



# Navigating digital stress and the flexible work environment: increasing generation z and alpha productivity through adaptive communication

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## ABSTRACT

This study investigates the role of communication as a moderating variable in the influence of work stress and work environment on the productivity of Generation Z and Alpha. Using a quantitative approach with data from 41 assessors at the Cibubur Geospatial Professional Certification Institute (LSP), analyzed through SmartPLS 4.1.1.4, the findings reveal a moderating role at various levels of communication that is crucial for management in managing work stress and work environment in an effort to increase employee productivity. Stakeholders should pay attention to the effectiveness of communication to ensure stress management and work environment for ensuring high level of assessor productivity. The study limited on the sample size and in one professional institution only. Hopefully, the future research can be continued in other types of businesses, with more globally respondents to refine the generalizations.

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## INTRODUCTION

The dynamics of the modern work environment place high demands on the performance of human resources, including assessors at the Geospatial Professional Certification Institute (LSP). The contemporary professional landscape is increasingly shaped by the pervasive influence of digital technologies, profoundly impacting work dynamics and individual productivity. Digital tools and platforms have become integral to business operations, influencing communication patterns, decision-making processes, and employee interactions (Cijan et al., 2019; Özbek & Christiansen, 2025). This shift has created both opportunities and challenges for organizations as they adapt to rapid technological advancements and the evolving expectations of a digital workforce (Vartiainen, 2020). Understanding the factors that drive or hinder performance, particularly among emerging generations, is paramount for organizational success. For instance, digitalization has been shown to improve job satisfaction and worker autonomy, although it can blur work-life boundaries (Ajibade Adisa et al., 2024). Additionally, younger generations, such as Millennials and Generation Z, value aspects like purpose, personal development, and work-life balance, which are crucial for their job

satisfaction and overall productivity (Astuty et al., 2025; Martins et al., 2024). Organizations must therefore implement strategies that promote a positive employee experience, such as flexible work arrangements, continuous learning opportunities, and effective communication practices, to maintain engagement and productivity in a tech-driven environment (Ozolina et al., 2024; Saraiva & Nogueiro, 2025)

Work stress and the environment significantly impact individual output, presenting new challenges in the digital age. The integration of digital technologies in the workplace has transformed work dynamics, often leading to increased stress levels among employees due to factors such as time pressure and mental strain (Klumpp et al., 2024). This stress can negatively influence work performance, highlighting the need for effective stress management strategies (Makowska-Tłomak et al., 2023). Effectively managing these factors is essential for organizational competitiveness. Companies need to focus on creating a supportive work climate to mitigate the negative consequences of stress (Lecca et al., 2020). Additionally, digital transformation can enhance productivity by optimizing production management processes and reducing human resource redundancy (Zhou et al., 2025). However, it is crucial to balance the benefits of digital technologies with the potential stress they may cause, ensuring that employees' well-being is prioritized.

Gap exists in comprehensively understanding the unique stressors and environmental preferences of these younger generations in the digital age. While general studies have explored the impact of stress and environment on productivity, few have specifically focused on how these dynamics play out for digital natives. For instance, research indicates that the unique demands and constraints of these sectors can exacerbate stress levels, which in turn affects productivity and overall well-being (Fauquet-Alekhine & Erskine, 2023). Additionally, the integration of Generation Z into the workforce has introduced new challenges related to job satisfaction, retention, and organizational culture, necessitating tailored strategies to harness their potential and mitigate stress-induced productivity losses (Ferrerias-Perez et al., 2023). Understanding and addressing these generational needs and stressors is crucial for fostering a productive and sustainable work environment in these sectors (Racolța-Paina & Irini, 2021). Furthermore, the complex interplay of these factors, particularly with the mediating or moderating role of work communication, remains underexplored in this specific generational context. This gap is critical, as the default modes of communication for Gen Z and Alpha are predominantly digital, which can either exacerbate or mitigate work-related challenges. Consequently, organizations lack tailored strategies to optimize productivity for this demographic, leading to potential inefficiencies and unaddressed well-being concerns.

To address this critical literature gap, this study endeavors to intricately elaborate on how work stress and the evolving digital work environment influence the productivity of Generation Z and Generation Alpha. It specifically investigates the pivotal role of adaptive communication as a moderating variable within these relationships. By focusing on how effective communication strategies can transform potential negative impacts into positive drivers, this research aims to provide actionable insights for contemporary organizations. This approach moves beyond simply identifying problems to proposing solutions for fostering a more resilient and productive workforce. The findings are expected to contribute significantly to both academic discourse and practical management strategies in the digital era.

This research aims to further develop the existing body of knowledge by adopting a specific focus at the Geospatial Professional Certification Institute (LSP). The productivity of assessors in professional certification bodies is currently facing significant challenges, leading to a noticeable decline. These challenges include the increasing complexity of maintaining up-to-date certification programs amidst rapid technological advancements and evolving industry standards (Giron et al., 2021). Additionally, the administrative burdens and system barriers have made it difficult for assessors to stay current and maintain their competency, further contributing to the productivity decline (McMahon & Newton, 2020). Consequently, the need for continuous professional

development and innovative assessment strategies has become more critical than ever to ensure high-quality certification processes (van Berkel, 2014). Drawing upon the conceptual framework that highlights the direct effects of work stress and work environment on productivity, this study will critically examine the moderating influence of work communication. By employing a quantitative approach, similar to the foundational study, and analyzing data from a relevant sample, this research seeks to validate and extend findings regarding the nuanced impact of communication. The ultimate goal is to provide a comprehensive understanding that informs the development of targeted interventions, enabling organizations to optimize the performance of their youngest talent even amidst the complexities of digital stress and evolving work structures. The development of the hypothesis is in the form of the first hypothesis that work communication moderates the influence of work stress on productivity. The second hypothesis is that work communication moderates the influence of the work environment on productivity

## RESEARCH METHOD

A Quantitative approach with a causal explanatory design to examine the hypothesized relationships among variables. These methods allow for precise measurement and analysis, making them ideal for evaluating the complex interactions between stress, work environment, and productivity (Wiratmoko, 2019). The research population comprised all 41 assessors at the Geospatial Professional Certification Body (LSP Geospasial) Cibubur, and given this limited number, saturated sampling was utilized, involving all assessors as respondents. Primary data were collected through questionnaires distributed to respondents, using a Likert scale to measure their perceptions of work stress, work environment, work communication, and productivity. These instruments have been adopted from previous study (Robbin & Judge, 2015) (Sedarmayanti, 2017). Data analysis was conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM) via SmartPLS 4 software, chosen for its capability to test complex latent construct relationships, including moderation effects, and its effectiveness with relatively small sample sizes (Legate et al., 2023). PLS-SEM provides better construct reliability and validity, suitable on non-normally distributed data, making it a robust choice for analyzing latent constructs (Dash & Paul, 2021). Prior to hypothesis testing, the data underwent assessments for convergent validity, reliability, discriminant validity (Fornell-Larcker Criterion and HTMT), and model fit (R-square) to ensure the quality of both the measurement and structural models. The demographic profile of the respondents is presented in the following table:

**Table 1.** Respondent Demographics

| Kriteria  | Item       | Jumlah | %     |
|-----------|------------|--------|-------|
| Gender    | Male       | 33     | 82,61 |
|           | Female     | 8      | 17,39 |
| Age       | 21 - 30 yo | 1      | 3,04  |
|           | 31 - 40 yo | 10     | 24,74 |
|           | 41 - 50 yo | 12     | 30,09 |
|           | 51 - 70 yo | 18     | 42,13 |
| Education | D3         | 0      | 0,00  |
|           | S1         | 12     | 36,96 |
|           | S2         | 18     | 39,13 |
|           | S3         | 11     | 23,91 |
|           | D3         | 0      | 0,00  |

Construct validity and Cronbach's Alpha reliability assessments as per (Hair et al., 2019). Subsequently, the collected data were analyzed using SEM-PLS to examine the relationships between compensation, motivation, and performance. Data requirements for the analysis were outlined in a table, following the guidelines. Respondent answers were then imported into SmartPLS

4 in CSV format, where the PLS Algorithm was executed. The initial output provided convergent validity values, specifically outer loadings. Adhering to the criteria established by (Hair et al., 2019), outer loadings exceeding 0.4 were deemed acceptable, provided that the Average Variance Extracted (AVE) was greater than 0.5 and internal consistency ( $\rho_a$  and  $\rho_c$  values) exceeded 0.7 (Ringle & Sarstedt, 2016).

## RESULTS AND DISCUSSIONS

The necessary thresholds for conducting bootstrap operations, including convergent validity and reliability, have been met, achieving the following criteria:

**Tabel 2: Convergen validity**

|                       | <i>Cronbach's alpha</i> | <i>Composite reliability (rho_a)</i> | <i>Composite reliability (rho_c)</i> | <i>Average variance extracted (AVE)</i> |
|-----------------------|-------------------------|--------------------------------------|--------------------------------------|---|
| Work Stress (ST)      | 0.937                   | 0.947                                | 0.953                                | 0.802                                   |
| Work Environment (LK) | 0.950                   | 0.958                                | 0.960                                | 0.800                                   |
| Communication (KOM)   | 0.885                   | 0.904                                | 0.918                                | 0.697                                   |
| Productivity (PROD)   | 0.920                   | 0.941                                | 0.944                                | 0.810                                   |

**Tabel 3: Discriminant validity Heterotrait-Monotrait**

| HTMT                  | KOM   | LK    | PROD  | STRESS |
|-----------------------|-------|-------|-------|--------|
| Communication (KOM)   |       |       |       |        |
| Work Environment (LK) | 0.709 |       |       |        |
| Productivity (PROD)   | 0.659 | 0.814 |       |        |
| Work Stress (ST)      | 0.850 | 0.838 | 0.827 |        |

To test the hypothesis, the authors based the significance value (p value)  $<0.05$  on the analysis of specific pathways and indirect effects (Aburumman et al., 2023). As for the strength of the effect, it is based on the original sample value (Shmueli et al., 2019). According to Hair et al., (2017), if each  $R^2$  is valued at 0.75, 0.5, or 0.25, then the influence of exogenous latent variables on endogenous latent variables can be categorized as strong, moderate, or weak. These values can be seen in table 4

**Tabel 4: Structural Model Assessment**

| Hypotese           | Original sample | Standard deviation (STDEV) | T statistics ( $ O/STDEV $ ) | P values |
|--------------------|-----------------|----------------------------|------------------------------|----------|
| H1: KOMxST -> PROD | 0.517           | 0.275                      | 1.878                        | 0.030    |
| H2: KOMxLK -> PROD | -0.544          | 0.287                      | 1.898                        | 0.029    |

From the t-statistic and p-value, it can be seen that there is a significant influence of communication as a moderator, both hypotheses. Interpretation of moderator influences should be based on simple slope analysis at the difference level of Communication. This method involves plotting the relationship at specific values of the moderator, typically at  $\pm 1$  or 2 standard deviations from the mean, to illustrate how the strength and direction of the relationship change (Finsaas & Goldstein, 2021; Frisby & Diemer, 2021). figure 2 and figure 3

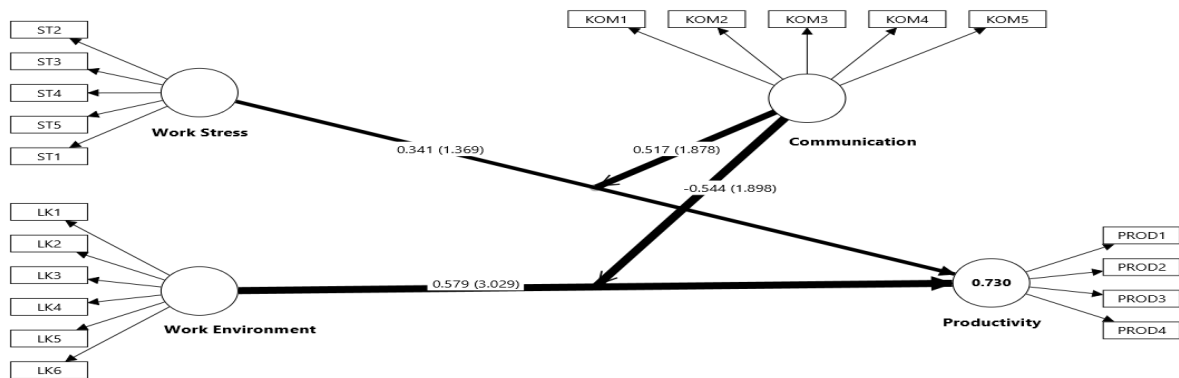


Figure 1. Outer loading value for each construct indicator

The effect of work communication moderation on the effect of work stress on productivity

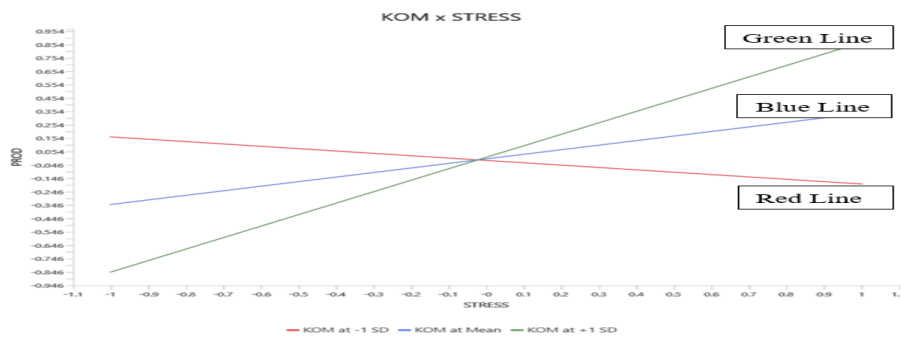


Figure 2; Simple slope of communication moderation on the effect of work stress on productivity

At low communication level (red line on figure 2), the increasing work stress leads to a low productivity subtraction only. It indicates the assessor's limited ability to cope with stress impact. Interestingly, when communication is moderate (blue line on figure 2), the increase in stress actually slightly increases productivity, indicating the presence of "optimal stress" supported by adequate communication. However, the most significant effect was seen at high levels of communication (green line on figure 2), where increased stress significantly increased productivity. This shows that effective communication allows assessors to turn pressure into motivation, collaborate, and seek support to perform better. Thus, communication significantly moderates the relationship between work stress and productivity, making it a key factor that transforms the impact of stress from a barrier to a powerful productivity driver. Studies have shown that effective communication within teams can help workers manage stress better, thereby improving their productivity (Battiston et al., 2021). This suggests that while communication can help alleviate some of the negative effects of job stress, it does not completely counteract the impact of stress on productivity. Therefore, while communication is beneficial, its role as a moderator in this context is limited and requires further investigation to understand its full potential.

The Geospatial Professional Certification Institute (LSP) Cibubur should focus on direct interventions to reduce work stress, such as providing mental health resources and promoting a healthy work-life balance, rather than relying solely on communication improvements. Enhancing managerial support and fostering a supportive work environment can directly manage stress and improve productivity, as these factors have shown significant positive impacts (Lee et al., 2022). Companies should invest in training programs that enhance employees' resilience and coping mechanisms, which can buffer the negative effects of stress on productivity (Wu et al., 2021).

Additionally, it is crucial to tailor stress management approaches to the specific needs of different employee groups, as stressors and their impacts can vary significantly across roles and organizational contexts. Continuous feedback mechanisms should be established to identify and address emerging stressors promptly, ensuring that stress management strategies remain effective and relevant (Gui, 2021).

Focus on Generation Z and alpha, investment in improving the quality of communication is very important for LSP Geospacial Cibubur, because good communication can turn stress from a barrier to a trigger for performance improvement. Rather than eliminating stress entirely, organizations should focus on creating a communication environment that allows assessors to manage and even utilize stress optimally for productivity. Stress management strategies need to include improved communication skills, collaboration, and support between colleagues and management. Open communication channels are vital for complaint submission, help, and coordination in dealing with work tantrics. Overall, communication is a key factor that changes how work stress affects productivity, making it a positive driver for performance

### The effect of work communication moderation on the influence of the work environment on productivity.

When communication in LSP Geospacial Cibubur is low (red line on figure 3), a positive improvement in the work environment will significantly increase productivity, showing the vitality of a good work environment when communication is poor. At medium levels of communication (blue line on figure 3), although the improvement of the work environment still increases productivity, the impact is not as strong as when communication is low. Interestingly, when communication is high (green line on figure 3), the influence of the work environment on productivity becomes very minimal or insignificant; This means that effective communication has become a strong foundation that makes productivity stable, regardless of the working environment conditions. Therefore, communication significantly moderates the relationship between the work environment and productivity, acting as a buffer or reinforcement. At a low level of communication, improvement of the work environment is crucial, while at a high level of communication, productivity becomes more resilient to the conditions of the work environment.

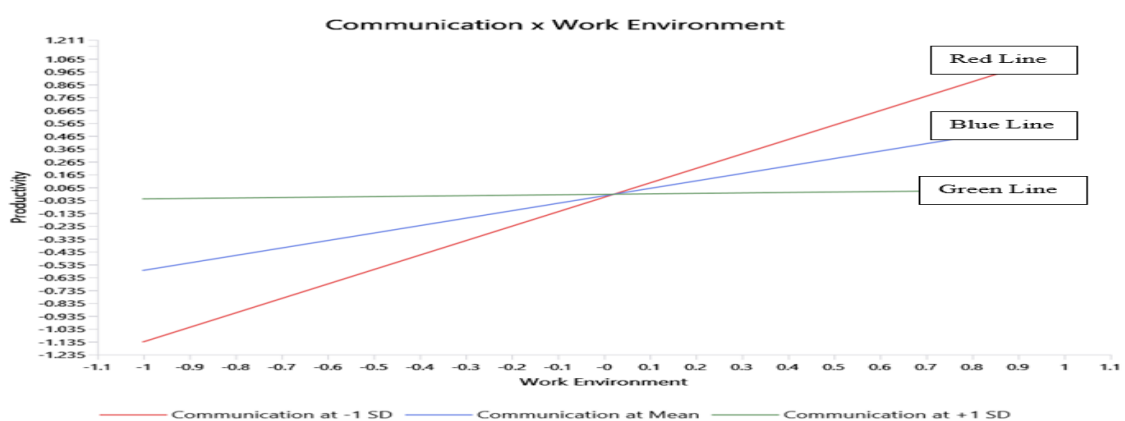


Figure 3. Simple Slope Analysis

Studies have shown that enhancing the physical and psychological aspects of the work environment can significantly boost employee satisfaction and productivity, even when communication is suboptimal (Moletsane et al., 2019). For instance, factors such as better lighting, ergonomic office layouts, and reduced noise levels contribute to a more conducive work environment, which in turn enhances productivity (Katabaro & Yan, 2019). Additionally, creating a supportive and engaging work atmosphere can mitigate the negative effects of poor communication,

leading to higher job satisfaction and efficiency. Therefore, focusing on improving the work environment can be a highly effective strategy to enhance productivity in settings where communication is limited (Sanjaya et al., 2023).

This is particularly evident in settings where poor communication correlates with low productivity, as seen in a rod mill study where enhancing employee involvement and communication was recommended to boost productivity (Appelbaum et al., 2005). In such scenarios, creating a supportive work environment that fosters concentration and self-management can lead to substantial improvements in both individual and team productivity. Additionally, open-plan offices, which promote social interaction and a democratic work culture, can enhance employee well-being and productivity by facilitating better communication and collaboration (Samani et al., 2022). However, it is crucial for managers to recognize that different workplace settings can impact various dimensions of productivity differently, and thus, a balanced approach is necessary. Therefore, the Geospatial Professional Certification Body (LSP Geospasial) Cibubur, should focus on designing work environments that not only improve physical conditions but also support effective communication and self-management practices to maximize productivity, especially when direct communication is limited.

Improving the communication quality at LSP Geospatial Cibubur is very important because it creates a more stable work environment, making productivity less susceptible to fluctuations in conditions. If instant communication improvements are difficult to do, focusing on improving the work environment is crucial to maintain productivity. Therefore, long-term investment in communication training, an open communication culture, and efficient systems will significantly improve and maintain assessors' productivity

### **Managerial Implication**

Improving communication alone isn't enough to fully counteract the negative effects of work stress on productivity; therefore, managers should prioritize direct interventions like providing mental health resources, promoting work-life balance, and fostering supportive environments, while also investing in resilience training and tailoring strategies to diverse employee needs with continuous feedback. Conversely, communication significantly amplifies the positive impact of a good work environment on productivity, especially when communication is initially poor, suggesting that enhancing physical and psychological work conditions is crucial, particularly in settings where direct communication is limited, as a strong work environment can offset the drawbacks of suboptimal communication.

### **Limitation**

There are several limitations of this research, such as a small sample size and specific institutional contexts, can significantly impact the study's credibility and generalizability. Small sample sizes often lead to underpowered studies, making it difficult to detect true differences or effects, thus compromising the reliability of the findings (Daem et al., 2020; Ovanez, 2023). Additionally, the specific institutional context e.i Geospasial LPS may limit the applicability of the results to broader settings, reducing the external validity of the study (Faber & Fonseca, 2014). The use of a single questionnaire for data collection introduces further limitations, as it may not capture the full complexity of the research questions and can introduce biases or errors in the data (Ranganathan & Caduff, 2023). This method also restricts the depth of data collected, potentially overlooking important qualitative insights that could be obtained through mixed methods. Consequently, these limitations necessitate careful consideration in the interpretation and application of the study's findings, highlighting the need for more robust and diverse methodological approaches in future research. Further research is needed to fill these limitations.

## CONCLUSION

This Study investigates the influence of work stress and the digital work environment on the productivity of Generation Z and Alpha, with a specific focus on the moderating role of adaptive communication. Utilizing a quantitative approach with data from 41 assessors at the Geospatial Professional Certification Institute (LSP) Cibubur, analyzed via SmartPLS 4.1.1.4, the findings reveal a significant positive direct effect of the Work Environment on Productivity. Crucially, Communication significantly moderates the relationship between Work Environment and Productivity, and demonstrates its strongest impact when communication levels are low. Conversely, communication's moderating effect on the Work Stress-Productivity relationship was not statistically significant, suggesting its limited role in directly mitigating stress's impact on productivity. These results underscore the vital importance of a supportive work environment in enhancing productivity, especially when communication is suboptimal, while highlighting the need for direct interventions to manage work stress performance. Future research should explore nuanced aspects of communication and broader contexts to validate these findings.

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