them from those who precede and succeed them, and these characteristics will be represented in various ways like personality traits, work values, attitudes, and motivations (Kupperschmidt, 2000; Smola and Sutton, 2002).

This study also derives theoretical inputs on creativity and its relationship with antecedent behaviours from Social cognitive theory (SCT) and the Organizational support theory (OST). SCT postulates that humans are active agents influencing crucial aspects of their lives. They adapt perfectly to their environment and attempt to change undesirable elements. As a result, human agency occurs in a fundamentally interrelated system with triadic reciprocal causation between certain behaviours, personal variables, and the environment (Bandura, 1997). According to SCT, a perceived higher self-efficacy may promote operant conditioning, allowing individuals to think that their activities may result in rewards. This happens via cognitive systems in which the environment and individuals interact, impacting their behaviour (Gist, 1987). Organizational support theory is based on motivation and explains employees' positive attitudes toward organizations. This positive aim stems from the value that organizations assign to their personnel (Eisenberger et al., 2020).

1.1.2. Generational difference

Generation cohorts are groups embracing individuals based on their birth dates. These cut-off values present an easy theoretical structure for generational studies (Foster, 2013; Smola and Sutton, 2002). The current labour market constitutes employees from various generational cohorts. They could be Baby Boomers (born between 1946 and 1964), Generation X (born between 1965 and 1979), and Millennials or Generation Y (born between 1980 and 2000). However, some social scientists distinguish Generation Y and Z within the Y group by categorizing X as born from 1995 onwards (Berkup, 2014; Schawbel, 2014). These generational cohorts lead to impactful collective memories and personality characteristics (Boyle et al.,

2008), with historical and cultural events influencing individuals during their developmental stages (Noble and Schewe, 2003). Earlier studies about generational differences have presented a few stereotypical paradigms, which are presented in **Table 1**.

Table 1. Generational differences and stereotypical paradigms.

	Generation	Stereotypical paradigms	References
1	Silent—Traditional/ Mature (born between 1928 and 1945)	• Conservative • Disciplined	Costanza et al. (2012), Strauss and Howe (1991)
2	Baby Boomers (born between 1946 and 1964)	• Time-stressed • Optimistic • Positive thinking • Team-oriented	Costanza et al. (2012), Miles and Broadey (2022), Strauss and Howe (1991)
3	Generation X (born between 1965 and 1979)	• Socially conscious • Frugality • Loyalty • Independence • Cynical	Burstein (2013), Miles (2022), Mitchell (2000)
4	Generation Y—Millennials/Generation Me (born between 1980 and 1996)	• High technological proficiency • Autonomy • Independence	Sinnithithavorn (2010), Thamma (2009)
5	Generation Z—iGen or Centennials (born between 1997 and 2015)	• Individuality • Diversity • Creativity • Personality	Miles (2022), Toth-Bordasne and Bencsik (2011)

Substantial evidence exists to prove that each generation has specific, unique, and distinctive needs, values, ethics, and attitudes in their private and professional lives (Dries et al., 2008; Lyons and Kuron, 2014). Members of any given generation experience common events, tastes, and trends that could give them identical perceptions and worldviews (Kindrick Patterson, 2007). Alternatively, employees of different generations significantly vary in their goals, expectations, work values, attitudes, and career purpose (Costanza et al., 2012; Lyons and Kuron, 2014). These findings were also confirmed in a recent study by Kwiecińska et al. (2023), who found significant differences between various generations in their work values and thinking patterns. These differences in values and expectations occurred due to multiple factors, including globalization and the quick technological and socioeconomic progress that occurred by the turn of the century (Kwiecińska et al., 2023). Knowledge about such differentials would facilitate taking actions that could limit conflicts and misunderstandings based on generational stereotypes. According to Schramm and Williams (2007), employees, irrespective of age, prefer workplace security in various forms, flexibility, and the possibility of balancing their work and private lives. They further elaborate that "where they may vary is not in what they want from work but in what they believe is the best, most effective way of getting it."

Mitchell (2000) opines that members of Generation X are cynical as they were born during social and economic turmoil. However, they value achievement more than baby boomers (Hansen and Leuty, 2012). Further, generation Y trusts nongovernment organizations more than political organizations and expects trust from service providers (Yan, 2003). Millennials are more inclined to leave their jobs if unhappy

and value leisure time more than earlier generations (Singh et al., 2021). Chen and Choi (2008) found that baby boomers value personal growth and helping people and society. They also seek intrinsic rewards (King et al., 2017), utilize learning opportunities (Jurkiewicz, 2000), and value integrity, sincerity, and commitment (Singh et al., 2021). They also are found to have higher levels of engagement (Hoole and Bonnema, 2015). In addition, they value success, collaboration, inclusivity, and rule-challenging. Veterans are generally identified as ideal employees as they manage themselves well, prefer consistency, and gain satisfaction from performing their jobs well.

1.1.3. Employee creativity

Creativity is used via media for organizations to remain flexible and successfully handle changing scenarios, and it is essential across a broad spectrum of occupations. Employee creativity generates novel and potentially valuable ideas in the organizational backdrop (Sulphey et al., 2023; Woodman et al., 1993). Hence, for organizational creativity, novelty and usefulness are needed. In addition, employee creativity is the initial stage of organizational innovation (AlAbood and Sulphey, 2023). While creativity is the generation of fresh ideas, innovation is the application of creative ideas (Zhou and George, 2001). The antecedent situations and organizational contexts that foster employee creativity have been a matter of empirical investigation (Oidham and Cummings, 1996). Watson (2007) identified that multiple external situational variables impact creativity. In addition, organizational frameworks also play significant roles in directing cognitive efforts toward generating and facilitating employee creativity (Oldham and Cummings, 1996).

Various studies have observed differences in attitudes toward creativity based on generational differences. For instance, a recent study by Sagituly and Guo (2023) found Generation Y dissatisfied with a lack of variety and creativity. Kim and Park (2022) also found that generational differences impacted organizational commitment. The generations examined were Baby Boomers, Generation X, and Millennials. An appropriate generational mix can help organizational effectiveness by combining the expertise of older generations with the creativity and technology competency of the younger generation.

1.1.4. Self-efficacy

Self-efficacy is an individual's belief in the capability to attain goals. Bandura (1977) defines it as "the belief in one's capabilities to organize and execute the courses of action required to manage prospective situations". Self-efficacy can influence anything from psychological states behaviours, and motivation. Individuals with high levels of self-efficacy believe in their abilities and report strong well-being (Bandura, 1997). It involves individual differences in and beliefs about the proficiencies and successes in the different domains (Bandura, 2001) and is a key component in understanding human behaviour and well-being. Reduced self-efficacy can result in detrimental effects. Individuals with weak self-efficacy avoid challenging tasks, do not believe in accomplishing complex tasks and facing challenging situations, and have low confidence levels (Bandura, 1997).

The resource investment principle proposes that an individual with high self-efficacy has more resources that can effectively offset the numerous pressures that

arise from creative activity (Choi et al., 2021; Salim et al., 2020). Such individuals have high confidence in their abilities and are likelier to commit resources to prevent future resource loss and stimulate creativity. Gu and Peng (2011) found that self-efficacy positively influences employee creativity and innovative behaviour. A study by Yang and Zhou (2022) found that commitment and self-efficacy positively affect creativity. Hence the first hypothesis is formulated as under:

- Hypothesis 1: Self-efficacy is positively related to employee creativity.

1.1.5. Organizational commitment (OC)

Organizational commitment is often theorized in multiple ways (Mowday, 1982). There appears to be little agreement on its definition and measurement of OC. According to Porter et al. (1974), commitment is a strong belief in and acceptance of the organization's goals and ideals, a readiness to exert significant effort on behalf of the organization, and a strong desire to maintain membership. It is how employees attach to their organization (Shanawaz and Jafri, 2009). It is a behaviour in the organizational environment that force or pulls individuals to a particular course of action.

Meyer et al. (1989) found that organizational commitment increases the employee-role job performance, benefiting the organization. OC is crucial, can positively influence work-related attitudes and behaviours, and is vital to increasing corporate competitiveness (Sahni, 2019). Employee commitment levels impact their thinking and behaviours (Mahmoudi, 2015), as high levels of commitment lead to positive feelings about the job (Tladinyane, 2012). Committed employees contribute wholeheartedly, facilitating a competitive edge to the organization. They enjoy a high-quality work life and attachment to the organization and will also develop positive behaviours, affecting their performance and effectiveness (Sahni, 2019).

Empirical examinations of commitment and generational differences have thrown out conflicting results. Verasamy et al. (2020) found a significant difference in commitment among baby boomers, generation X, and generation Y. Another empirical examination by Ay et al. (2020) found no difference in Gen X and Gen Y organizational commitment levels. Another study by Bozat (2021) also found a similar result when no significant difference was observed in organizational commitment between Generation X and Y.

- Hypothesis 2: Organizational commitment is positively related to employee creativity.

1.1.6. Psychological empowerment

Psychological empowerment is the employee's perception of competence, influence, and autonomy toward the work environment and meaningful job (Robbins and Judge, 2013). Spreitzer (1995) defined it as "a motivational construct manifested from four cognitions: meaning, competence, self-determination, and impact." It motivates employees to have meaningfulness, competencies, self-determination, and impact at the workplace. Empowered employees are motivated to contribute to the decision-making process and help solve complex organizational problems (Mann et al., 2020; Sandhya and Sulphey, 2019, 2021). Empowerment facilitates employees attaining mastery at the workplace, controlling their life situations, and developing a critical understanding of their work settings (Molix and Bettencourt, 2010).

Empowered employees have better personal, political, and interpersonal powers that support and boost their physical and mental health (Faulkner and Laschinger, 2008). The association between psychological empowerment and creativity has been identified in multiple studies (Chung, 2018). Psychological empowerment is an employee's active orientation towards assigned work roles. Empowered employees shape their work environment through proactive actions, arousing their creative behaviour (Huang, 2017). It helps employees to be satisfied (Choi et al., 2016), engaged (Jiang et al., 2019), enhance retention and perform better (Mahmood and Sahar, 2017), and have higher levels of resilience (Van Schalkwyk et al., 2010).

Amabile (1997) identified that psychological empowerment significantly impacts employee creativity by favourably influencing intrinsic motivation. Extending this, Zhang and Bartol (2010) found a positive relationship between psychological empowerment, intrinsic motivation, and creativity. Employees put in more effort to understand organizational problems from diverse perspectives and arrive at creative solutions from a wide variety of information from multiple sources, generating a significant number of alternatives by connecting diverse sources of information when they believe their job requirements are meaningful and that they are empowered (Gilson and Shalley, 2004). Kostopoulos (2019) found empowered employees to be innovative and assist in bringing about customized solutions. Empowerment also influences self-efficacy, positively impacting the job environment, and promotes proactive and resultant creative behaviour (Chung, 2018). Hence, based on theoretical considerations and past empirical evidence demonstrating the links between the factors of empowerment and employee creativity, it is proposed that:

- Hypothesis 4: Organizational empowerment is positively related to employee creativity.

1.1.7. Engagement

Engagement is a distinct construct comprising "cognitive, emotional, and behavioral components associated with individual role performance" (Saks, 2006). Schaufeli et al. (2002) presented a detailed definition of work engagement when they defined it as:

> "A positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption… refers to a more persistent and pervasive affective-cognitive state that is not focused on any particular object, event, individual, or behaviour."

Spreitzer et al. (1999) identified it as a construct that motivates employees to have meaningfulness, competencies, self-determination, and impact. It is also an extra-role behavior of organizational members. Kahn (1990) identified it as a way to outline the explicit level of employee immersion in given tasks. Engagement is characterized by vigour, dedication, and absorption of assigned tasks (Schaufeli et al., 2002). It is a persistent issue since it reliably predicts individual, team, and organizational outcomes (Bakker and Albrecht, 2018). It can also directly affect individual roles (Halbesleben, 2010) and organizational performance (Halbesleben, 2010).

Engaged employees put in more discretionary effort (Meng and Berger, 2018), leading to personal and organizational success (AlAbood and Sulphey, 2020; Al-Kahtani et al., 2020; Burawat, 2024). Ample empirical evidence demonstrates that the

decimation of work centrality and increased narcissism prevalent among the younger generations have the potential to impact employee engagement and organizational effectiveness adversely (Carr et al., 2008; Sharabi and Harpaz, 2010). Engagement is found to decrease with increased narcissism (Fenzel, 2013). Alternatively, disengaged employees experience a lack of competitive edge to survive in the market. Hence, organizations must pool their efforts to enhance aspects that can make employees energetic, dedicated, and engaged (Mostert and Rathbone, 2001). Confirming this, Basic (2018) and Fletcher (2018) found that reduced employee engagement levels and increased narcissism levels occur primarily among the younger generations. Engaged employees demonstrate improved health and safety, motivation to learn, and enhanced levels of personal and creative ideas (Maake et al., 2021). In addition, they produce positive outcomes, including generating creative ideas (Arifin et al., 2022). Hence, the next hypothesis is formulated as:

- Hypothesis 5: Engagement is positively related to employee creativity.

1.1.8. Relationship between generational difference and the variables

There is adequate literature about the relationship between generational differences and the variables identified for the study. However, most of these studies examined either one or a few variables. Research on the impact of generational differences on engagement has provided inconsistent results. For instance, Miller (2006) found significant generational differences in commitment. Studies by Brunetto et al. (2012) and Keepnews et al. (2010) among nurses found that Baby boomers have significantly higher levels of commitment than Gen X and Y. Substantial evidence exists about younger generations having less organizational and higher professional commitment (Hirsch and Shanley, 1996; Klein et al., 2006; Crainer and Dearlove, 1999; Alessia and Regina, 2008). Singh and Gupta (2015) found that Gen Y has a higher level of commitment.

A study by Fernandez (2009) among IT professionals observed that Generation Y employees are more engaged than Generation X. Shanmugam and Krishnaveni (2016) found no significant relationship between employee engagement and generational differences. Similarly, Meng and Berger (2018) found no significant relationships between narcissism and engagement levels based on generational differences. They found that millennials rated their engagement levels to be substantially higher. Another study by Fairlie (2012) found that all age groups and generations had similar employee outcomes. The outcomes examined in the study were an adjustment, discretionary efforts, exhaustion, and engagement. They inferred that irrespective of age or generation, organizations need to focus on improving working conditions and the environment. All these point toward generational differences being a dominant factor influencing engagement.

Studies have also found that the different generations possess multiple commonalities in their preferred values and thinking. Some such values, in addition to creativity, include freedom, discipline, and critical thinking. and independence (Kwiecińska et al., 2023). Thus, harnessing these generational differences can help organizations succeed (Burawat, 2023). Further, the older generation has expertise, and the younger generations have technological proficiency and creativity. In addition, there is now a decline in “social approval,” which makes younger employees dislike

conformity. They take risks and think outside the box rather than cling to the old methods, pointing towards a creative mindset (Twenge and Campbell, 2008). Millennials often seek extrinsic rewards (Krahn and Galambos, 2014), quit their jobs if unhappy, and prioritize leisure time over earlier generations (Singh et al., 2021). Younger generations are individualistic, emphasize extrinsic values and life-centralized orientation, and have fewer social interactions than older generations (Lyons and Kuron, 2014). Kim and Park (2022) found that millennials are creative, innovative, and energetic and seek leadership opportunities compared to Generation X and Baby Boomers. All these points to the younger generation having higher levels of creativity. Hence, it is hypothesized that:

- H6a: Generational difference moderates the relationship between self-efficiency and creativity.
- H6b: Generational difference moderates the relationship between commitment and creativity.
- H6c: Generational difference moderates the relationship between empowerment and creativity.
- H6d: Generational difference moderates the relationship between engagement and creativity.

Given the inconsistent and inconclusive results of the different variables identified, this study is expected to contribute substantially to the existing knowledge on generational differences.

2. Materials and methods

This study employed a quantitative, survey-based design to collect data from gainfully employed samples from Saudi Arabia. The samples involved employees from different organizations, such as service, manufacturing, banking, hospitals, and the like. The questionnaires used include the Spirituality Index of Well-being subscale developed and standardized by Daaleman and Frey (2004). It enjoys robust reliability α of 0.86. To examine organizational commitment, the study used the scale standardized by Singh and Gupta (2014). The questionnaire has the following factors: Professional commitment with three items, Job involvement with four items, and Team commitment with four items. The study used the empowerment scale developed by Spreitzer (1995) was used to measure empowerment. The questionnaire consists of items related to meaning, competence, self-determination, and impact. The Cronbach α ranged between 0.79 and 0.85, signifying good reliability. Creativity was measured using the questionnaire standardized by Mayfield and Mayfield (2010).

All the questionnaires had a five-point scale ranging from Strongly agree to Strongly disagree. The questionnaire also solicited data about the respondents' demographics, such as gender, age, years of experience, and domicile. The questionnaires were uploaded to Google Drive, and the link was shared with a few social media groups wherein potential respondents had a membership. Response to the questionnaire was purely voluntary and with informed consent, hence leading to no ethical issues. The respondents were guaranteed confidentiality, and no identifiable or personal information was requested. Since the data were collected online, there was no missing information, and all the responses could be analyzed. The data collection

process, which took over six weeks, resulted in the collection of 432 responses. 65% (281) of the samples were males, and the balance was 35% females. The ages were between 19 and 64 years, and the mean age was 34.8. The respondents' overall experience ranged from less than a year to 42 years. The experience ranged from less than a year to 34, with an average of 10.47. The majority (89.8%) were Saudi citizens, and 10.2% were expatriates.

2.1. Sample adequacy

This sample is adequate, as per Krejcie and and Morgan (1970). According to them, a sample size of 384 is adequate to represent a population of over one million. They contend that the required sample size increases at diminishing rates as the population keeps increasing, plateaus over 380, and remains constant. In addition, according to Alreck and Settle (1995), there is little to be gained over and above a sample size of 380. Hence, the collected sample of 432 is adequate. Sample adequacy was also evaluated with Kaiser-Meyer-Olkin (KMO) and Bartlett's test (Kaiser, 1974). KMO values above 0.90 are considered "excellent", over 0.80 is "good", and over 0.70 is "moderate" (Olkkonen and Saastamoinen, 2000). Similarly, Hair et al. (2010) identified that a KMO value above 0.90 is ideal, and a value below 0.60 is statistically unacceptable. The KMO value was 0.854, indicating sampling adequacy for factor analysis (Hair et al., 2010). The Bartlett's Test of Sphericity was 4794.819. The significance was 0.000. Further, the collected sample size of 432 meets the "golden standard" of Simon and Goes (2013). They are also convinced that 364 is the required sample for a sample error of five percent. Furthermore, the demographics enjoyed good diversity.

2.2. Common method variance

Since the data was gathered through self-reporting questionnaires, there could be issues associated with Common method variance (CMV). Padsakoff and Organ (1986) opine that there is a chance of CMV when data are collected for dependent and explanatory variables from the same respondents. According to Scbriesheim (1979), the presence of CMV can be examined with Harman's one-factor test. If there is CMV, when exploratory factor analysis (EFA) is run, one component will account for over 50% of the covariance (Podsakoff and Organ, 1986). Hence, EFA was run to examine the CMV issue. The analysis extracted nine factors, with the first and second factors accounting for 21.22% and 11.08% of variance, respectively. Hence, there is no issue with CMV.

In this section, authors are required to provide a detailed account of the procedure that was followed while conducting the research described in the report. This will help the readers to obtain a clear understanding of the research and also allow them to replicate the study in the future. Authors should ensure that every method used is described and include citations for the procedures that have been described previously. Avoid any kind of discussion in this section regarding the methods or results of any kind.

Research manuscripts reporting large datasets that are deposited in a publicly available database should specify where the data have been deposited and provide the

relevant accession numbers. If the accession numbers have not yet been obtained at the time of submission, please state that they will be provided during review. They must be provided prior to publication.

Interventionary studies involving animals or humans, and other studies that require ethical approval, must list the authority that provided approval and the corresponding ethical approval code.

3. Results and discussion

NOVA was done to examine the differences among the variables based on generational differences. The results are presented in **Table 2**. The results show that significant generational differences in self-efficacy, empowerment, and creativity existed. No significant differences were observed in commitment and engagement. This finding is indeed significant and would call for further examinations.

Table 2. Results of ANOVA analysis.

Variables		Sum of squares	*df*	Mean square	*F*	Sig.
Self-efficacy	Between Groups	338.481	3	112.827	4.963**	0.002
	Within Groups	9275.480	408	22.734		
	Total	9613.961	411	-	-	-
Commitment	Between Groups	13.710	3	4.570	0.297 NS	0.827
	Within Groups	6269.338	408	15.366		
	Total	6283.049	411	-	-	-
Empowerment	Between Groups	537.863	3	179.288	4.283**	0.005
	Within Groups	17079.885	408	41.862		
	Total	17617.748	411	-	-	-
Engagement	Between Groups	6.763	3	2.254	0.505 NS	0.679
	Within Groups	1819.995	408	4.461		
	Total	1826.757	411	-	-	-
Creativity	Between Groups	347.910	3	115.970	3.966**	0.008
	Within Groups	11931.049	408	29.243		
	Total	12278.959	411	-	-	-

To ensure the robustness of the data, reliability, validity, and assumptions like linearity, normality, and multicollinearity were assessed (Lee et al., 2020). The details are presented in the following sections.

3.1. Measurement model

Though the questionnaires used to gather data were adapted from previous studies, the instrument's content validity was examined. In SEM, the models are specified in the backdrop of a theory and are estimated to test this theory (Hayduk et al., 2007). This study used SmartPLS software (version 2.0.M3) to analyze the data. PLS-SEM was used as it is deemed good for theory building and testing. It involves evaluating the outer and inner models of the measurement model. As an initial step, the study examined the reliability and validity presented in the following sections.

3.2. Construct reliability and validity

Validity and reliability are indispensable before testing the significance of relationships in any model structure (Fornell and Larcker, 1981). According to Hair et al. (2011), construct validity results provide a better understanding of the quality measures used. The study used Cronbach's alpha and composite reliability (rho_a) to examine consistencies (Götz et al., 2009). **Table 3** indicates that all the constructs have fairly good alpha values. Hair et al. (2014) propose that alpha values above 0.60 are acceptable in exploratory research. The alpha values in the current study are within this limit. This indicates the reliability of the constructs. The rho_a is also above 0.70, as Dijkstra and Henseler (2015) stipulated.

AVE measures the convergent validity. The AVE values ranged between 0.606 and 0.741 (**Table 3**), above the stipulated limit of 0.50 (Fornell and Larcker, 1981). All these indicate the internal consistency and convergent validity of the measurement model.

Table 3. Construct reliability and validity.

Variables	Standardized factor loadings	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Commitment	0.863 0.847 0.712	0.632	0.633	0.845	0.731
Empowerment	0.777 0.820 0.821	0.789	0.789	0.864	0.614
Engagement	0.765 0.796 0.774	0.675	0.675	0.822	0.606
Self-Efficacy	0.981 0.692	0.701	0.708	0.834	0.721
Creativity	0.847 0.861 0.874	0.826	0.833	0.896	0.741

Source: Smart PLS output (primary data).

The outer model is examined using confirmatory factor analysis. According to Hair et al. (2014), it involves the unidirectional predictive relationships between the latent construct and the observed indicators. Kline and Santor (1999) stipulate that all standardized factor loading coefficients must exceed 0.50. In this research, the standardized factor loadings ranged between 0.692 and 0.981, meeting Klien's (2015) stipulation.

3.3. Discriminant validity

Discriminant validity is assessed through the Fornell-Lacker criterion (Fornell and Larcker, 1981). It compares the AVE's square roots with the latent constructs' correlations. Fornell and Larcker (1981) state that to have discriminant validity, the *r*-

values of the latent constructs should be lesser than the square roots of AVE (values presented in the diagonal). The details presented in **Table 4** show good discriminant validity.

Table 4. Fornell-Larcker criterion.

	Commitment	**Creativity**	**Empowerment**	**Engagement**	**GD**	**Self -Efficacy**
Commitment	0.855	-	-	-	-	-
Creativity	0.398	0.861	-	-	-	-
Empowerment	0.332	0.480	0.784	-	-	-
Engagement	0.421	0.331	0.399	0.778	-	-
GD	0.058	0.042	0.115	0.054	1.000	-
Self -Efficacy	0.146	0.125	0.117	0.148	0.056	0.849

Source: Smart PLS output (primary data).

The Heterotrait-Monotrait (HTMT) ratio is a better method for examining discriminant validity. **Table 5** gives the details of discriminant validity through HTMT. According to Gold et al. (2001) HTMT values ≤0.90 are acceptable for discriminant validity.

Table 5. Heterotrait-monotrait ratio (HTMT).

	CM	**CR**	**EM**	**EN**	**GD**	**SE**	**GD × SE**	**GD × CM**	**GD × EM**
Commitment (CM)	-	-	-	-	-	-	-	-	-
Creativity (CR)	0.544	-	-	-	-	-	-	-	-
Empowerment (EM)	0.473	0.589	-	-	-	-	-	-	-
Engagement (EN)	0.646	0.439	0.548	-	-	-	-	-	-
GD	0.074	0.052	0.130	0.090	-	-	-	-	-
Self- Efficacy	0.241	0.126	0.137	0.193	0.080	-	-	-	-
GD × Self Efficacy	0.053	0.028	0.053	0.045	0.021	0.025	-	-	-
GD × Commitment	0.166	0.090	0.042	0.159	0.072	0.078	0.141	-	-
GD × Empowerment	0.037	0.071	0.037	0.088	0.123	0.029	0.156	0.410	-
GD × Engagement	0.143	0.042	0.052	0.095	0.039	0.038	0.101	0.320	0.392

Source: Smart pls output (primary data).

From the above results, the reliability and validity of the measurement model are assumed.

3.4. Model fit

The model fit was also examined, which is a crucial step of model validation in SEM. Model fit examines how well the model explains the data (Kline, 2015). The results are presented in **Table 6**.

The model fit in PLS-SEM is based on SRMR, d_ULS, d_G, ChiSquare, ChiSquare, and NFI (Hair et al., 2014). There is a fit if SRMR is less than 0.08 (Hu and Bentler, 1998), NFI is less than 0.90 (Bentler and Bonett, 1980; Hair et al., 2014). The d_ULS and d_G demonstrate the empirical covariance matrix and composite factor model covariance matrix (Hair et al., 2014). It can be observed from **Table 6**

that the values exhibit robust goodness of fit.

Table 6. Model fit summary.

	Saturated model	Estimated model
Standardized Root Mean Square Residual (SRMR)	0.070	0.070
Squared Euclidean distance (d_ULS)	0.589	0.590
Geodesic distance (d_G)	0.229	0.230
Chi-square	579.213	582.354
Normed Fit Indices (NFI)	0.690	0.688

Source: Smart PLS output (primary data).

3.5. Multicollinearity test

Next, the multicollinearity test was examined. Co-linearity between latent variables could result in biased path coefficients. The study used variance inflation factor (VIF) to determine if there is co-linearity between the constructs (Ringle et al., 2015). The rule of thumb for the VIF outer model is that the value should be lower than five (Hair et al., 2014). The VIF values in **Table 7** indicated the nonexistence of multicollinearity among the variables.

Table 7. VIF values (outer model).

Variables	Creativity
Commitment	1.298
Empowerment	1.254
Engagement	1.362
Generational -Difference	1.034
Self- Efficacy	1.044
GD × Self-Efficacy	1.043
GD × Commitment	1.288
GD × Empowerment	1.353
GD × Engagement	1.240

Source: Smart PLS output (primary data).

According to Rahi (2012), a value of less than 3.3 is ideal for VIF. The inner VIF values presented in **Table 8** meet this stipulation. In addition, Kock and Lynn (2012) proposed that VIF values ≤3.3 addresses collinearity issues. This result presented in **Tables 7** and **8** indicates the absence of lateral multicollinearity concerns (Hair et al., 2017).

The structural model is evaluated by the coefficient of determination (R^2) and path coefficients (Dijkstra and Henseler, 2015). R^2 assesses the predictive accuracy. It represents the combined effect of the exogenous variables on the endogenous variables. According to Cohen (1988), R^2 values of 0.26, 0.13, and 0.02 describe substantial, moderate, or weak explanatory power, respectively. The R^2 value in the current study is 0.310, and the adjusted R^2 is 0.295, which is higher than 0.26, suggesting strong explanatory power (Cohen, 1988).

Table 8. Variance Inflation Factor (VIF) (inner model).

	ES	GC	GSV	GV
ES	-	-	-	-
GC	1.766	-	-	-
GSV	1.534	1.084	-	-
GV	1.249	1.084	-	-

3.6. Evaluation of structural model

Using a multi-analytical method, the study sought to supplement and augment current knowledge about the relationship between the variables examined. PLS-SEM can help validate the conceptual models developed using current theories that can predict creativity. Followed by factor analysis and data fit testing, the study used the bootstrapping technique to investigate the significance of the direct and indirect relationships of the structural model. The test was carried out with a bootstrapping sample size of $N = 10000$ (Hair et al., 2017; Henseler et al., 2016). The *t*-values for the path coefficients were then evaluated to determine the importance of the hypothesized paths.

Table 9 and **Figure 1** present the path analysis coefficients, *t*-values, and *p*-values for the hypothesized paths. The results indicate a few interesting insights about the variables studied. While commitment and empowerment have a significant positive relationship with creativity and could be predictors, the variables engagement and self-efficacy had no significant relationship with creativity. Though it was expected and hypothesized that generational differences would moderate the relationship between the behavioural variables, the results proved otherwise, as the *p*-values are not significant. The study found that generation differences do not moderate the relationship between all the chosen variables and creativity.

Table 9. Path coefficients.

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	*P* values
Commitment → Creativity	0.234	0.233	0.052	4.460	0.000
Empowerment → Creativity	0.366	0.365	0.055	6.691	0.000
Engagement → Creativity	0.078	0.082	0.049	1.597	0.110
Self- Efficacy → Creativity	0.039	0.046	0.044	0.886	0.376
GD × Self-Efficacy → Creativity	−0.001	−0.003	0.040	0.020	0.984
GD × Commitment → Creativity	−0.083	−0.085	0.049	1.692	0.091
GD × Empowerment → Creativity	0.104	0.104	0.062	1.693	0.090
GD × Engagement → Creativity	0.011	0.013	0.041	0.282	0.778

Source: Smart PLS output (primary data).

A positive and significant path coefficient ($\beta = 0.234$, $p = 0.000$) between organizational commitment indicates a strong and positive effect on employee creativity. This suggests that employees more committed to their organization are likely to exhibit higher levels of creativity. The positive and significant path coefficient ($\beta = 0.366$, $p = 0.000$) demonstrates that employee empowerment

significantly predicts creativity. Empowered employees tend to be more creative, likely due to increased autonomy and confidence in their abilities. Though the relationship between engagement and creativity is positive, it is not statistically significant ($\beta = 0.078$, $p = 0.110$). This suggests that, within the sample, engagement does not directly affect creativity. The relationship between self-efficacy and creativity is also not significant ($\beta = 0.039$, $p = 0.376$), indicating that self-efficacy does not significantly predict employee creativity. The moderation results have also thrown out exciting results. The interaction between generational differences and self-efficacy does not significantly affect creativity ($\beta = -0.001$, $p = 0.984$). The interaction between generational differences and commitment also does not affect creativity ($\beta = -0.083$, $p = 0.091$). Similarly, generational differences did not moderate the relationship between empowerment and creativity ($\beta = 0.104$, $p = 0.090$). So is the moderating relationship of generational differences between engagement and creativity ($\beta = 0.011$, $p = 0.778$). Though these moderating effects were not statistically significant at the 5% level, they were close enough to suggest further investigation. Future research could explore these dynamics more deeply, with larger sample sizes or different methodological approaches, to better understand how generational differences influence the antecedents of creativity in the workplace.

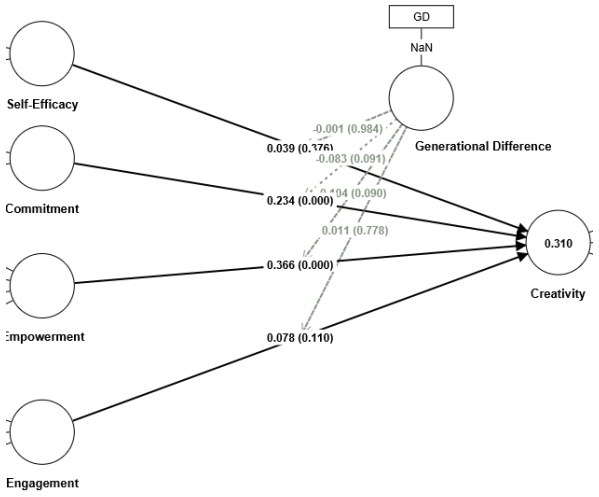

Figure 1. Final model.

Source: Smart PLS output.

4. Discussion

This study draws on the premise that generation is a significant psychological characteristic since it reflects the culture of one's upbringing within a given time. The findings of the study are in line with earlier studies. Each generation is shaped by unique experiences throughout critical developmental times (Stewart and Healy, 1989). The pervasive influence of extensive influencing forces like parents, friends, media, and culture create shared value systems among people growing up simultaneously, distinguishing them from others (Twenge and Campbell, 2008). For instance, the influence of multiple factors, including the development of technology, made growing up in the 1990s different from growing up in the 1970s or the 1950s.

The present study contributes to the existing body of management literature in

different ways. With the help of ANOVA, the study found significant generational differences in three variables—self-efficacy, empowerment, and creativity. No significant differences were observed for the other two variables—commitment and engagement. This finding is significant and would require further examination to determine the causative factors. In addition, this study proposed a research model that examined and validated the moderating link between generational differences and a few behavioural antecedents of creativity. SEM was used to analyze the moderating effect of generational differences on the variables. SEM helps examine multiple and complex relationships between and among the study variables. The current research is relevant in the volatile, uncertain, and competitive environment where organizations require highly motivated employees who can take higher responsibility and perform effectively. Currently, in all workplaces, employees from different generations work together. Colleagues are now as young as one's children and as old as their parents (Zemke et al., 2000). There is now an increasing realization among behaviouralists that age relates only to one's hopes, learning styles, and expectations. Understanding each generation and addressing their requirements would help achieve efficiency, morale, and retention. Earlier generational mixing was rare and was structured primarily by formality and protocol. Decisions were made by veteran employees and were passed down and communicated to the youth through line supervisors. Such decisions lacked transparency and strategic backing with a top-down bureaucratic approach (Martin and Tulgan, 2002). These aspects have now undergone a sea change, and employees from multiple generations work together. Burawat (2023) opine that generational blending generates synergy and fosters creativity and technological proficiency. However, this blending could also create challenges due to generational disparities in beliefs, worldviews, working styles, thinking, and attire (Raines, 2003). If channeled appropriately, there could also be numerous benefits as thought patterns shift away from group-oriented thinking based on birth years and focus on organizational strategies and objectives (Twenge and Campbell, 2008).

The study findings highlight the differences in identified variables among the different generations. Since the generational difference is a reality, organizations must consider and focus on it and build a generation-specific HR approach and practices to help motivate, retain, and foster creativity among their employees effectively. HR practices can be customized to cater to different career stages and align employees of various generations who exhibit diverse needs and expectations (Conway, 2004). Progressive organizations can also initiate steps to bridge generational gaps, understand their strengths and weaknesses, and manage disharmony among the different generations.

The study has some limitations that can be addressed in future research. Future studies should examine the relative and interactive effect of the variables on employee performance. Studies could also explore generational differences in job performance and organizational expectations. This study mainly focussed on white-collar employees, and there is a need for research on blue-collar employees with a specific focus on generational differences among Gen Y, their creativity levels, and challenges in managing them. Further, the generational cohorts for the study were limited to Saudi Arabia. Future studies could be undertaken to include cohorts from other locations, and comparative studies could be conducted. Further, the present study was cross-

sectional. A longitudinal study could be undertaken to help identify the differences between all the groups.

5. Conclusions

Managers have recognized that the current generation differs significantly from previous ones, particularly in psychological and technological aspects. These differences profoundly impact employee behavior. Successful organizations effectively understand and manage these generational differences harmoniously, accommodating and blending them. In the twenty-first century, success will come to those organizations that can harness the unique traits of the younger generation. This study sheds light on the interplay between generational differences and employee creativity within Saudi Arabia. This research bridges a crucial gap in the literature by examining the moderating role of generational differences on the relationship between behavioral antecedents and employee creativity. The study confirms that self-efficacy, organizational commitment, employee empowerment, and work engagement are vital antecedents of creativity. However, the impact of these antecedents varies across generational cohorts, highlighting the need for tailored strategies to foster creativity in a multigenerational workforce. These insights are invaluable for managers, lawmakers, and policymakers in Saudi Arabia and beyond. Understanding the unique needs and strengths of each generational cohort can inform more effective management practices and policies, fostering an environment that maximizes the creative potential of all employees. This approach is essential for driving innovation and maintaining competitive advantage in today's dynamic business landscape. Future research should continue to explore these dynamics across different cultural and organizational contexts, incorporating diverse data sources and methodological approaches. Such efforts will further elucidate the complex relationships between generational differences, behavioral antecedents, and employee creativity, contributing to a more comprehensive understanding of cultivating creativity in the workforce.

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