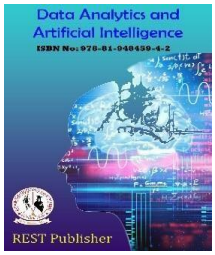
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Skewness And Kurtosis Analysis Using SPSS Understanding Data Distribution in High-Performance Studies

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Abstract: *Impulsive behavior arises from a persistent lack of self-restraint, leading to hasty, excessive, or poorly controlled actions. Such conduct overlooks rational thinking, disregards long-term consequences, and favors immediate gratification over deliberate decision-making. Individuals who act impulsively often face disruptions in personal stability, strained relationships, and diminished emotional balance, as their actions tend to generate unnecessary conflict and instability. This pattern can also impair professional performance, since rash or uncontrolled decisions weaken reliability and productivity. Impulsivity commonly stems from insufficient self-control, heightened emotional reactivity, or a habitual neglect of boundaries, making it challenging to sustain constructive routines or consistent discipline. Over time, these tendencies elevate stress, increase misunderstandings, and undermine overall well-being. Practicing moderation supports clearer judgment by encouraging individuals to pause before acting, evaluate possible outcomes, and make choices aligned with long-term objectives. Through strengthening self-control, people can navigate difficulties with composure, resist harmful urges, and maintain healthier interpersonal relationships. Moderation also enhances emotional resilience, fostering thoughtful responses rather than impulsive reactions during moments of stress. Developing balanced habits—such as setting personal limits, reflecting before responding, and prioritizing constructive decisions—helps gradually replace the disorder created by excessive behavior. Ultimately, self-discipline and mindful awareness contribute to a more stable, harmonious, and productive life while reducing the adverse effects associated with impulsive actions and promoting more responsible engagement in both personal and professional settings.*

Key Words: *High-Performance Concrete (HPC), Compressive Strength, Durability Workability, Mix Optimization, Genetic Algorithm (GA), Support Vector Machine (SVM/ESIM), KCGA Hybrid Model, Concrete Mix Proportioning, Predictive Modeling*

1. INTRODUCTION

The successful application of KCGA and ESIM in enhancing the performance of GA and SVM has paved the way for developing a more advanced hybrid algorithm. In this research, ESIM is utilized to train the dataset and construct the optimal prediction model, while KCGA is employed to execute the optimization process. During the fitness evaluation of KCGA, the established prediction model is used to capture the complex input–output relationship between the concrete's compressive strength and its mix composition.[1] High-performance concrete (HPC) is developed to achieve superior performance tailored to particular materials, applications, and environmental conditions, ensuring an ideal combination of strength, workability, durability, and longevity. Globally, engineers and builders acknowledge that incorporating HPC enables the construction of more durable and efficient structures without notably raising overall costs.[2] The primary aim of this study is to design an innovative genetic algorithm–based evolutionary support vector machine (GA-ESIM) for optimizing the mix proportions of high-performance concrete (HPC). To achieve this, the research integrates KCGA with ESIM, where ESIM develops a precise predictive model for HPC strength, and KCGA identifies the optimal mix composition based on the established strength model.[3] Traditional concrete mix design is primarily based on standardized procedures and experiential knowledge; however, this method often overlooks regional variations

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in materials and the unique demands of contemporary construction projects. Engineers are frequently required to adjust mix proportions, which is a time-consuming, labor-intensive, and inefficient process that complicates achieving essential performance attributes such as strength, durability, workability, and cost efficiency.[4] Additionally, the conventional trial-and-error technique is expensive and unsuitable for the growing complexity of modern engineering applications. Consequently, traditional approaches fall short in meeting current construction challenges, underscoring the necessity for a more precise, rapid, and intelligent optimization method.[5] High-performance concrete (HPC) refers to concrete designed to fulfill particular performance and uniformity criteria that cannot be readily attained using conventional materials, standard mixing, placement, or curing practices. Since its inception, HPC has seen widespread use in large-scale construction projects demanding superior strength, workability, and durability. To achieve performance levels beyond the capabilities of traditional concrete or conventional methods, engineers and construction firms globally have adopted HPC, acknowledging that it allows for the construction of more durable and efficient structures without substantially increasing costs.[6] Owing to the intricate interactions between recycled aggregates (RAs) and other concrete constituents, the old cement mortar attached to the surface of RAs may not fully hydrate at first. When incorporated into new concrete, this residual cement can undergo rehydration upon exposure to water. As a result, the effective cement content involved in hydration exceeds the originally intended amount, causing an increase in the heat of hydration.[7] Concrete mix design is a fundamental part of civil engineering, forming the basis for any construction project. The mix must satisfy performance criteria while remaining economical. Optimization methods offer an effective means of designing concrete mixes, reducing time and ensuring high-quality results. Techniques like genetic algorithms in MATLAB are especially valuable, as they can optimize Abrams' water-cement law to identify the ideal water-to-cement ratio and the resulting concrete strength.[8] Concrete is a commonly used construction material, especially for building structures. It consists of a blend of crushed stone or gravel, sand, cement, water, and occasionally other aggregates, which can be poured or molded and solidifies into a stone-like mass. Various mix formulations exist, each providing distinct properties and performance, making concrete one of the most widely utilized man-made materials in modern construction.[9] The genetic algorithm (GA) is a key optimization method extensively employed in civil engineering. Through inverse analysis, parameters that fulfill the fitness function can be determined, expanding the potential applications of GA. In concrete research, GA is mainly applied to optimize mix proportions for predicting the strength of high-performance concrete (HPC).[10] A structured methodology combining experimental design with genetic algorithm (GA) is employed to assess and optimize the thermal and rheological properties of high-strength concrete (HSC). For a thorough evaluation of HSC performance, critical parameters such as the overall heat transfer coefficient, T50 time, slump-flow spread, and compressive strength must be considered. To accomplish this, Response Surface Methodology (RSM) is applied alongside multi-objective optimization techniques like GA.[11] To tackle this issue, an intelligent prediction approach is employed to estimate concrete properties based on multiple data points from mixtures produced and cured under varying conditions. Considering the impact of concrete components is also crucial to minimize the environmental risks of production. In this study, information from 192 ultra-high-performance lightweight concrete (UHPLC) mixes was collected from the literature, covering various mix designs cured over different durations and in different laboratory settings.[12] This approach is directed by a multi-objective Pareto optimization algorithm, with artificial neural networks (ANNs) trained on laboratory data serving as the objective functions. [13]To enhance the precision of these ANNs, a genetic algorithm (GA) is applied to optimize each network's hyperparameters. The best-performing networks are subsequently used to predict the properties of new concrete mixtures generated throughout the multi-objective Pareto optimization process.[14] The global large-scale concrete construction sector has grown considerably. Fueled by recent industry trends— including the rise in reinforced concrete structures, the development of taller and larger buildings, and improvements in construction methods such as efficient concrete pumping—companies and the industry as a whole are seeking to cast increasingly larger volumes of concrete.[15]

2. MATERIAL AND METHOD

Input Parameters:

Employee Role: A job role is a particular position within an organization, defined by its duties, responsibilities, and expected outcomes. It specifies the tasks, activities, and skills necessary for the role and illustrates how the individual contributes to organizational objectives. Examples include roles like Marketing Manager or Software Developer, each with distinct responsibilities.

Work Environment: A work environment refers to the combination of physical, psychological, and social factors affecting employees. It covers tangible aspects like office layout and equipment, along with intangible elements

such as company culture, relationships, management style, and working conditions like pay and hours. Supportive environments boost well-being and productivity, whereas negative ones lower morale and performance.

Leadership Style: Leadership styles represent the various methods leaders use to guide, motivate, and oversee their teams. Common types include autocratic, democratic, laissez-faire, transformational, transactional, as well as servant and bureaucratic. Successful leaders often blend different styles, tailoring their approach to suit the situation and the specific needs of their team.

Team Culture: Team culture refers to the collective values, beliefs, behaviors, and sense of belonging that guide how a team collaborates to reach shared objectives. It affects communication, cooperation, and mutual support. A strong team culture fosters trust, psychological safety, and openness, encouraging idea-sharing and support, thereby enhancing morale and performance.

Skill Level: Skill level represents an individual's knowledge and proficiency in a specific domain, ranging from beginner to expert. It aids in aligning a person's abilities with appropriate job roles. Typical classifications—novice, intermediate, and expert—are based on the complexity of tasks one can handle, along with their education, training, and experience.

Motivation Type: Motivation types categorize the forces that influence behavior. The most common are intrinsic, originating from personal satisfaction, and extrinsic, stemming from external rewards or the avoidance of punishment. Other forms include primary or biological (basic survival needs), secondary (conscious goals like achievement), and conscious or unconscious motivations that may go unrecognized.

Evaluation Parameters:
Eval Communication: Evaluative communication," or communication evaluation, is a systematic approach to assessing the effectiveness of communication activities in meeting their objectives. It entails gathering data and feedback to evaluate performance, pinpoint strengths and weaknesses, and inform the development of future communication strategies.

Eval Productivity: Eval productivity is the structured evaluation of how effectively an individual, team, or organization transforms inputs—such as time, labor, or resources—into outputs like goods or services. It assesses performance, highlights areas needing improvement, and supports the optimization of processes to enhance overall results.

Eval Innovation: Eval innovation is the process of assessing new or enhanced solutions to gauge their effectiveness and impact. It employs systematic methods to review ideas—from products and services to processes and projects—considering feasibility, potential benefits, and alignment with strategy, ensuring that only the most viable innovations are pursued and implemented.

Eval Teamwork: Eval Teamwork is the process of evaluating a team's collective performance to determine its effectiveness in achieving shared objectives. It assesses how team members communicate, collaborate, and apply their individual skills to meet goals, deadlines, and quality standards, offering insights for enhancing overall team performance.

Eval Adaptability: Eval Adaptability refers to an individual's or organization's capacity to adjust to changing circumstances. It encompasses flexibility, initiative, openness to new ideas, and the ability to acquire new skills and modify approaches. Important aspects include resilience, comfort with ambiguity, and a readiness to let go of outdated methods.

SPSS method:
In computer science, one of the primary goals is to develop programs that address problems across diverse domains. Mathematical foundations—especially logic and reasoning—enable software developers to abstract and better understand a wide range of problems.[16] The setter's main duty is to provide precise, high-quality passes, a role that demands significant skill. A successful pass enables the spiker to display their abilities effectively. After achieving accuracy, the setter's next objective is to pass strategically—using the team's strengths to target the opponent's weaknesses and to outmaneuver the blocker.[17] The setter's foremost duty is to provide precise, high-quality passes, a role that demands significant skill. A strong pass enables the spiker to effectively showcase their abilities. After mastering accuracy, the setter's next aim is to pass strategically—

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maximizing the team's strengths while capitalizing on the opponent's weaknesses.[18] The setter's foremost duty is to provide precise, high-quality passes, a role that demands significant skill. A strong pass enables the spiker to effectively showcase their abilities. After mastering accuracy, the setter's next aim is to pass strategically—maximizing the team's strengths while capitalizing on the opponent's weaknesses.[19] The setter's foremost duty is to provide precise, high-quality passes, a role that demands significant skill. A strong pass enables the spiker to effectively showcase their abilities. After mastering accuracy, the setter's next aim is to pass strategically—maximizing the team's strengths while capitalizing on the opponent's weaknesses. [20]Development History Originally developed by SPSS Corporation in the 1980s, the software: Currently maintains version 11+ releases Serves as the standard statistical package in Australian academia Is universally available across Australian universities [21] Data Restructuring Researchers working with "horizontal" data formats (single row per subject) can use the Restructure command (Data menu) to transform datasets into vertical structures. The built-in wizard simplifies this conversion process (see SPSS help documentation for details). [22] Enhancing Learning through Statistical Software to optimize learning outcomes, educators should incorporate alternative mathematical applications that facilitate both independent and collaborative knowledge development. SPSS serves as an effective solution, enabling rapid and precise statistical data processing while generating diverse outputs to support decision-making processes [23].Instructional Resource Evaluation This study systematically evaluates leading SPSS textbooks using established criteria, providing educators and researchers with guidance for selecting appropriate teaching materials based on pedagogical approaches and publication features. [24] When comparing the Box-Jenkins method to SPSS's Expert Modeler, it was found that both approaches produce similar parameter estimates, model statistics, and forecast results. [25]Advanced Analytical Capabilities As a primary tool for multivariate analysis, SPSS enables: Powerful factor analysis for data relationship studies Dimensionality reduction through factor extraction Environmental case study applications. [26]Workshop Implementation Guidelines The presented engineering case study can be conducted as a 2-hour practical session, requiring: Prearranged computer lab facilities Prior SPSS installation Structured workshop planning [27]Experimental Design Analysis For factorial studies, SPSS provides: Simple main effects testing procedures Data segmentation via "Split File" function Appropriate ANOVA selection for independent samples.[28] The analysis suggests that the data are highly positively skewed, making the mean an appropriate measure of central tendency. Based on this, it can be concluded that, on average, students attend aerobics classes more frequently each month than employees. SPSS also provides tools for visualizing this data, including the creation of box plots. [29]Agricultural Education Integration The "Agricultural Machinery Equipment Engineering" master's program incorporates SPSS training to address: Growing demand for data analysis skills Essential competencies for agricultural professionals Degree requirements for machinery engineering graduates.

3. RESULT AND DISCUSSION

TABLE 1. Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.649	.655	5

Table 1 Impulsive behavior arises from insufficient self-control, causing individuals to act excessively or without regard for potential consequences. This tendency disrupts sound judgment, fuels conflict, and strains relationships. Over time, continued impulsiveness reduces stability, diminishes decision-making ability, and adds avoidable stress, highlighting the importance of moderation for maintaining healthy personal and professional interactions.

TABLE 2. Reliability Statistic individual

	Cronbach's Alpha if Item Deleted
Eval Communication	.208
Eval Productivity	.519
Eval Innovation	.422
Eval Teamwork	.905
Eval Adaptability	.496

Table 2 Excessive behavior stems from a continual lack of self-regulation, resulting in impulsive actions and weakened judgment. This pattern frequently creates conflict, instability, and avoidable stress. It strains relationships and undermines sound decision-making. Developing control and moderation is vital for sustaining clarity, emotional balance, and healthier personal and professional interactions.

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TABLE 3. Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Eval Communication	6	2	3	5	24	4.00	.365	.894	.800	.000	.845	-1.875	1.741
Eval Productivity	6	2	3	5	26	4.33	.333	.816	.667	-.857	.845	-.300	1.741
Eval Innovation	6	2	3	5	26	4.33	.333	.816	.667	-.857	.845	-.300	1.741
Eval Teamwork	6	2	3	5	23	3.83	.307	.753	.567	.313	.845	-.104	1.741
Eval Adaptability	6	1	4	5	28	4.67	.211	.516	.267	-.968	.845	-1.875	1.741
Valid N (list wise)	6												

Table 3 Excessive behavior arises from poor self-control, resulting in overreactions and inconsistent actions. It weakens judgment, strains relationships, and triggers avoidable conflict. This pattern elevates stress, disrupts emotional stability, and hinders productivity. Developing moderation is crucial for sustaining balance, strengthening clarity, and promoting healthier interactions in both personal and professional settings.

TABLE 4. Frequencies Statistics

Statistics						
		Eval Communication	Eval Productivity	Eval Innovation	Eval Teamwork	Eval Adaptability
N	Valid	6	6	6	6	6
	Missing	0	0	0	0	0
Mean		72.783	4.00	4.33	4.33	3.83
Median		4.00	4.50	4.50	4.00	5.00
Mode		3[a]	5	5	4	5
Std. Deviation		.894	.816	.816	.753	.516
Percentiles	25	3.00	3.75	3.75	3.00	4.00
	50	4.00	4.50	4.50	4.00	5.00
	75	5.00	5.00	5.00	4.25	5.00
a. Multiple modes exist. The smallest value is shown						

Table 4 Excessive behavior results from insufficient self-control, causing overreactions and irregular actions. It undermines sound judgment, strains relationships, and generates unnecessary conflict. This conduct elevates stress, destabilizes emotions, and diminishes productivity. Cultivating moderation promotes clarity, balance, and more constructive interactions in both personal and professional settings.

Bar chart:

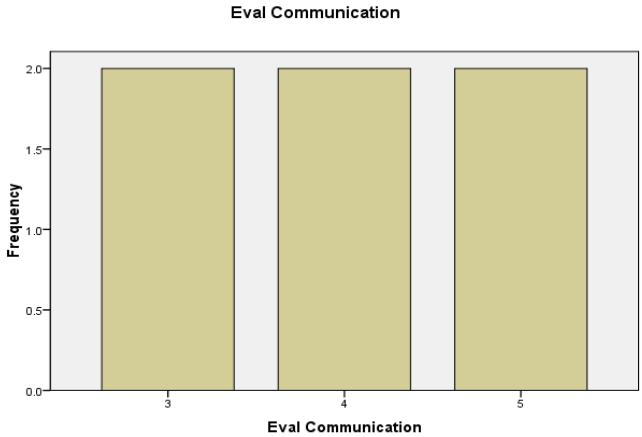


FIGURE 1. Eval Communication

Figure 1 Excessive behavior stems from weak self-regulation, resulting in erratic and over-the-top actions. It compromises decision-making, strains relationships, and sparks avoidable conflicts. These patterns elevate stress levels and hinder productivity. The SPSS figure above depicts the distribution of communication assessment scores, emphasizing behavioral variability and the importance of moderation and self-discipline.

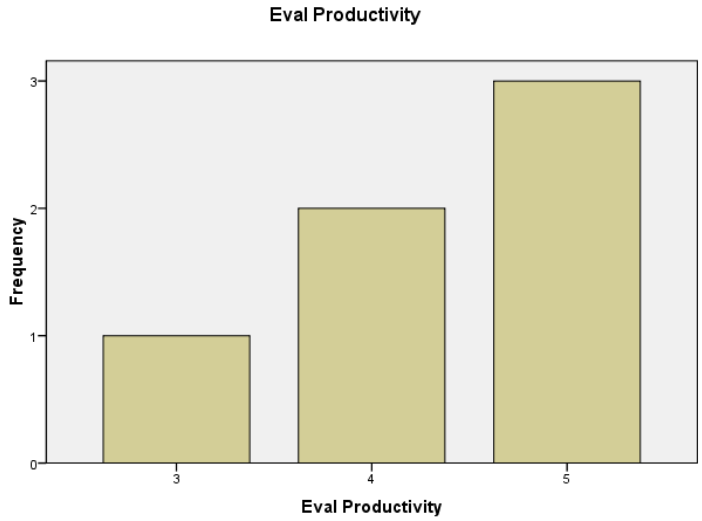


FIGURE 2. Eval Productivity

Figure 2 Excessive behavior stems from weak self-control, leading to inconsistent and over-the-top actions that hinder effective decision-making and reduce productivity. The SPSS bar chart above depicts the frequency distribution of productivity assessment scores, revealing performance variations. These patterns underscore the need for moderation and self-discipline to enhance efficiency and workplace harmony.

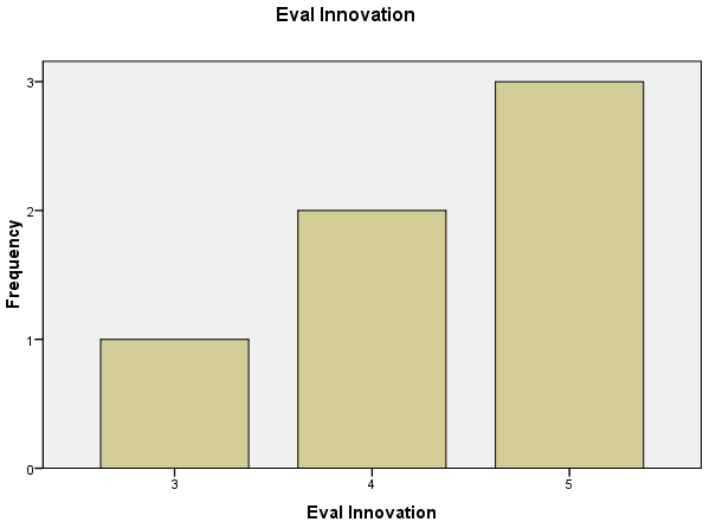


FIGURE 3. Eval Innovation

Figure 3 Excessive behavior indicates a lack of self-control, resulting in unpredictable actions that hinder decision-making and innovation. The SPSS bar chart above, generated through frequency analysis, displays the distribution of rating scores, revealing differences in innovation levels. Such trends underscore the need for moderation and self-discipline to enhance productivity and overall workplace performance.

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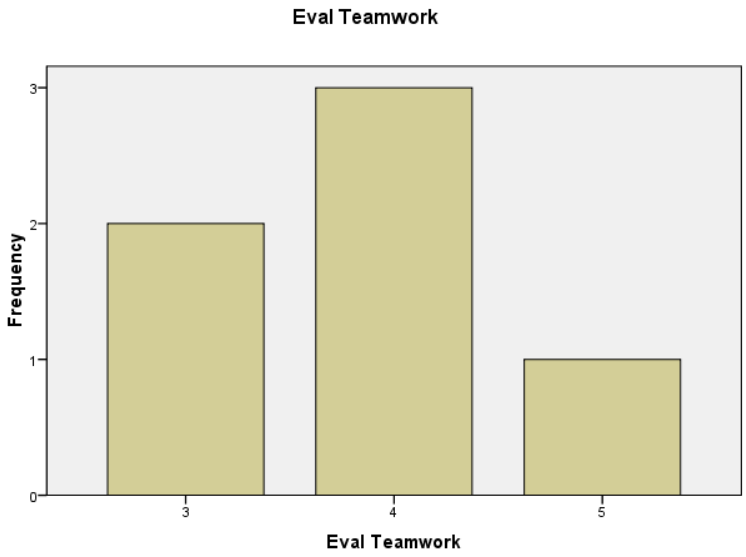


FIGURE 3. Eval eamwork

Figure 4 Excessive behavior indicates weak self-control, leading to erratic actions that can hinder teamwork and collaboration. The SPSS bar chart above, generated through frequency analysis, illustrates the distribution of team assessment scores, revealing differences in performance levels. These results underscore the value of moderation and self-discipline in promoting efficient collaboration and productivity.

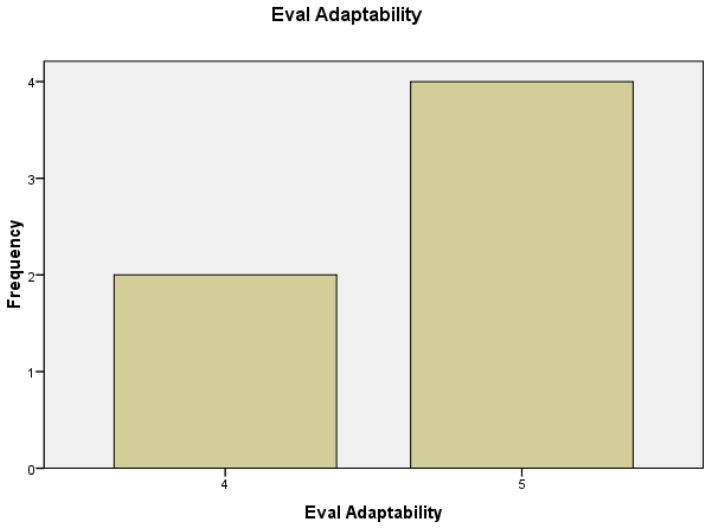


FIGURE 4. Eval Adaptability

Figure 5 Excessive behavior, indicative of low self-control, can impair decision-making and adaptive capacity. The SPSS bar chart above, generated through frequency analysis, reveals that the majority of participants scored 5 on the adaptive capacity scale, while the least scored 4, illustrating variability in adaptive levels. These results underscore the value of moderation and self-discipline in enhancing adaptability.

TABLE 5. Correlations

	Eval Communication	Eval Productivity	Eval Innovation	Eval Teamwork	Eval Adaptability
Eval Communication	1	.822*	.822*	-.297	.866*
Eval Productivity	.822*	1	.400	-.542	.791
Eval Innovation	.822*	.400	1	-.217	.791
Eval Teamwork	-.297	-.542	-.217	1	-.686
Eval Adaptability	.866*	.791	.791	-.686	1
*. Correlation is significant at the 0.05 level (2-tailed).					

Table 5 Excessive behavior, indicative of low self-control, adversely impacts communication, productivity, innovation, teamwork, and adaptability. The SPSS correlation table above indicates strong positive associations among communication, productivity, innovation, and adaptability, whereas teamwork is negatively correlated. These results emphasize that a lack of moderation impairs performance and underscore the importance of self-discipline for improvement.

4. CONCLUSION

Impulsive behavior arises from a deep and persistent deficiency in self-control, often leading to excessive, reactive, or poorly managed actions. It weakens rational thinking, overlooks long-term outcomes, and favors immediate urges over thoughtful choices. People who act impulsively frequently face personal instability, strained relationships, and emotional disruptions because their actions trigger unnecessary conflict and disorder. This tendency can also hinder professional development, as rash or uncontrolled decisions diminish credibility, lower productivity, and damage trust. Such impulsivity often stems from weak self-discipline, heightened emotional reactivity, or a habitual disregard for limits, making it difficult to uphold constructive routines or maintain consistent responsibility. Over time, this behavioral pattern increases stress, contributes to misunderstandings, and undermines overall well-being. Practicing moderation, however, supports greater clarity and steady progress. It encourages individuals to pause before responding, consider possible outcomes, and make choices aligned with long-term objectives rather than temporary impulses. Strengthening self-control helps individuals approach challenges with composure, resist harmful urges, and nurture healthier relationships. Moderation also enhances emotional resilience, enabling thoughtful responses in situations where impulsive reactions may cause harm. Developing balanced habits—such as setting clear boundaries, reflecting before acting, and prioritizing choices that support personal growth—gradually reduces the turmoil caused by impulsive tendencies. Ultimately, increased self-awareness and disciplined behavior promote harmony, stability, and productivity, empowering individuals to take more responsible actions in both personal and professional contexts.

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