

PROBLEM SOLVING SKILLS AND PRODUCTIVITY OF MANUFACTURING FIRMS IN SOUTH EASTERN NIGERIA

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ABSTRACT

The study investigated problem solving skills and productivity of manufacturing firms in South Eastern Nigeria. It was conducted to find out the relationship between brainstorming and output quantity; examine the relationship between brainstorming and input quantity; determine the relation between SWOT Analysis and output quantity; evaluate the relationship between SWOT Analysis and input quantity. The study adopted the survey research design. Data were obtained from primary source. The purposive sampling technique was adopted in the study. The Cronbach Alpha statistic was used to obtain a value of 0.83 as the instrument reliability ratio. Data analysis was committed to descriptive statistics and correlation analysis. The analysis was enabled by the use of SPSS software. The results showed that brainstorming enhanced output quantity; brainstorming boosted input quantity; SWOT Analysis improved output quantity; SWOT Analysis beefed input quantity in manufacturing firms in South Eastern Nigeria. It was concluded that productivity improves greatly whenever brainstorming and SWOT analysis are effectively employed for problem solving in manufacturing firms. It was recommended that employees in manufacturing firms should always partner their management by making themselves available for brainstorming for enhanced input quantity. Organizations should consistently evaluate their

strengths, weaknesses, opportunities and threats so as to be always strategically positioned for improving output quantity.

KEY WORDS: *Problem solving skills, Brainstorming, SWOT Analysis, Productivity, Manufacturing*

1 INTRODUCTION

Businesses all over the world have over the centuries made serious efforts to consistently boost their productivity indications. In modern day business management, the adoption of problem solving skills may become an appropriate step that ought to be taking for enhancing business productivity, especially in the Nigeria manufacturing sector. Problem solving in business is defined as implementing process that reduce or remove obstacles that prevent an organisation from accomplishing operational and strategy business goals. Business problem-solving works best when it is approached through a constituent system in which organisation identify and define the problem based on size, potential impact and urgency; complete a root cause analysis, develop a variety of possible solution evaluate possible solutions and device which is most effective; plan and implement the solution.

Wood (2021), is of the view that problem solving skills are among the most valued skills in the workforce today because they can be applied to dozens of situations. Rabha (2021) believes that problems are nothing but wake-up calls for creativity hence every problem is a gift; without them we would not grow. Managers must therefore understand the problem, evaluate solutions and implement solutions. Since a problem is a chance for one to do one's best, one must be open-minded, have right attitude, become analytical, do great analysis, brainstorm, ask the right questions and become creative for these are the problem-solving skills needed in organization (Wood, 2021).

In this work, the researcher concentrates on brainstorming and SWOT analysis as two critical problem-solving skills that may trigger productivity in manufacturing firms. According to Emera (2021), for decades, people have used brainstorming to generate ideas and to come up with creative

solutions to problems. Brainstorming combines a relaxed, informal approach to problem solving with lateral thinking. It encourages people to come up with thoughts and ideas that can, at first, seem a bit crazy. Some of these ideas can be crafted into original, creative solutions to a problem, while others can spark even more ideas. This helps to get people unstuck by “jolting” them out of their normal ways of thinking.

In problem solving, brainstorming provides a free and open environment that encourages everyone to participate. Quirky ideas are welcomed and built upon and all participants are encouraged to contribute fully, helping them develop a rich array of creative solutions (Emera, 2021).

Indeed, Brendan (2021) opines that brainstorming is the bread and butter of ideation. The rules of brainstorming include: defer judgement, encourage wild ideas, build on the ideas of others, stay focused on the topic, allow one conversation at a time, be visual, and go for idea quantity. Ideation is about shared invention. Attaching a single person to a single idea hinders collaboration and greatness. Brainstorming is therefore a group of creativity technique by which efforts are made to find a conclusion for a specific problem by gathering a list of ideas spontaneously contributed by its members.

SWOT analysis is another problem solving skill examined in this study. Grant (2020) defines SWOT analysis as a framework used to evaluate a company’s competitive position and to develop a strategic planning. SWOT analysis assesses internal and external factors, as well as current and future potentials. A SWOT analysis is designed to facilitate a realistic, fact-based, data driven look at the strengths and weaknesses of an organization, its initiatives or an industry. The organization needs to keep the analysis accurate by avoiding pre-conceived beliefs or gray areas and instead focusing on real-life contexts. Identifying core strengths, weaknesses, opportunities and threats lead to fact-based analysis, fresh perspectives and new ideas. SWOT analysis works best when diverse groups or voices within an organization are free to provide realistic data points rather than prescribed messaging (Grant, 2020). Also, Parsons (2021) argues that strengths and weaknesses are internal to the firm. Opportunities and threats are external to the firm.

It is a possibility that brainstorming and SWOT analysis problem solving skills may improve the productivity of manufacturing firms. Productivity is a ratio between the output volume and the volume of inputs. Shauna (2018) is of the view that when we talk about workplace productivity, we refer largely to how much work is accomplished in a particular work environment, over a particular period of time. In the context of this study, productivity which is conventionally, the ratio of inputs to the quality and quantity of outputs, is the use of brainstorming and SWOT analysis to boost output quantity and input quantity.

Cragg (2017) maintains that inputs are the resources invested in accomplishing a task, and typically include time, money and effort. Process refers to what is done in order to accomplish a task. The output is obviously, the accomplishment itself. Whiting (2020) is of the view that input is the process of taking something in. For instance, when a company takes in a raw material to make a finished good, they are receiving an input. Output is the exact opposite, in that it is the process of sending something out. When a company finishes a product, it might ship it to a customer, and the product would be an output. This study provides a vital opportunity to the researcher to bridge existing research gaps in the relationship between problem solving skills and business productivity.

2 Statement of the Problem

None of the previous studies accessed by the researcher in the area of problem solving skills examined how brainstorming and SWOT analysis imparted on output quantity and input quantity in the Nigerian manufacturing sector. This situation presents a wide research gap. Jacob, Sababa and Murna(2016) investigated effect of brainstorming learning strategy on Junior Secondary School Students' academic achievement in Social Sciences in Yola Educational Zone, Adamawa State, Nigeria. The study was focused on the education sector while this present study focuses on the manufacturing sector. Also, Anshaj(2018), handled 'a SWOT analysis of Shell Nigeria and the role of its business environment towards CSR'. The study was based in the oil sector while this present study is on the manufacturing sector. Again, Babalola and Tiamiyu(2013) examined 'SWOT analysis of Nigeria business environment'. Their study is based on the public sector while this present study concentrates on the private sector. None of these studies investigated the relationships which this present study examines.

In addition, Kim, Choi, Sung, and Park (2018) X-rayed ‘the role of problem-solving ability on innovative behaviour and opportunity recognition in university students in Korea. This present study focuses in Nigeria with different variables and indices hence the present study investigates how brainstorming and SWOT analysis may influence output quantity and input quantity. Again, Abosode and Adesanya (2017) handled ‘contributions of self-efficiency and problem-solving skills on secretaries’ job performance in Ogun State Public Sector but this present study focuses on Nigeria manufacturing sector. This present study is therefore conducted to cover these research gaps in such a way as to contribute to knowledge by providing empirical literature in the relationships under investigation.

Objectives of the Study

The major objective of the study is to investigate the relationship between problem solving skills and productivity in manufacturing firms in South East Nigeria. The specific objectives include to:

- i. examines the relationship between brainstorming and output quantity.
- ii. find out the relationship between brainstorming and input quantity.
- iii. investigate the relationship between SWOT analysis and output quantity.
- iv. determine how SWOT analysis affects input quantity.

Hypotheses

In other to answer the research questions, the researcher developed the following hypothesis:

- H₀₁:** There is no significant relationship between brainstorming and output quantity.
- H₀₂:** Brainstorming does not significantly affect input quantity.
- H₀₃:** SWOT analysis does not influence output quantity.
- H₀₄:** There is no significant relationship between SWOT analysis and input quantity.

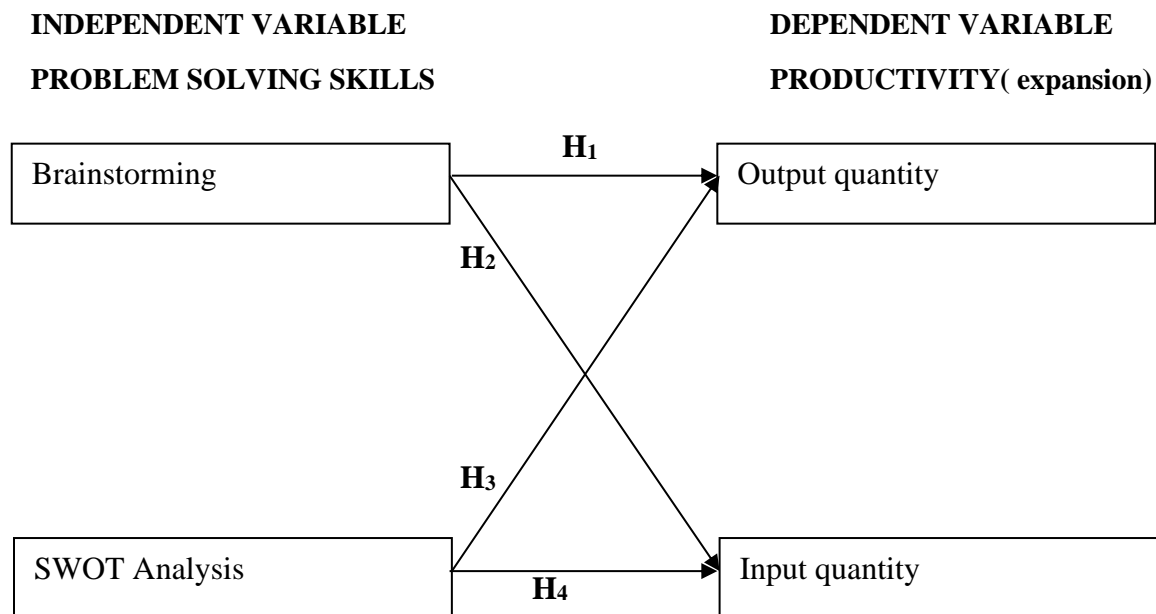
3 REVIEW OF RELATED LITERATURE

The researcher, in this section, reviewed literatures on problem solving skills (brainstorming and SWOT analysis) and productivity of manufacturing firms in South Eastern Nigeria. The section is comprised of conceptual, theoretical and empirical reviews.

Conceptual Review

The researcher used the following operational conceptual model to show the variables covered in the study:

Fig 1: Operational Conceptual Model



Source: Researcher’s Desk (2021)

The above model shows that brainstorming may influence output quantity and input quantity. It also shows that SWOT analysis may influence output quantity and input quantity. The model shows that the link between brainstorming and output quantity gave rise to H₁; the possible relationship between: brainstorming and input quantity resulted to H₂; the possible relationship between SWOT analysis and output quantity resulted to H₃; and the possible relationship between SWOT analysis and input quantity resulted to H₄.

Brainstorming

Agulanna and Madu(2009) see brainstorming as the idea-generating technique wherein a number of persons present alternatives without regard to questions of feasibility or practicality. Webster (2015) defines brainstorming as the mulling over of ideas by one or more individuals in an attempt to devise or find a solution to a problem. Brainstorming successfully is vital to the success of a

business. Ideation or commonly known as idea generation, is something of a commodity business. Brainstorming is a key component of successful idea generation in business. There are a multitude of uses for brainstorming. Most people associate brainstorming with new product ideas or marketing campaigns but brainstorming can also be used for tasks including internal procedures, company structure and written articles. It all depends on the type of business and the approach that business takes to collaborations.

There are reasons for brainstorming. Webster (2015) opines that brainstorming is essential for collecting viewpoints; it encourages thought and it builds team relationships. McConnell(2019) reveals that brainstorming originated from an advertising executive named Alex F. Osborne and dates back to around 1939. Frustrated with his employees' ability to generate creative new ideas, Osborne began developing new methods for problem solving that focused on a team-based approach to work. He began hosting group-thinking sessions, and discovered that his approach led to a significant boost in the quality and quantity of new ideas. Osborne coined these group meeting "brainstorm" sessions and wrote about the technique in later publications.

During these brainstorming sessions, ideas were collected and recorded using whatever tool was available to the team. Modern businesses have begun to adopt digital brainstorming tools to speed up the process and make the review phases faster and more productive. Quantity of ideas is usually emphasized over quality, with the goal of generating as many new suggestions as possible. Once all ideas have been collected, the team then evaluates each of them and focuses on the ones that are most likely to solve the problem. McConnell(2019) maintains that brainstorming is important because it allows people to think more freely, without fear of judgment; it encourages open and ongoing collaborations to solve problems and generate innovative ideas; it helps teams generate a large number of ideas quickly which can be refined and merged to create the ideal solution; it allows teams to reach conclusions by consensus, leading to a more well-rounded and better informed path forward. Also, brainstorming helps team members feel more comfortable bouncing ideas off one another, even outside of a structured session; it opens the door to out-of-the box innovations and it is great for team building. It is therefore useful for productivity and innovation.

SWOT Analysis

Parsons (2021) opines that a SWOT analysis is an incredibly simple, yet powerful tool to help one develop one's business strategy whether one is building a startup or guiding an existing company. SWOT stands for Strengths, Weaknesses, Opportunities and Threats.

According to the University of Notre Dame, USA (2020), SWOT analysis is a business analysis process that ensures that objectives for a project are clearly defined and that all factors related to the project are properly identified. In SWOT, the strengths are the attributes within an organization that are considered to be necessary for the ultimate success of a project. Strengths are resources and capabilities that can be used for competitive advantage. Examples of strengths include strong brand names, good reputations, cost advantages of proprietary know-how, etc. Weaknesses are factors within the SWOT analysis formula that could prevent successful results within a project or organization. Weaknesses include factors such as an abundance of rivalry between departments; a weak internal; communication system; lack of funding and an inadequate amount of materials. Weaknesses can derail an organization before it even begins.

Opportunities are classified as external elements that might be helpful in achieving the goals of an organization. These factors could involve arrival of new technology, the positive perception of the company by the general public and favorable market conditions. Threats are external factors that could gravely affect the success of the business. Examples are negative public image, no ready-made market for the final product and the lack of vendors who are able to supply raw materials to the business.

Output Quantity

Output is the outcome of a production process. It is the result. It is the quantity of goods produced in a given time period, by a firm, industry or country whether consumed or used for further production. It is the amount of something produced by a person, machine or industry (www.google.com). Khoa (2019) maintains that outputs include features, products that can be used by users.

Input Quantity

These are the resources invested in accomplishing a task and typically include time, money, and effort. According to Khoa (2019), input includes money, time estimated, people, efforts, plans, documents, etc.

Theoretical Framework

The study employed the John Dewey's Functional theory of Group Decision Making to beef up the study.

John Dewey's Functional Theory of Group Decision Making

The functional group decision making theory refers to a more specific focus on decision making. Groups are always trying to create equilibrium, or balance task concerns and relationship management. A "functional" refers to what communication does, such as an apology, which serves as a means to repair a relationship. Groups make decisions by using four different requisite functions: problem analysis, goal setting, identify alternatives and evaluate and select.

Problem solving is the first function in which the group looks at likely causes of the problem. The group must figure out what the real problems are and what the symptoms of the problems are. For example, if one was in a group with two classmates and they did not know what to do for their project, the first step would be to analyze the problem, which in that case would be to understand that their problem was not having an idea for a project.

Goal setting is when the group identifies what the solution should be. A possible goal for the example used before is come up with as many ideas as possible and stick with one idea.

Identify alternatives is when the group finds many possible solutions. This involves brainstorming with the entire group. The next step for the example used above is: ask the teacher for help in choosing a project, ask fellow students, or not do the project. The more ideas the better. It does not matter how good the possible solutions are.

Evaluate and select is when the group evaluates each alternative and picks the best option. In this example, the group would choose either asking the teacher, come up with as many ideas as possible, ask a fellow student for ideas or just not do the project. In small groups, there are three types of communication: promotive, disruptive and counteractive. Promotive – geared toward one of the requisite functions; disruptive – diverts, retards, or frustrates the ability of the group to achieve the requisite functions; counteractive – the message comes back to the requisite functions. If the group, for example, were to brainstorm, pick an idea and stick to it until the project was over, then the end result would be promotive because all the decisions making steps were followed and a good solution found.

SWOT Analysis Model

SWOT Analysis is a useful technique for understanding business strengths and weaknesses, and for identifying both the opportunities open to the business and the threats it faces (Uchegbu, 2019). Originated by Albert S. Humphrey in the 1960s, the tool is as useful now as it was then. A firm can use it in two ways – as a simple icebreaker helping people get together to ‘kick off’ strategy formulation, or in a more sophisticated way as a serious strategy tool. Strengths and weaknesses are often internal to the organization while opportunities and threats generally relate to external factors. For this reason, SWOT is sometimes called Internal-External Analysis and the SWOT Matrix is sometimes called an IE matrix

Uchegbu(2019) agrees that SWOT Analysis is a basic, analytical framework that assesses what an entity – usually a business, though it can be a place, industry or product, can and cannot do, for factors both internal and external. Using environmental data to evaluate the position of a company, a SWOT analysis determines what assists the firm in accomplishing its objective, and what obstacles it must overcome or minimize to achieve desired results where the organization is today, and where it may go.

Fig 2 SWOT Analysis Visual Overview

Strengths	Weakness
Opportuniti	Threats

Source: Benson and White (Uchegbu, 2019).

Analysts present a SWOT analysis as a square with each of the four areas making up one quadrant. This visual arrangement provides a quick overview of the company's position. Although all the points under a particular heading may not be of equal importance, there is insight in seeing how the number of opportunities measures up to the number of threats, and so forth.

For the elements of a SWOT analysis, companies must use them as a guide and not a prescription. They are discussed as follows:

- a. **Strengths:** They descriptive what an organization excel at, and separates it from the competition: a strong brand, loyal customer base, a strong balance sheet, unique technology and so on. For example, a hedge fund may have developed a proprietary trade strategy that returns market-beating results. It must then decide how to use those results to attract new investors.
- b. **Weaknesses:** They stop an organization from performing at its optimum level. They are areas where the business needs to improve to remain competitive higher than-industry-average turnover, high levels of debt, an inadequate supply chain, or lack of capital.
- c. **Opportunities:** They refer to favorable external factors that an organization can use to give it a competitive advantage. For example, a car manufacturer can export its cars into a new market, increasing sales and market share, if a country cuts tariffs.
- d. **Threats:** They refer to factors that have the potential to harm an organization. For example, a drought is a threat to a wheat-producing company, as it may destroy or reduce the crop yield. Other common threats include things like costs for inputs, increasing competition, tight labour supply and so on.

A SWOT analysis is a great way to guide business-strategy meetings. It is powerful to have everyone in the room to discuss the company's core strengths and weaknesses and then move from there to defining the opportunities and threats and finally to brainstorming ideas. A company can use a SWOT for overall business strategy sessions or for a specific segment like marketing, production or sales.

Empirical Review

The researcher adopted the following empirical studies to show the relevance of the study:

1. In a study on “effect of brainstorming learning strategy on Junior Secondary School students’ academic achievement in Social Studies in Yola Educational Zone, Adamawa State, Nigeria, Jacob, Sababa and Murna(2016) wrote in the International Journal of Progressive Sciences and Technologies. The study was conducted to find out if the mean score of students taught Social Studies using brainstorming learning strategy and lecture method was significant; and to determine the retention rate of students taught Social Studies using brainstorming learning strategy and lecture method. The study adopted a quasi-experimental design, non-randomized pre-test, post-test control group comprising two groups made up of one experimental group and one control group. Four schools and two hundred and three (203) JSII Social Studies students made up the sample for the study. Four intact classes (two each) were randomly selected and assigned to experimental and control groups. The instrument used for data collection in the study was tagged ”Social Studies Achievement Test”(SSAT), constructed by the researcher but patterned in line with BECE test items in Social Studies. The validity of the instrument was established by two experts in Counseling Psychology and Test and Measurement. The reliability of the instrument was established using Guttman’s Split-Half statistic which yielded a reliability index of 0.72. Data analysis was committed to t-test and chi-square analysis. The findings showed that there was a significant difference in the mean score of students taught Social Studies using brainstorming learning strategy and lecture method. There was a statistically significant difference in the retention rate of students taught Social Studies using brainstorming learning strategy and lecture method. There was no significant effect of gender on the academic achievement of students taught Social Studies using brainstorming learning strategy.
2. In a study on “a SWOT analysis of Shell Nigeria and the role of its business environment towards CSR”, Anshaj(2018) used extant literature approach in the study. The study was conducted to examine how SWOT analysis enabled Shell Nigeria to handle CSR as in its business environment. It was found that the strengths of Shell Nigeria include strong

market position, high revenue growth, and diverse projects. The opportunities include: innovation opportunities, meeting global demand for energy and exploring new energy projects. The weaknesses include: issues of human rights violation, environmental crisis, unstable relationship with civil society and dealing with oil thefts. The threats include: competitive energy market, unstable government, substitute products and oil thefts. It was found that the internal factors of the company like financial and production resources and innovation have played a big role towards CSR. The payments made to the Nigerian government in the form of tax and royalty would be useful to build the new infrastructures in the country. The use of resources and innovation are shaped towards clean and better energy production. The company was found to have provided human resource development opportunities in the form of training and internship and regularly offer jobs in Nigeria.

3. In a study of SWOT Analysis of Nigerian business environment, Babalola and Tiamiyu (2013) wrote in *Developing Country Studies*. They employed extant literature in the study. They discovered that the strengths of Nigeria's business environment include potential for growth and stability and ability to take advantage of going global. For the weaknesses, it was found that Nigeria has two biggest problems of power supply and financial resources which hinder productivity and competitiveness. Nigeria is also deficient in her economies and therefore requires foreign assistance and investments to improve and enhance her managerial and capital base. For opportunities, Nigeria has a high population density with attendant high demands for products; she has opportunities to form good bilateral relations by increasing her export base, diversifying her economy by going global, etc. the threats are enormous as crimes of various degrees are prevalent in Nigeria.
4. In a study on 'role of problem-solving ability on innovative behaviour and opportunity recognition in university students' Kim, Choi, Sung, and Park (2018) wrote in the *Journal of Open Innovation: Technology, Market and Complexity*. The study was conducted to determine the relationship between problem solving ability and innovative behaviour; how innovative behaviour relates with opportunity recognitions and the relationship between problem solving ability and opportunity recognition. The survey research design was

adopted in the study. The respondents for the study were randomly selected from three universities in Korea. Questionnaire was the major instrument for data collection. Data analysis was committed to percentages, multiple regression, standard coefficients obtained from the Principal Component Analysis, Comparative Fit Index (CFI), the normed fit index (NFI), the Root Mean Square Error of Approximation (RMSEA), the standardized root mean square residual (SRMR) and the Chi-square test statistic, as well as the Cronbach alpha statistic. The results reported positive and significant relationships between problem solving ability and innovative behaviour; innovative behaviour and opportunity recognition; problem solving ability and opportunity recognition.

5. Abosede, and Adesanya (2017) investigated “contributions of self-efficacy and problem solving skills on secretaries’ job performance in Ogun State Public Service, Nigeria”. The study ascertained the relationship among self-efficacy, problem solving skills and job performance of the secretaries. The study employed the descriptive research design. The data collected with questionnaire instrument were analyzed using Pearson Product Moment Correlation (PPMC), Multiple Regression, and ANOVA. The result showed that the predictor variables (self-efficacy and problem solving skills) accounted for 61.1% of variance in the job performance of secretaries in the public service of Ogun State. It was recommended that there should be provision for in-service training for secretaries in the public service.

Gap Identified in Literature

Based on the literatures the researcher was able to access, very little or significantly nothing has been done on the link between brainstorming and output quantity, brainstorming and input quantity, SWOT analysis and output quantity; SWOT analysis and input quantity. This study bridges the gap.

4. METHODOLOGY

The study employed the survey research design in investigating problem solving skills and productivity of manufacturing firms in South Eastern Nigeria. The instruments of questionnaire

were used for the workers in the study organizations except security men, cleaners and laborers who were not surveyed. The population figures were obtained from the study organizations. Accordingly, Comestar Manufacturing Company Limited, Onitsha had a study population of 213; Nigeria Breweries Plc, Aba had 275; Dezern Nigeria Limited, Enugu had 161; Chois Hair, Owerri had 101. With a total population of 750, the researcher employed the Taro Yamane formula ($N/1+N(e)^2$) for sample size and arrived at 498.

The purposive sampling method was adopted in the study. The use of pilot study was adopted for determination of the reliability of the research instrument and data obtained from pilot survey were committed to test of reliability using Cronbach Alpha statistic which results to 0.83.

The descriptive statistics of mean and standard deviation were adopted to answer the research questions. Correlation analysis was used to test hypotheses. Data were analyzed using SPSS.

5. DATA ANALYSIS

Test of Hypothesis One

Hypothesis 1: There is no significant relationship between brainstorming and output quantity.

Table 1: Correlation analysis between brainstorming and output quantity

Item	Mean	Standard Deviation	Correlation Coefficient	P-value
Brainstorming	3.93	0.721	0.912	0.001
Output quantity	4.02	0.952		

SPSS Correlation Analysis Output (2021).

The result on table 7.1 presents the correlation analysis between brainstorming and output quantity. The result shows a p-value of 0.001 and correlation coefficient of 0.912. The result shows a p-value less than 0.05 being the level of significance; therefore, rejecting the null hypothesis and accepting the alternative hypothesis. Therefore, the correlation coefficient between brainstorming and output quantity is significant. Therefore, there is a significant relationship between brainstorming and output quantity.

Hypothesis 2: Brainstorming does not significantly affect input quantity.

Table 2: Correlation analysis between brainstorming and input quantity

Item	Mean	Standard Deviation	Correlation Coefficient	P-value
Brainstorming	4.16	0.736	0.951	0.001
Input quantity	4.06	0.811		

SPSS Correlation Analysis Output (2021).

The result on table 7.2 presents the correlation analysis between brainstorming and input quantity. The result shows a p-value of 0.001 and correlation coefficient of 0.951. The result shows a $p - value \leq 0.05$ level of significance, thereby rejecting the null hypothesis and accepting the alternative which states that brainstorming significantly affects input quantity.

Hypothesis 3: SWOT analysis does not influence output quantity.

Table 3: Correlation analysis between SWOT analysis and output quantity

Item	Mean	Standard Deviation	Correlation Coefficient	P-value
SWOT analysis	4.05	0.773	0.947	0.001
Output quantity	4.16	0.895		

SPSS Correlation Analysis Output (2021).

The result on table 7 presents the correlation analysis between SWOT analysis and output quantity. The result shows a p-value of 0.001 and correlation coefficient of 0.947. The result shows a p-value less ≤ 0.05 level of significance; therefore, rejecting the null hypothesis and accepting the alternative which states that SWOT analysis significantly influences output quantity.

Hypothesis 4: There is no significant relationship between SWOT analysis and input quantity.

Table 4: Correlation analysis between SWOT analysis and input quantity

Item	Mean	Standard Deviation	Correlation Coefficient	P-value
SWOT analysis	4.09	0.971	0.983	0.001
Input quantity	4.24	0.874		

SPSS Correlation Analysis Output (2021).

The result on table 8 presents the correlation between SWOT analysis and input quantity. The result shows a p-value of 0.001 and a correlation coefficient of 0.983. The result shows a $p - value < 0.05$ level of significance; thereby rejecting the null hypothesis and accepting the alternative. Therefore, the correlation coefficient between SWOT analysis and input quantity is statistically significant. This means a positive and a strong relationship existing between SWOT analysis and input quantity.

6. CONCLUSION

The study concludes that productivity improves greatly whenever brainstorming and SWOT analysis are effectively employed for problem solving in manufacturing firms. Enterprises that neglect brainstorming and analysis of their strengths, weaknesses, opportunities and threats do so at their own peril hence they risk both output and input quantity.

7. RECOMMENDATIONS

It was recommended that management of manufacturing firms should always employ brainstorming technique for enhancement of output quantity. Employees in manufacturing firms should always partner their management by making themselves available for brainstorming for enhanced input quantity. Organizations should consistently evaluate their strengths, weaknesses, opportunities and threats so as to be always strategically positioned for improving output quantity. Manufacturing firms should always employ SWOT analysis skill in boosting input quantity and input quality.

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