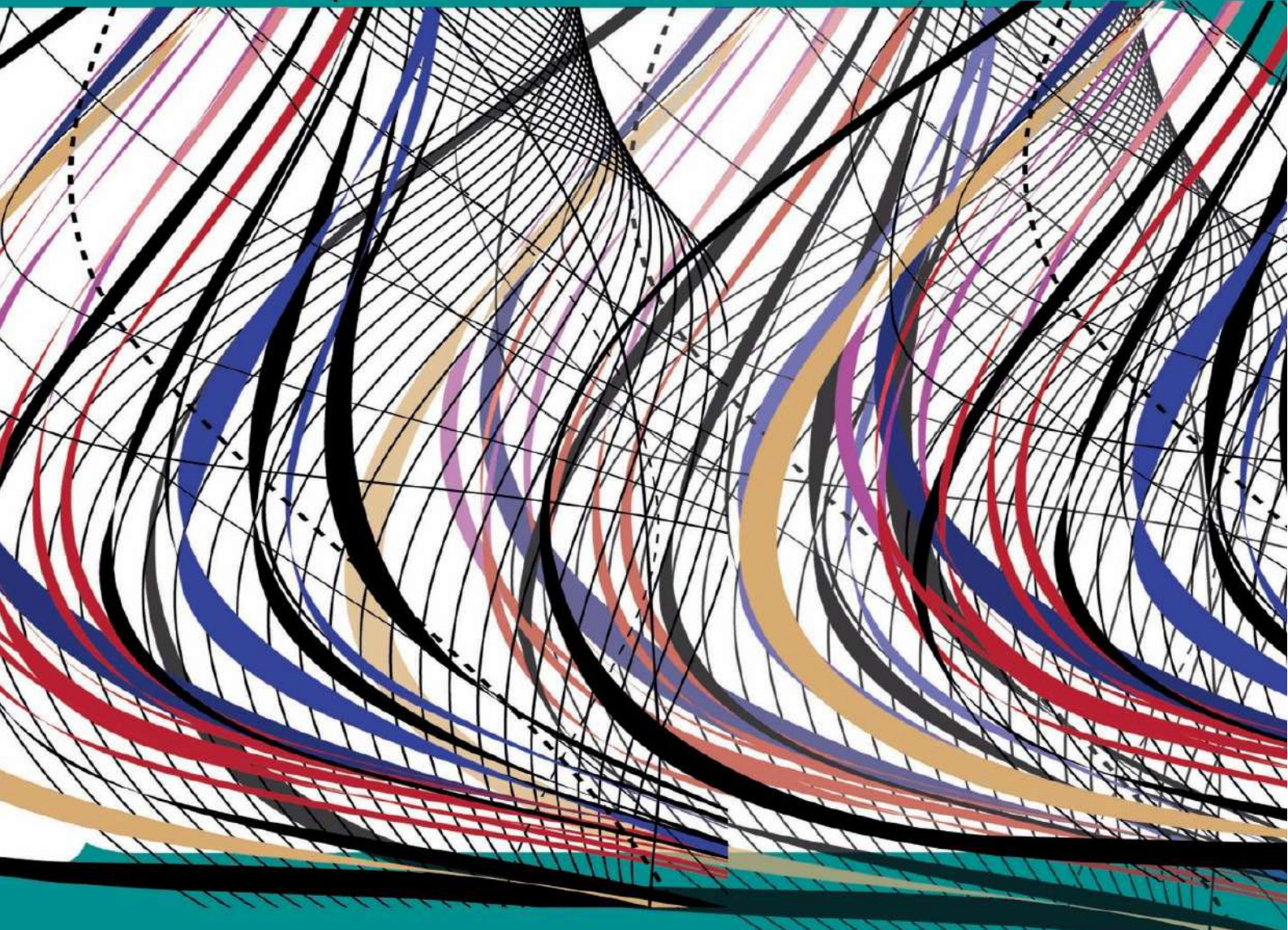


International Journal of Advanced Engineering, Management and Science

Journal CrossRef DOI: 10.22161/ijaems

(IJAEMS)

An Open Access Peer-Reviewed International Journal



Vol-7, Issue-6 | Jun, 2021

Issue DOI: 10.22161/ijaems.76

International Journal of Advanced Engineering, Management and Science

(ISSN: 2454-1311)

DOI: 10.22161/ijaems

Vol-7, Issue-6

June, 2021

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Publisher

Infogain Publication

Email: ijaems.editor@gmail.com ; editor@ijaems.com

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FOREWORD

I am pleased to put into the hands of readers Volume-7; Issue-6: June 2021 of “**International Journal of Advanced Engineering, Management and Science (IJAEMS)** (ISSN: 2454-1311)”, an international journal which publishes peer reviewed quality research papers on a wide variety of topics related to Science, Technology, Management and Humanities. Looking to the keen interest shown by the authors and readers, the editorial board has decided to release print issue also, but this decision the journal issue will be available in various library also in print and online version. This will motivate authors for quick publication of their research papers. Even with these changes our objective remains the same, that is, to encourage young researchers and academicians to think innovatively and share their research findings with others for the betterment of mankind. This journal has DOI (Digital Object Identifier) also, this will improve citation of research papers.

I thank all the authors of the research papers for contributing their scholarly articles. Despite many challenges, the entire editorial board has worked tirelessly and helped me to bring out this issue of the journal well in time. They all deserve my heartfelt thanks.

Finally, I hope the readers will make good use of this valuable research material and continue to contribute their research finding for publication in this journal. Constructive comments and suggestions from our readers are welcome for further improvement of the quality and usefulness of the journal.

With warm regards.

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Vol-7, Issue-6, June, 2021

(DOI: 10.22161/ijaems.76)

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Metacognitive Strategies: Instructional Approaches in Teaching and Learning of Basic Calculus

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Received: 21 Mar 2021; Received in revised form: 01 May 2021; Accepted: 18 May 2021; Available online: 01 Jun 2021

Abstract—The purpose of the study is to determine the effectiveness of the metacognitive strategies as instructional approaches in teaching and learning of Basic Calculus. A number of 48 students consisting of 24 boys and 24 girls were purposively sampled in this study. Pretest-posttest quasi experimental research design was used which applied t-test and descriptive statistics. Both groups were subject to two instruments that were comprised of problem-solving test (pretest and posttest) and observation guide. Experimental group was taught Basic Calculus using metacognitive strategies while the control group was taught Basic Calculus using traditional teaching strategies. Both groups were subject to a pretest. Class observation was done while the two teaching strategies were applied. In the end, the posttest was administered to both groups to identify the effectiveness of the two teaching strategies. The data gathered were treated using paired sample t-test and independent sample t-test. The results of the study showed that the experimental group had significantly higher posttest scores as compared to control group which proved that metacognitive teaching strategies were more effective in improving the performance and problem-solving skills of the students than the traditional teaching strategies. It was also observed that students who taught using metacognitive strategies helped the students to be extremely engaged in Basic Calculus lessons cognitively, behaviorally, and affectively. The study reveals that the significant increase of the students' learning engagement in Basic Calculus lessons led the students to a corresponding increase in their posttest scores.

Keywords— Basic Calculus, Instructional Approaches, Learning Engagement, Level of Proficiency, Metacognitive Strategies.

I. INTRODUCTION

The K-12 curriculum of the Philippines has been reconstructed from the former 10-year basic education into 13-year mandatory education which added Kindergarten and 2- years from Senior High School by virtue of the Republic Act No. 105333. Senior high school is composed of four tracks and one of these is "Academics" wherein the Science Technology, Engineering, and Mathematics (STEM) are included. The Science Technology, Engineering, and Mathematics (STEM) strand of the Philippines K-12 curriculum is designed to produce graduates in the secondary level who will take science, research, mathematics, and engineering related courses in

the tertiary level. In senior high school, the STEM students are required to take Basic Calculus as part of the specialized subjects of the strand.

The K-12 Mathematics Curriculum Guide emphasizes the need of the students to learn and explore mathematics comprehensively because its value goes beyond the classroom and school. That is why the STEM curriculum plays an important role in producing trained professionals to enhance the academic performances of the learners, specifically in the field of mathematics.

Seeing that Basic Calculus is one of the specialized subjects in Science, Technology, Engineering, and

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Mathematics (STEM), it is substantial for the future career and next level of education of the students. According to the authors in [13], Calculus is one of the subjects that is relevant and beneficial in real life situations. However, many students have difficulty in learning Basic Calculus because majority of the junior high school students entering in the senior high school have weak performance in mathematics. [1] stated that mathematical education is still plagued with problems in terms of mastery of mathematical concepts. This statement revealed that the competencies needed in taking the Basic Calculus were possibly not attained.

In the study of [4] as cited by the authors, the performance of the junior high school in mathematics was weak. Additionally, the study of [5] pointed out that the majority of the students were in the beginning level of mathematics proficiency. The strategies/approaches used by the majority of the teachers in teaching Basic Calculus are sometimes laborious and complicated for the students. As observed by the authors, some students are not performing well in mathematics because they have not developed the needed skills. The reason behind, they are taught by the content of the books but they are not trained to recognize what they know and how to learn to think to develop their metacognitive skills. Calculus teachers seldom used engaging learning activities and mostly did not hear the queries and concerns of the students during the discussion. Instead, they had always resorted into lecturing, giving board works, and providing graded recitation. Mathematics educators may consider positive approaches and innovative teaching strategies instead of making use of traditional approaches in teaching Calculus, [6] emphasized that without new approaches to instruction that connect to the learning needs of students, many will perform poorly and are likely to cause drop outs. Therefore, it is essential to pursue the teaching strategies that employ collaborative learning, group activities that arouse the students' interest, and value the learners' queries and concerns [8].

In attempting to innovate the teaching and learning strategies, metacognitive strategies in teaching and learning of Basic Calculus may help to find a solution to these problems. Metacognitive strategies, like thinking aloud and journal writing may help the students understand the way they learn and the way they think of their thinking process to develop the metacognitive skills. Specifically, this study sought to find out the performances and problem-solving skills of the students in their pretest and posttest examination and the significant difference that exists between the two tests and the level of students' learning engagement.

Likewise, the findings of this study may help the school system in general to introduce the metacognitive strategies as one way of increasing the performances of the learners and problem-solving skills, especially in mathematics in which this research study would become beneficial and meaningful.

II. METHODOLOGY

This study used pretest-posttest quasi experimental research design. The pretest and posttest quasi experimental design measures the degree of change before and after the specified treatment or intervention. The basic premise behind the pretest- posttest design involves obtaining a pretest measure of the outcome of interest prior to administering some treatment followed by a posttest on the same measure of treatment occurs [12]. The subjects of the study were the Grade 11 STEM students enrolled in Basic Calculus subject. A group of twenty-four (24) students from the experimental group and twenty-four (24) students from the control group were chosen to be the involved in this research study. The control group was exposed to the traditional teaching strategies while the experimental group used the metacognitive strategies such as thinking aloud and journal writing.

Two instruments were used in data gathering. Firstly, the Problem-Solving test (pretest and posttest) a teacher made test designed to measure the performances and the problem-solving skills of the students. The researchers personally administered a 20-item pretest and posttest to secure the data of their performance in Basic Calculus. Before, the problem-solving test was composed of 30 items and trimmed down to 20 items after the validity and reliability was made. Secondly, Observation Guide which was done through the class observation during the teaching and learning of Basic Calculus to measure the students' learning engagement.

The statistical tools utilized in this study were frequency count, mean, percentage, and independent / paired sample t-test.

III. RESULTS AND DISCUSSION

3.1 Pretest Scores of the Control and Experimental Group

Based on the Table 1, control group obtained a pretest mean scores of 1.67 while 1.83 for the experimental group that implies both groups are generally comparable in their performance and problem-solving skills. There were 24 or 100% of the subjects in both groups reached the proficiency level of "Did not Meet the Expectations"

which means that students did not meet the establish expectations given by the Department of Education

Table 1. Comparison of the Pre-test Scores of the Control and Experimental Group.

| Proficiency | Score | Control Group | | Experimental Group | |
|--------------------------|-------|---------------|---------|--------------------|---------|
| | | Freq. | Percent | Freq. | Percent |
| Outstanding | 18-20 | 0 | 0% | 0 | 0% |
| Very Satisfactory | 16-17 | 0 | 0% | 0 | 0% |
| Satisfactory | 14-15 | 0 | 0% | 0 | 0% |
| Fairly Satisfactory | 12-13 | 0 | 0% | 0 | 0% |
| Did Not Meet Expectation | 0-11 | 24 | 100% | 24 | 100% |
| Mean | | 1.67 | | 1.83 | |
| Standard Deviation | | 1.56 | | 1.71 | |

The data indicate that the performance and problem-solving skills of the students in Basic Calculus were low before the experiment. This finding proved that if there are no appropriate strategies applied in the teaching and learning process, the proficiency level of the students will not meet the indicated expectations. This finding was similar to the study of [7] stating that students would have poor performance if there are no teaching strategies applied. Additionally, the standard deviation indicated that the pretest scores of the students under the experimental group is more scattered compared with the students under the control group.

3.2 Posttest Scores of the Control and Experimental group.

As revealed in table 2, the posttest scores of the students under experimental group had the greater mean score as compared the posttest scores of control group. The mean score of 8.75 for the control group reached the proficiency level of "Did Not Meet the Expectation" while the mean score of 13.38 for the experimental group reached the proficiency level of "Satisfactory". There is a difference of 4.63 which indicates that the performance and problem-solving skills of the students under experimental group is higher than the control group

The frequency and percentage results of both groups show that there are a greater number of students under the experimental group who reached the outstanding level of proficiency while there is only 1 student in the control group. Also, a bigger number of students from the control group did not meet the established proficiency set by the Department of Education while few students from experimental group remain the proficiency level of "Did not meet the Expectation."

Table 2. Comparison of the Posttest Scores of the Control and Experimental Group.

| Proficiency | Score | Control Group | | Experimental Group | |
|--------------------------|-------|---------------|---------|--------------------|---------|
| | | Freq. | Percent | Freq. | Percent |
| Outstanding | 18-20 | 1 | 4.17% | 8 | 33.33% |
| Very Satisfactory | 16-17 | 0 | 0% | 2 | 8.33% |
| Satisfactory | 14-15 | 0 | 0% | 3 | 12.50% |
| Fairly Satisfactory | 12-13 | 4 | 16.67% | 3 | 12.50% |
| Did Not Meet Expectation | 0-11 | 19 | 79.17% | 8 | 33.33% |
| Mean | | 8.75 | | 13.38 | |
| Standard Deviation | | 3.50 | | 4.19 | |

This implied that both groups increase their performance and problem-solving skills, but the experimental group had a greater improvement. Findings signify that the use of metacognitive strategies like thinking aloud and journal writing is better than the traditional teaching strategies in improving the performance and problem-solving skills of the students. This finding was supported by [1] statements that metacognitive learning strategies can be used as intervention that help the students to attain mastery.

3.3 Significant Difference of the Pretest Score of Control and Experimental Group

Table 3 shows the pretest of the control and experimental groups which acquired a **t-value of 0.296** with a **significant value of 0.768**. Since the significant value computed was greater than the **significant value of 0.05**, it simply means that there was no statistically significant difference between the pretest of the control and experimental groups. The finding was the same with

the research study about metacognitive strategies conducted by [11] where in the pretest of both the control and experimental groups was not significant when compared to the accepted level of significance.

Table 3. Difference of the Pretest Score of Control and Experimental Group

| Test | Group | Mean | t-value | Sig. Value | Interpretation |
|---------|--------------|------|---------|------------|-----------------|
| Pretest | Control | 1.67 | -0.296 | 0.768 | Not Significant |
| | Experimental | 1.83 | | | |

The result indicates that both groups possessed similarities in terms of their performances and problem-solving skills in Basic Calculus before the experiment was conducted. Additionally, it revealed that the students had almost the same competencies and level of skills and emphasized that both groups were very acceptable to conduct the experiment on the teaching process.

3.4 Significant Difference of the Pretest and Posttest Score of Control Group

The Table 4 shows the pretest and posttest of the control group got a **t-value of -10.485** with a **significant value of 0.000**. The significant value of the control group is smaller than the **significant value of 0.05**. This concluded that there was significant difference between the performance and problem-solving skills of the students. This means that the intervention is effective in improving their performance.

Table 4. Difference of the Pretest and Posttest Score of Control Group

| Group | Test | Mean | t-value | Sig. Value | Interpretation |
|---------|----------|------|---------|------------|----------------|
| Control | Pretest | 1.67 | -10.485 | 0.000 | Significant |
| | Posttest | 8.75 | | | |

The results reveal that using the traditional teaching strategies in Basic Calculus enhance the students' performance and problem-solving skills. The control group's pretest and posttest, have significant difference simply because of the teaching strategies used. According to [10], making use of other methods or approaches could improve or enhance the performance of the students. Additionally, when the lessons are introduced to the students, the problem-solving skills would increase. This only proves that any teaching strategy would help the students increase their knowledge toward the lesson.

3.5 Significant Difference of the Pretest and Posttest Score of Experimental Group

As seen on Table 5, the pretest and posttest of the experimental group acquired a **t-value of -14.579** with a **significant value of 0.000**. The significant value of the experimental group was smaller than the **significant value of 0.05** this simply indicates that there was significant difference between the pretest and posttest of the experimental group.

Table 5. Difference of the Pretest and Posttest Score of experimental Group

| Group | Test | Mean t-value | Sig. Value | Interpretation |
|--------------|----------|--------------|------------|----------------|
| Experimental | Pretest | 1.83 | -14.579 | 0.000 |
| | Posttest | 13.38 | | |

The result signifies that using metacognitive strategies enhance the students' performance and problem-solving skills in Basic Calculus. Metacognitive strategies in the teaching and learning of Basic Calculus were effective because of the bigger change of the pretest mean score of **1.87** to posttest mean score of **13.38**. Therefore, there was a significant difference in the metacognitive strategies and the students' level of performance. This finding was supported by [9] who confirmed that metacognitive instructions were effective in enhancing the academic performances of the students. The study of [9] reveals that students taught metacognitive instructions obtained higher metacognitive knowledge and achievement. Teachers should provide students with guidance throughout the problem-solving process and they should try to enable them to fill any gap. In this way, they can reveal and correct any mistake or wrong learning in the use of metacognitive strategies [11].

3.6 Significant Difference of the Posttest Score of Control and Experimental Group

As shown on Table 6, the posttest of the control and experimental groups acquired a **t-value of 3.818** with a **significant value of 0.000** which is lower than the **significant value of 0.05**. Therefore, there was statistically significant difference between the posttest of the control and experimental groups. This finding was parallel with the study conducted by [7] on the effect of the students' achievements using metacognitive strategies. The result revealed that there was significant difference in the control and experimental groups in which the finding favored the experimental group.

Table 6. Difference of the Posttest Score of Control and Experimental Group

| Group | Test | Mean | t-value | Sig. Value | Interpretation |
|--------------|----------|-------|---------|------------|----------------|
| Experimental | Pretest | 1.83 | 3.818 | 0.000 | Significant |
| | Posttest | 13.38 | | | |

The Table reveals that the level of performance of both groups differed from each other after the experiment. This implies that one group was better than the others. Meaning, both the teaching strategies were effective but the metacognitive strategies were more effective as compared to the traditional teaching strategies. This statement was supported by the posttest mean scores of both groups wherein the experimental group performed better than the control group in Basic Calculus.

According to [3], the use of the metacognitive strategy lessens the difficulty of the students which was encountered during the course of problem solving. They have the ability to reflect on their work results, clarify their thoughts about the concepts, and evaluate their learnings, resulting in the enhancement of their problem-solving skills after their exposure to the concepts and problem solving.

3.7 Students' Learning Engagement in Basic Calculus Using the Metacognitive Strategies

As seen on the Table 7, the highest mean of the students' cognitive engagement was on "The students are looking forward to learn more in Basic Calculus, "The students are asking help from their classmate in answering the Basic Calculus problems", and "The students are recognizing the value of learning Basic Calculus during the class" in which these engagement statements acquired a mean of **3.71** with a verbal interpretation of **significantly evident**. The second highest mean engagement was "The students are thinking a lot during the Basic Calculus class" that had a mean of **3.57** and a verbal interpretation of **"significantly evident"**. The lowest mean engagement obtained was on "The students are trying to learn as much as they could in the Basic Calculus class" with a mean of **3.43** having a verbal interpretation of **significantly evident**.

Table 7. Students' Cognitive Engagement in Basic Calculus

| Cognitive Engagement | Mean | Interpretation |
|--|------|-----------------------|
| 1. The students are looking forward to learn more in Basic Calculus. | 3.71 | Significantly Evident |
| 2. The students are thinking a lot during the Basic Calculus class. | 3.57 | Significantly Evident |
| 3. The students are asking help from their classmate in answering the Basic Calculus problems. | 3.71 | Significantly Evident |
| 4. The students are recognizing the value of learning Basic Calculus during the class | 3.71 | Significantly Evident |
| 5. The students are trying to learn as much as they could in the Basic Calculus class. | 3.43 | Significantly Evident |
| Weighted Mean | 3.63 | Significantly Evident |

The results signify that using the metacognitive strategies, the students actively participated during the discussion which could be inferred that they were interested and highly motivated to learn. This statement was supported by [11] that problem solving based on the metacognitive strategies was more interesting for the students to become more motivated to learn, and that they were eager to solve problems. The use of metacognitive strategies such as thinking aloud and journal writing increased the cognitive engagement of the students in the teaching and learning of Basic Calculus. These strategies also helped improve their performance and problem-solving skills. Therefore, the metacognitive strategies really helped the students to be cognitively engaged in Basic Calculus lessons as one of the prerequisites to improve the performance and problem-solving skills.

3.8 Behavioral Engagement

As observed on Table 8, the highest mean of the students' behavioral engagement was on "The students are listening to the teacher's discussion during Basic Calculus class". This engagement acquired a **mean value of 4.00** with a verbal interpretation of **significantly evident**. The second highest mean engagement were on "The students are

standing and answering teacher's questions when called in Basic Calculus class" and "The students are actively participating in the different activities in Basic Calculus class" with a **mean value of 3.86** and a verbal interpretation of **significantly evident**.

Table 8. Students' Behavioral Engagement in Basic Calculus

| Behavioral Engagement | Mean | Interpretation |
|---|-------------|---------------------|
| 1. The students are listening to the teacher's discussion during Basic Calculus class | 4.00 | Sig. Evident |
| 2. The students are standing and answering teacher's questions when called in Basic Calculus class | 3.86 | Sig. Evident |
| 3. The students are raising their hands whenever they know the answers. | 3.57 | Sig. Evident |
| 4. The students are raising their hands and asking questions whenever they have queries about the lesson presented in Basic Calculus class. | 3.57 | Sig. Evident |
| 5. The students are actively participating in the different activities in Basic Calculus class. | 3.86 | Sig. Evident |
| Weighted Mean | 3.77 | Sig. Evident |

The findings imply that through metacognitive strategies like thinking aloud and journal writing, the students were helped to be more active listeners during the teacher's discussion and to be more active in asking questions and in raising their hands whenever they had queries. The interaction between the teacher and the students during the activities was an essential tool for the learners' extreme behavioral engagement. In the study of [7] as they observed, think aloud strategies in the experimental group influenced the students to ask questions whenever they had queries because their misconceptions bothered them in the process. Think-aloud strategies allowed students to say what they were thinking, thus, the queries that they were keeping were mentioned.

3.9 Affective Engagement

The Table reveals that the highest mean of the students' affective engagement was achieved by the

statement "The students are enjoying the activities during Basic Calculus class" with a **mean value of 4.00** with a verbal interpretation of **significantly evident**. The second highest mean engagement was acquired by the statements "The students are helping their classmates in solving Basic Calculus problems whenever they have difficulties during Basic Calculus class", "The students are sharing their ideas and notes to their classmates in Basic Calculus class", and "The students are not bored during Basic Calculus class" with a **weighted a mean value of 3.71** and a verbal interpretation of **significantly evident**. The lowest mean engagement was obtained by the statement "The students are interesting of what they are learning in Basic Calculus" with a **weighted mean of 3.57** and a verbal interpretation of **significantly evident**.

Table 9. Students' Affective Engagement in Basic Calculus

| Affective Engagement | Mean | Interpretation |
|---|-------------|------------------------------|
| 1. The students are helping their classmates in Basic Calculus problems whenever they have difficulties during Basic Calculus class | 3.71 | Significantly Evident |
| 2. The students are sharing their ideas, concerns and notes to their classmates in Basic Calculus class | 3.71 | Significantly Evident |
| 3. The students are interesting of what they are learning in Basic Calculus | 3.57 | Significantly Evident |
| 4. The students are enjoying the activities during Basic Calculus class | 4.00 | Significantly Evident |
| 5. The students are not bored during Basic Calculus class | 3.71 | Significantly Evident |
| Weighted Mean | 3.74 | Significantly Evident |

Based on the findings, through metacognitive strategies like thinking aloud and journal writing helped the students to enjoy the activities given by the teacher and also created a road in helping and sharing of ideas and notes with their classmates in solving the Basic Calculus problems. Further, the said strategies assisted the students to be interested and not to feel bored during the discussion. This implies that metacognitive strategies really helped the students to be affectively engaged in the lessons.

According to [15], emotional engagement was positively correlated to the academic performance of the students. The greater the affective engagement of the students the better the performance.

3.10 Comparison of the Learning Engagement of both groups in Basic Calculus

Table 10. Over-all Learning Engagement of Control and Experimental Group

| Learning Engagement | Control | | | Experimental | | |
|---------------------|---------|------|----------------|--------------|------|----------------|
| | Mean | SD | Interpretation | Mean | SD | Interpretation |
| Cognitive | 2.94 | 0.68 | Evident | 3.63 | 0.55 | Sig. Evident |
| Behavioral | 2.97 | 0.71 | Evident | 3.77 | 0.43 | Sig. Evident |
| Affective | 3.00 | 0.76 | Evident | 3.74 | 0.44 | Sig. Evident |

Table 10 shows that the students' cognitive, behavioral and affective engagement under the control group obtained a verbal interpretation of "Evident" while the students under the experimental group obtained "Significantly Evident". The standard deviation shows that the data given during the observation in the control group were more dispersed as compare to the experimental group. The learning engagement of those students who were taught using metacognitive strategies like thinking aloud and journal writing was higher than the students who were taught with traditional teaching strategies. It implies that the use of metacognitive strategies could increase the students' learning engagement more than the traditional teaching strategies. According to [8], cognitive, affective (emotional) and behavioral engagement had a strong relationship in the performance or achievements of the students. Metacognitive strategies may have to be incorporated in the teaching and learning process so that the students would be highly engaged in the lessons, and in the long run, would improve the students' academic performances and problem-solving skills. In the study of [2], one of the most important indicators of quality teaching strategies is the student engagement in teaching and learning process. The more the students are engaged in the lessons, the better the teaching strategies are applied.

IV. CONCLUSION

Based on the findings the following conclusions are attained.

- Both the control and experimental groups possessed similarities in terms of their performance and problem-solving skills in their pretest with a proficiency level of **"Did Not Meet the Expectation"**. Both groups had no enough knowledge and problem-solving skills as showed difficulties in solving Basic Calculus problems before the two teaching strategies were applied.
- The posttest mean scores revealed that the experimental group had greater improvement in their performance and problem-solving skills than the control group. The control group manifested a proficiency level of **"Did Not Meet the Expectation"** while the experimental group manifested a proficiency level of **"Satisfactory"**. Therefore, metacognitive strategies like thinking aloud and journal writing generally benefited and improved the performance and problem-solving skills of the students than the traditional teaching strategies.
- There is no significant difference between the pretest of control and experimental group. This implied that the level of performance and problem-solving skills of the both groups are almost the same before the experiment.
- There is a significant difference between the pretest and posttest of the control group. This implied that the traditional teaching strategies are effective in improving the performance and problem-solving skills of the students. Even though the traditional teaching strategies were used to teach the control group, the students still managed to learn the lessons as showed the increased in their posttest showing that the traditional teaching strategies were still considered as effective.
- There is a significant difference between the pretest and posttest of the experimental group. This implied that metacognitive strategies are effective in improving the performance and problem-solving skills of the students. The bigger increase of posttest mean score of the experimental group confirmed that the metacognitive strategies were more effective.
- There is significant difference between the posttest of the control and experimental group. This reveals that the level of performance and problem-solving skills of both groups differed from each other after the two teaching strategies were introduced. This implies that one group was better than the other. Meaning, both the teaching strategies were effective but the metacognitive strategies were more effective as compared to the traditional teaching strategies.

7. Metacognitive strategies helped the students to be more engaged in the teaching and learning of Basic Calculus. Furthermore, metacognitive strategies like thinking aloud and journal writing helped the students to be extremely engaged in Basic Calculus lessons cognitively, behaviorally, and affectively. The more the engagement of the students in the lesson, the better they could perform in their problem-solving tasks.

V. RECOMMENDATION

Based on the conclusions the following are recommended.

1. Teachers may always conduct pre-assessment instrument to determine the level of difficulties of a particular lesson of the subjects, and to help them create an instructional plan and strategies to lessen or avoid learning difficulties.
2. Teachers may develop interesting and highly motivated teaching strategies that promote belongingness.
3. Teachers may also value the queries and concerns of students during the learning process [8].
4. The teacher may incorporate the metacognitive strategies such as thinking aloud and journal writing in every teaching process.
5. It is essential that the Department of Education may provide trainings and seminars to the teachers for them to gain knowledge about the metacognitive teaching strategies.
6. Similar research studies about teaching strategies that valued the queries and concerns of the students is recommended to determine the degree of relationship between learning and valuing the learners' queries and concerns.
7. The school administrators are encouraged to implement the metacognitive strategies such as thinking aloud and journal writing in the teaching and learning of mathematics since they help the students to extremely be engaged cognitively, behaviorally, and affectively toward the lessons.

ACKNOWLEDGEMENTS

The researcher wishes to express their endless appreciation and warmest gratitude to the individuals who contributed a lot to make this study a reality. Above all, **The Lord God Almighty**, for the blessings, countless love, favor, perseverance, strength, and wisdom. Indeed, "God can make everything beautiful in His time."

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Work Engagement: How Does Employee Work Engagement influence Employee Satisfaction?

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Received: 29 Mar 2021; Received in revised form: 03 May 2021; Accepted: 16 May 2021; Available online: 03 Jun 2021

Abstract— *The goal of this research is to look into the link between job happiness and work engagement. The goal of the study was to look into the relationship between (equal opportunities, personal influence, nature of career, development opportunity, employee recognition, work challenge, supervisor behavior, ethics and integrity, and job empowerment) and job satisfaction in Erbil's private companies. In order to examine the association between work engagement and job satisfaction, the researcher employed a quantitative research method, but only 108 people took part in the current study. To assess the association between variables, the researcher employed multiple regression analysis. The researcher discovered that among the other work engagement aspects, workplace challenge had the greatest value =.671 and P-value =.000, indicating that many employees in private organizations are engaged to their jobs due to time management, overburdening tasks, and communication. This study emphasized the importance of workplace challenges in motivating employees to become more involved in their organizations. Employee engagement is defined as a good attitude toward work and the degree to which an individual is committed to the company. Only a small number of employees from private enterprises in Kurdistan took part in this survey, which limits the study's findings.*

Keywords— *Engagement, Job satisfaction, Kurdistan.*

I. INTRODUCTION

Employee involvement can be both physical and mental, reflecting the concept's behavioural and attitudinal foundations (Abdullah et al. 2021). In today's competitive market, there is a substantial body of evidence demonstrating the benefits of having highly engaged staff for firms (Ahmed et al. 2021). Several academics and scholars have demonstrated that engaged employees are less likely to leave the firm (Ahmed et al. 2021), while engaged employees are more likely to attend frequently (Akoi et al. 2021). In today's world, no firm can exist without employees (Ali & Anwar, 2021). As a result, it's critical to understand the concept of engagement and its potential consequences (Ali et al. 2021). Engagement is a belief that reflects an individual's strength (Ali et al. 2021) of attachment to an organization (Ali et al. 2021), according to (Ali, 2014). The goal of this study is to determine the

association between work engagements and job satisfaction in Kurdistan's private institutions (Ali, 2016).

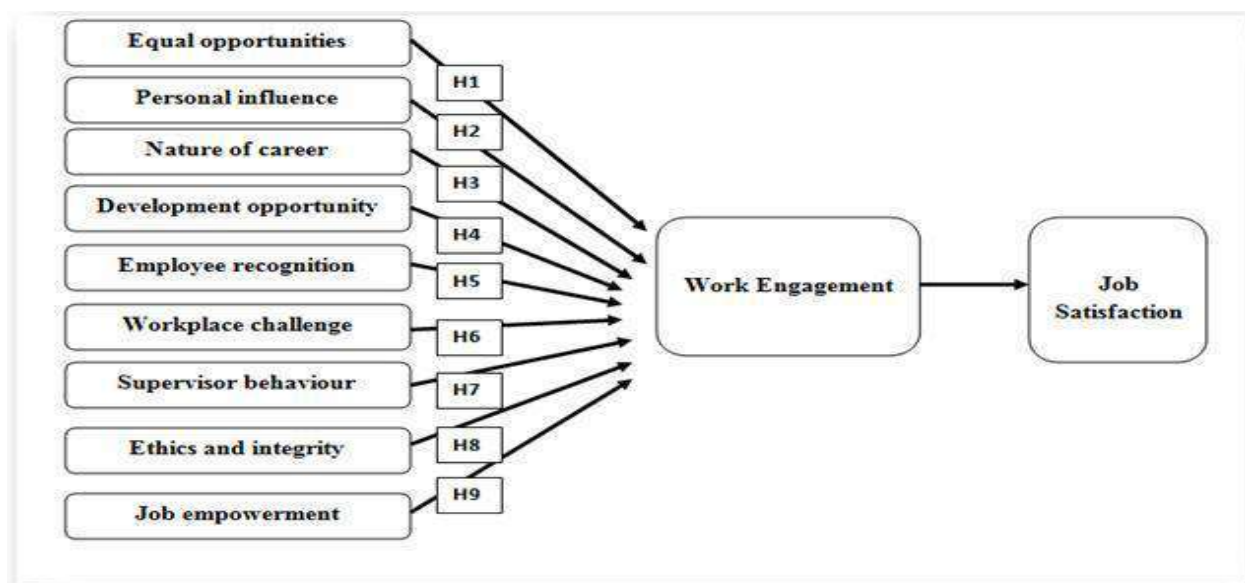
II. LITERATURE REVIEW

Employee engagement, according to (Ali, 2020), refers to people's participation in or attachment to organizations (Ali, 2021). Employee engagement, according to (Ali, et al. 2021), is an effective response to the entire organization as well as the degree of employees' devotion to their organization. Employee engagement, according to (Andavar et al. 2020), is defined as an employee's attitude toward their work (Anwar & Abd Zebari, 2015). Arrangement. Employee engagement, according to (Anwar & Abdullah, 2021), is a psychological degree that reflects an individual's relationship with the organization and has links with the individual's desire to remain a member of the

business (Anwar & Balcioglu, 2016). Employee engagement (Anwar & Climis, 2017), according to (Anwar & Ghafoor, 2017), is defined as "the degree to which individuals feel a strong attachment to their organization (Anwar & Qadir, 2017)." Employee engagement is important for any firm (Anwar & Shukur, 2015), according to (Anwar & Surarchith, 2015), because high levels of employee engagement lead to better levels of work satisfaction (Anwar, 2016). According to (Lu, et al., 2016), the majority of engaged employees have no plans to leave their jobs (Anwar, 2017). According to (Aziz et al. 2021) discovered a negative association between employee commitment (Anwar, K., & Louis, 2017) and the likelihood of turnover, as well as a positive and significant association between work engagement and job satisfaction (Aziz et al. 2021). Many scholarly studies, on the other hand, have demonstrated a link between employee involvement and satisfaction (Demir et al. 2020). Organizations can benefit from engaged employees in a variety of ways (Faraj et al. 2021), including less employee turnover and increased job satisfaction (Hamza et al. 2021). According to (Hameed & Anwar, 2018), there is debate as to whether work engagement is defined as a behavior or an attitude statement from a psychological standpoint (Ismael et al. 2021); however, (Jamal et al. 2021) stated that work engagement can be defined as both behavioral and attitudinally stated for the purposes of the current study and in (Sabir et al. 2021) accordance with a strong theoretical foundation (Saleh et al. 2021). Job satisfaction is described by (Sorguli et al. 2021) as the emotion or sensation that a person has about their current job (Talin, et al. 2021). They also mentioned that numerous academic researchers have attempted to identify various work satisfaction components, assess relative significance for each job satisfaction component, and analyze (Top & Ali, 2021) the impact of all of these job satisfaction components on employee satisfaction and productivity. Professional development for employees (Anwar, K., & Louis, 2017), according to (Anwar, 2017), will raise their degree of commitment and engagement in their responsibilities and duties. Job satisfaction, according to (Anwar & Surarchith, 2015) is described as an individual's overall attitude toward their job. According to (Anwar & Shukur, 2015), inspiration is closely linked to job happiness. Job satisfaction is

influenced by a variety of aspects, including social interactions, job analysis, employee training, wishes and wants, recruitment and selection, orientation, working environment, management development (Anwar & Qadir, 2017), and management quality. (Aunola and colleagues, 2016). Furthermore, some academics and researchers have sought to identify multiple job satisfaction components, evaluate relative significance for each job satisfaction component (Anwar & Ghafoor, 2017), and explore the impact of all of these job satisfaction components on employee satisfaction (Anwar & Climis, 2017). Job satisfaction is a state of mind that is the result of a detailed blueprint and a collection of specific likes and dislikes from previous work experiences (Anwar & Balcioglu, 2016). The most crucial and crucial asset for practically all organizations (Anwar & Abdullah, 2021), according to (Anwar & Abd Zebari, 2015), is human resources (Ali & Anwar, 2021). A person's job satisfaction is measured in terms of their level of satisfaction, which varies depending on the work (Anwar & Abd Zebari, 2015). Job satisfaction is an important indicator of how an individual feels about their job and how satisfied they are with it. Individual satisfaction is connected to an increase in organizational output (Anwar & Abdullah, 2021). An individual's job happiness is seen as a critical aspect in an organization's success (Anwar & Balcioglu, 2016). A high degree of individual satisfaction is significantly connected with a low level of employee turnover in every firm. As a result, ensuring that employees are happy and pleased with their current jobs should be a top concern for any company (Anwar & Climis, 2017). Human resource management strategies aim to distribute and assign human resources in the most efficient and effective (Anwar & Ghafoor, 2017) methods possible in order to achieve long-term organizational goals, and they provide a slew of advantages and benefits that lead to an increase in job satisfaction (Anwar & Qadir, 2017). Furthermore, motivated personnel, according to (Anwar & Shukur, 2015), are likely to be more engaged and devoted to their jobs and obligations (Anwar & Surarchith, 2015).

Conceptual Framework Research Model



Research Hypotheses

H1: Work engagement mediates the positive relationship between equal employee opportunities (fair treatment) and job satisfaction.

H2: Work engagement mediates the positive relationship between personal influence and job satisfaction.

H3: Work engagement mediates the positive relationship between nature of career and job satisfaction.

H4: Work engagement mediates the positive relationship between development opportunity and job satisfaction.

H5: Work engagement mediates the positive relationship between employee recognition and job satisfaction.

H6: Work engagement mediates the positive relationship between workplace challenge and job satisfaction.

H7: Work engagement mediates the positive relationship between supervisor behaviour and job satisfaction.

H8: Work engagement mediates the positive relationship between ethics and integrity and job satisfaction.

H9: Work engagement mediates the positive relationship between job empowerment and job satisfaction.

III. METHODOLOGY

The researcher used a quantitative research method to test the developed research hypotheses. Currently there are 8622 private companies registered in the Erbil Chamber of Commerce & Industry, these including general trade companies and other specialized companies. Based on the participants' request, the researcher kept companies identity confidentially; therefore the researcher kept any identifying information out of published reports. The researcher distributed 120 surveys at private companies in Kurdistan; however only 108 surveys were filled and received back from the participants, therefore the sample size for the current study is 130 participants.

Analysis

Table.1: Demographic analysis

| Items | | Frequency | Percent |
|--------|--------|-----------|---------|
| Gender | Male | 76 | 70.4 |
| | Female | 32 | 29.6 |
| Age | 20-25 | 16 | 14.8 |
| | 26-30 | 22 | 20.4 |
| | 31-35 | 25 | 23.1 |
| | 36-40 | 17 | 15.7 |
| | 41-45 | 15 | 13.9 |
| | 46-50 | 5 | 4.6 |
| | 51-55 | 5 | 4.6 |

| | | | |
|--------------------|--------------|----|------|
| | 56 and above | 3 | 2.8 |
| Marital status | Single | 48 | 44.4 |
| | Married | 60 | 55.6 |
| Level of education | Bachelor | 91 | 84.3 |
| | Master | 13 | 12.0 |
| | PhD | 4 | 3.7 |

As seen in table (1) demographic analysis for respondents participated in this research. Based on to the descriptive analysis, the researcher was able to analyze respondents' background information. Concerning the respondents' gender; it was found that 76 male from total of 108 respondents participated in this research and 32 female from total of 108 respondents participated in this research. Concerning the respondents' age; it was found that 16 from total of 108 respondents fall in a group of 20-25 years old, 22 from total of 108 respondents fall in a group of 26-30 years old, 25 from total of 108 respondents fall in a group of 31-35 years old, 17 from total of 108 respondents fall in a group of 36-40 years old, 15 from total of 108 respondents fall in a group of 41-45 years old, 5 from total of 108

respondents fall in a group of 46-50 years old, 5 from total of 108 respondents fall in a group of 51-55 years old and finally only three respondents from total of 108 respondents fall in a group of 56 years old and above. Concerning the of respondents' marital status; it was found that 60 married respondents participated in this study and 48 single respondents participated in this study. Concerning the respondents' level of education; it was found that 91 respondents from total of 108 respondents had obtained college degree, 13 respondents from total of 108 respondents had obtained master degree, and only four respondents from total of 108 respondents had obtained PhD degree.

Table 2: Reliability Analysis

| Variables | Item N. | Cronbach's Alpha |
|-------------------------|---------|------------------|
| | | |
| Supervisor behaviour | 7 | .829 |
| | | |
| Ethic & integrity | 7 | .770 |
| | | |
| Job empowerment | 7 | .741 |
| | | |
| Equal opportunities | 7 | .726 |
| | | |
| Personal development | 7 | .727 |
| | | |
| Nature of career | 7 | .751 |
| | | |
| Development opportunity | 7 | .855 |
| | | |
| Workplace challenge | 7 | .835 |
| | | |
| Employee recognition | 7 | .780 |
| | | |

| | | |
|------------------|----|------|
| Job satisfaction | 10 | .773 |
|------------------|----|------|

The researcher implemented reliability analysis to (as seen in table-2) the values of Cronbach's Alpha for supervisor behaviour as independent factor, found to be $.829 > .6$ this indicates that the items used to measure supervisor behaviour factor were reliable for the current study, the values of Cronbach's Alpha for ethic & integrity as independent factor, found to be $.770 > .6$ this indicates that the items used to measure ethic & integrity factor were reliable for the current study, the values of Cronbach's Alpha for job empowerment as independent factor, found to be $.741 > .6$ this indicates that the items used to measure job empowerment factor were reliable for the current study, the values of Cronbach's Alpha for equal opportunity as independent factor, found to be $.726 > .6$ this indicates that the items used to measure equal opportunity factor were reliable for the current study, the values of Cronbach's Alpha for Personal development as independent factor, found to be $.727 > .6$ this indicates that the items used to measure Personal development factor were reliable for the current study, the values of Cronbach's Alpha for Nature of career as independent factor, found to be $.751 > .6$ this

indicates that the items used to measure Nature of career factor were reliable for the current study, the values of Cronbach's Alpha for Development opportunity as independent factor, found to be $.855 > .6$ this indicates that the items used to measure Development opportunity factor were reliable for the current study, the values of Cronbach's Alpha for Workplace challenge as independent factor, found to be $.835 > .6$ this indicates that the items used to measure Workplace challenge factor were reliable for the current study, the values of Cronbach's Alpha for Employee recognition as independent factor, found to be $.780 > .6$ this indicates that the items used to measure Employee recognition factor were reliable for the current study, and the values of Cronbach's Alpha for Job satisfaction as dependent factor, found to be $.773 > .6$ this indicates that the items used to measure Job satisfaction factor were reliable for the current study. However, the results revealed that all items used to measure the relationship between nine independent factors and dependent factor were reliable for the current research.

Table.3:Correlation Analysis

| | Pearson | EO | PI | NOC | DO | WC | ER | SB | EI | JE |
|-------------------------|-----------------|--------|--------|--------|--------|----|----|----|----|----|
| | Correlation | 1 | | | | | | | | |
| | Sig. (2-tailed) | | | | | | | | | |
| | N | 108 | | | | | | | | |
| Personal influence | Pearson | .399** | 1 | | | | | | | |
| | Correlation | | | | | | | | | |
| | Sig. (2-tailed) | .000 | | | | | | | | |
| | N | 108 | 108 | | | | | | | |
| Nature of career | Pearson | .576** | .470** | 1 | | | | | | |
| | Correlation | | | | | | | | | |
| | Sig. (2-tailed) | .000 | .000 | | | | | | | |
| | N | 108 | 108 | 108 | | | | | | |
| Development opportunity | Pearson | .347** | .389** | .365** | 1 | | | | | |
| | Correlation | | | | | | | | | |
| | Sig. (2-tailed) | .000 | .000 | .000 | | | | | | |
| | N | 108 | 108 | 108 | 108 | | | | | |
| Workplace Challenge | Pearson | .632** | .696** | .615** | .611** | 1 | | | | |
| | Correlation | | | | | | | | | |

| | | | | | | | | | | |
|--|---------------------|--------|--------|--------|--------|--------|--------|--------|--------|------|
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | | | | | |
| Employee recognition | Pearson Correlation | .434** | .556** | .419** | .793** | .673** | 1 | | | |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | | | | |
| | N | 108 | 108 | 108 | 108 | 108 | 108 | | | |
| Supervisor behaviour | Pearson Correlation | .561** | .753** | .547** | .634** | .772** | .730** | 1 | | |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | | | |
| | N | 108 | 108 | 108 | 108 | 108 | 108 | 108 | | |
| Ethic & integrity | Pearson Correlation | .757** | .672** | .548** | .179** | .492** | .299** | .565** | 1 | |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | |
| | N | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | |
| Job empowerment | Pearson Correlation | .778** | .455** | .571** | .244** | .504** | .308** | .437** | .644** | 1 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 |
| Job satisfaction | Pearson Correlation | .521** | .630** | .414** | .354** | .662** | .443** | .601** | .533** | .522 |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| | N | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 | 108 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | | | | | | |

The researcher attempted to find the correlation between nine independent variables and a dependent variable, therefore the correlation analysis was implemented (as seen in table-3). It was found that the value of Pearson correlation for equal opportunity = .521** > .01 therefore there is a positive and significant correlation between equal opportunity and job satisfaction, in terms of the strength it was found to be a moderate correlation, the value of Pearson correlation for personal influence = .630** > .01 therefore there is a positive and significant correlation between personal influence and job satisfaction, in terms of the strength it was found to be a strong correlation, the value of Pearson correlation for nature of career = .414** > .01 therefore there is a positive and significant correlation between nature of career and job satisfaction, in terms of the strength it was found to be a weak correlation, the value of Pearson correlation for development opportunity = .354** > .01 therefore there is a positive and significant correlation between development opportunity and job satisfaction, in terms of the strength it was found to be a weak correlation, the value of Pearson correlation for

workplace challenge = .662** > .01 therefore there is a positive and significant correlation between workplace challenge and job satisfaction, in terms of the strength it was found to be a strong correlation, the value of Pearson correlation for employee recognition = .443** > .01 therefore there is a positive and significant correlation between employee recognition and job satisfaction, in terms of the strength it was found to be a weak correlation, the value of Pearson correlation for supervisor behaviour = .601** > .01 therefore there is a positive and significant correlation between supervisor behaviour and job satisfaction, in terms of the strength it was found to be a strong correlation, the value of Pearson correlation for ethics and integrity = .533** > .01 therefore there is a positive and significant correlation between ethics and integrity and job satisfaction, in terms of the strength it was found to be a moderate correlation, and the value of Pearson correlation for job empowerment = .522** > .01 therefore there is a positive and significant correlation between job empowerment and job satisfaction, in terms of the strength it was found to be a moderate correlation.

Table.4: Model Summary

| Model Summary | | | | |
|---------------|-------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .736a | .542 | .538 | .33447 |

a. Predictors: (Constant), empowerment, development, personal, career, ethic, challenge, recognition, behaviour, equal
 It was found that the value of R square = .542 (as seen in table-4) this indicates that 54% of the variables have been explained.

Table 5: ANOVA

| ANOVA | | | | | | |
|-------|------------|----------------|-----|-------------|---------|-------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 129.814 | 9 | 14.424 | 128.933 | .000b |
| | Residual | 109.745 | 981 | .112 | | |
| | Total | 239.559 | 990 | | | |

a. Dependent Variable: satisfaction

b. Predictors: (Constant), empowerment, development, personal, career, ethic, challenge, recognition, behaviour, equal
 It was found the value F = 128.933 and since the value is greater than .001, this indicates that that there is a positive association between variables used to test research hypotheses.

Table.6: Coefficients

| Coefficients | | | | | | |
|--------------|---------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .687 | .104 | | 6.617 | .000 |
| | Equal opportunities | .448 | .023 | .521 | 19.213 | .000 |

| | | | | | |
|----------------------------|------|------|------|--------|------|
| Personal influence | .584 | .023 | .630 | 25.509 | .000 |
| Nature of career | .414 | .029 | .414 | 14.336 | .000 |
| Development opportunity | .269 | .023 | .354 | 11.925 | .000 |
| Workplace challenge | .671 | .024 | .662 | 27.796 | .000 |
| Employee recognition | .389 | .025 | .443 | 15.566 | .000 |
| Supervisor behaviour | .571 | .024 | .601 | 23.659 | .000 |
| Ethic & integrity | .446 | .022 | .533 | 19.831 | .000 |
| Job empowerment | .497 | .026 | .522 | 19.274 | .000 |

a. Dependent Variable: satisfaction

The researcher utilized multiple regression analysis to find the most effective and suitable factors increasing level of job satisfaction in private companies in Kurdistan. It was found that the value of B for equal opportunity = .448 > .001 and P-value = .000, this indicated that there is positive relationship between equal opportunity and job satisfaction, accordingly the first research hypothesis was supported which stated that “Work engagement mediates the positive relationship between equal employee opportunities (fair treatment) and job satisfaction”, the value of B for personal influence = .584 > .001 and P-value = .000, this indicated

that there is positive relationship between personal influence and job satisfaction, accordingly the second research hypothesis was supported which stated that “Work engagement mediates the positive relationship between personal influence and job satisfaction”, the value of B for nature of career = .414 > .001 and P-value = .000, this indicated that there is positive relationship between nature of career and job satisfaction, accordingly the third research hypothesis was supported which stated that “Work engagement mediates the positive relationship between nature of career and job satisfaction”, the value of

B for development opportunity = .269 >.001 and P-value = .000, this indicated that there is positive relationship between development opportunity and job satisfaction, accordingly the fourth research hypothesis was supported which stated that “ Work engagement mediates the positive relationship between development opportunity and job satisfaction”, the value of B for workplace challenge = .671 >.001 and P-value = .000, this indicated that there is positive relationship between workplace challenge and job satisfaction, accordingly the fifth research hypothesis was supported which stated that “ Work engagement mediates the positive relationship between workplace challenge and job satisfaction”, the value of B for employee recognition = .389 >.001 and P-value = .000, this indicated that there is positive relationship between employee recognition and job satisfaction, accordingly the sixth research hypothesis was supported which stated that “ Work engagement mediates the positive relationship between employee recognition and job satisfaction”, the value of B for supervisor behaviour = .571 >.001 and P-value = .000, this indicated that there is positive relationship between supervisor behaviour and job satisfaction, accordingly the seventh research hypothesis was supported which stated that “ Work engagement mediates the positive relationship between supervisor behaviour and job satisfaction”, the value of B for ethic and integrity = .446 >.001 this indicated that there is positive relationship between ethic and integrity and job satisfaction, accordingly the eighth research hypothesis was supported which stated that “ Work engagement mediates the positive relationship between ethics and integrity and job satisfaction”, and the value of B for job empowerment = .497 >.001 and P-value = .000, this indicated that there is positive relationship between job empowerment and job satisfaction, accordingly the ninth research hypothesis was supported which stated that “ Work engagement mediates the positive relationship between job empowerment and job satisfaction”.

IV. CONCLUSIONS

Employee engagement is a positive attitude towards the workplace and is the degree that an individual is bind to the organization. This research highlighted the significance of workplace challenge that inspires the individuals to be more engaged to their organization. Only small number of employees had participated in this research from private companies in Kurdistan, which limits the outcome of the study. The researcher used quantitative research method in order to measure the relationship between work engagement and job satisfaction, however only 108 respondents were participated in the current study. The researcher used multiple regression analysis to measure the

relationship among variables, in private companies, most of the employees depend and get excited more upon the workplace challenge, and it demonstrates a positive indication of the employees revealing the attachment and engagement of employees to the organization. According to multiple regression analysis, the researcher found that workplace challenge had the highest value among other work engagement elements = .671 and P-value = .000, which indicates that many private companies' employees are engaged to their job because of time management, Overwhelming workloads and communication.

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Employee Turnover Intention and Job Satisfaction

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Received: 07 Apr 2021; Received in revised form: 09 May 2021; Accepted: 22 May 2021; Available online: 06 Jun 2021

Abstract— Today it became a huge challenge for Human Resource Managers to retain the employees for longer time of period and decrease the rate of employee turnover. The main research objective is to find out the correlation between job satisfaction and employee turnover intention in private hospital in Erbil. A quantitative method was used to analyze the current study. 144 participants were involved in this study from private hospital in Erbil. The correlation between job satisfaction factor as independent factor and turnover as dependent factor, the value of R for the Job satisfaction is $=.386^{**}$ which indicates that turnover is a positive and weak correlation with turnover intention. The coefficients analysis for this study, the value Beta for turnover is $=.386 > 0.01$, which supported the research hypothesis. This study showed that there is a positive correlation between job satisfaction and employee turnover. Finally, on the turnover intentions of private hospital personnel in Erbil, most of them would quit in case if they have a better opportunities.

Keywords— Job Satisfaction, Private Hospital, Turnover.

I. INTRODUCTION

In every organization the Human Resources are considered as the main organizational source (Talim, et al. 2021). Today it became a huge challenge for Human Resource Managers to retain the employees for longer time of period and decrease the rate of employee turnover (Top & Ali, 2021). Increasing the rate of employee turnover will result in increasing the cost of recruitment accordingly organization's productivity will decrease (Sorguli et al. 2021). At the present time many academicians, human resource managers, researchers and scholars are paying attention on employee turnover (Sabir et al. 2021). Increasing the rate of employee turnover reduces organizational efficiency and productivity (Jamal et al. 2021). Therefore, it is essential to study the relation between employee turnover and job satisfaction (Saleh et al. 2021). (Ismael et al. 2021), defined job satisfaction as emotion or feeling that an employee has regarding current job (Hamza et al. 2021). Also (Hameed & Anwar, 2018), they pointed out that many academic scholars tried to determine several job satisfaction components, assess relative significance for each job satisfaction components and investigate (Faraj et al. 2021) the influence of all these

job satisfaction components on employee's satisfaction and productivity (Demir et al. 2020). Satisfied employees are recognized to demonstrate the higher level of productivity and efficiency in organisations (Aziz et al. 2021). By examining job satisfaction an organisation (Anwar, K., & Louis, 2017) will be able to increase positive consequences for instance employee satisfaction, and will decrease employee turnover (Anwar, 2017). The main research objective is to find out the correlation between job satisfaction and employee turnover intention in private hospital in Erbil (Anwar, 2016).

II. LITERATURE REVIEW

Employee Turnover

Anwar, (2017), defined employee turnover as a percentage comparison of the number of individuals an organization should replace in a specific time of period to the average amount of total individuals within an organization. (Anwar & Surarchith, 2015) defined employee turnover as a rotation of individuals around the labor market (Anwar & Shukur, 2015); it could be between companies, states of

unemployment and employment, and between occupations and jobs (Anwar & Qadir, 2017).

A great concern that many organizations, turnover increases cost of the organization particularly in job with minimum wages (Anwar & Shukur, 2015). There several factors influence the rate of turnover of an organization, and these factors could be from employees and employer (Anwar & Surarchith, 2015). These factors could be compensation, benefits, wages, and job analysis and so on (Anwar, 2016). According to (Anwar, 2017) in case of turnover, it causes indirect and direct expenses to an organization, which compromises the cost of human resource (Anwar, K., & Louis, 2017), training, advertising, retention and loss of productivity (Aziz et al. 2021).

According to (Demir et al. 2020) many researchers believed that employee turnover and job satisfaction are negatively associated. Conversely, the opposite view as well exists (Faraj et al. 2021), for instance, the term of employee turnover, a moderately specific perception (Hameed & Anwar, 2018), can't be fruitfully clarified by more general perceptions for example commitment and job satisfaction (Hamza et al. 2021). The link between employee turnover and job satisfaction could be associated by many factors or variables for instance, compensation, stress, environment, training and so on (Ismael et al. 2021).

A study was carried out in manufacturing industry in Malaysia. The aim of the study was to measure four variables (employee relationship, benefits, compensation (Ismael et al. 2021), working environment and demographic) as independent factor and job satisfaction as dependent factor (Jamal et al. 2021). The outcome of the study proved that managers are required to execute long term plan in order to be able to avoid high employee turnover. Identifying the level of job satisfaction considers an important factor to decrease rate of employee turnover (Sabir et al. 2021).

Anwar, (2017), stated that turnover could be forecasted through using complete measures of level of job satisfaction. Therefore (Saleh et al. 2021), increasing level of job satisfaction is strongly correlated with low rate of turnover (Sorguli et al. 2021). Furthermore, many academic researchers proved that the association between turnover and level of job satisfaction is moderated by turnover intentions (Talin, et al. 2021).

Anwar, (2016), stated that many studies proved a positive relation between individual intention and leaving behavior. Usually, it is considered that employee turnover intention and job satisfaction are inversely associated (Anwar & Balcioglu, 2016).

The contrast relation between turnover and job satisfaction is very essential (Anwar & Climis, 2017). One of the major

objectives of research in turnover is to examine the actual turnover; nonetheless, turnover data is frequently unreachable to scholars (Anwar & Ghafoor, 2017). Regularly, turnover data are not easy to obtain due to it is not precisely or consistently gathered. Therefore (Anwar & Qadir, 2017), academic scholars should rely on employee turnover intention as an alternative for actual turnover. Therefore, it has been proved that investigative turnover intention considers one of the effective tools (Anwar & Shukur, 2015), due to the fact is the factor that immediately and always predict turnover (Anwar & Surarchith, 2015).

Every organization effectively depends on several variables for instance job satisfaction and turnover. In terms of the intention of employee turnover means voluntary an individual leaves its job (Anwar, 2016), which could have negative influence on organization's outcome. Though, follow-up to low levels of job satisfaction, high rate of individual turnover within an organization, therefore, that could be as low compensation, poor training, recruitment and selection, development and so on (Anwar, 2017).

Employee turnover will have a negative influence on an organization, especially in terms of expenses, so, turnover causes huge cost to an organization (Anwar, K., & Louis, 2017). In case of turnover, organization should set up a new replacement, time management, training, selection, and recruitment) all these variables will cause a huge cost to an organization (Aziz et al. 2021).

However, different individuals have different methods of turnover. For instance, an individual with a pleased disposition mostly is less likely would leave her or his position (Demir et al. 2020). In some cases, an organization might know the variables that might lead the individual to leave her or his job (Faraj et al. 2021), may be could help an organization to decrease the rate by conduction several method of solving for instance could confirm that individuals are in a high level of job satisfaction (Hameed & Anwar, 2018). Furthermore, individual with high level of turnover intention more often consider as less effective and always attempt to find a way to leave the organization (Hamza et al. 2021). As many scholars proved the main reason of increasing rate of individual turnover in the workplace is level of job satisfaction. Mainly dissatisfied individuals are willing to leave the organization (Ismael et al. 2021).

Job Satisfaction

According to (Ali, 2021) job satisfaction is defined as an attitude related with an individuals' degree of their dislike or like their current job. (Ali, et al. 2021) defined job satisfaction as a consequence of various elements such as satisfaction, promotion, relationships among employees,

pay and equal employment opportunity (Anwar & Abd Zebari, 2015). (Anwar & Abdullah, 2021)defined job satisfaction as the positive emotional feeling consequence from achieving what an individual desires or values from his or her current job (Anwar & Balcioglu, 2016).

(Anwar & Climis, 2017)defined job satisfaction as a positive feeling consequence from the assessment of an individuals' job. (Anwar & Ghafoor,2017)defined job satisfaction as person's overall attitude toward job. (Anwar & Qadir, 2017) stated that inspiration is closely associated to job satisfaction (Anwar & Shukur, 2015). Many factors are related to job satisfaction for instance, social relationships, job analysis (Anwar & Surarchith, 2015), employee training, desires and needs, recruitment and selection, orientation, working conditions, development and quality of management (Anwar, 2017).

Conceptual framework

Research Model

H1



Research Hypotheses:

H1: There is a positive correlation between job satisfaction and employee turnover.

III. RESEARCH METHODOLOGY

Design of the Study

The purpose of this research is to investigate the impact of job satisfaction on employee turnover in private hospital in Erbil. The questionnaire was divided into two sections, the first section consisted of demographic questions; starting with respondent's age and respondents' gender. The second part of questionnaire consisted of 39 questions, 18 questions for employee turnover and 11 questions for job satisfaction.

Sampling Size and Target Population

A random sampling technique was used, where all employees had equal chances of being selected for the sample. The study was carried out at private hospital in Erbil. The researchers distributed 170 questionnaires, only 156 questionnaires were received and from 156 questionnaires only 144 questionnaires were completed properly.

Instruments

The questionnaire is structured in the form of multiple choice questions. The participants were asked to rate how strongly they agree on each item on a five points Likert order scale. The questionnaire is designed and adapted from Atteya, 2013; Olusegun, 2013.

IV. RESULTS AND ANALYSIS

Table 1-Demographic analysis

| Items | Scales | Frequency | Percent |
|--------|--------------|-----------|---------|
| Age | 20-25 | 41 | 28.5 |
| | 26-30 | 30 | 20.8 |
| | 31-35 | 26 | 18.1 |
| | 36-40 | 20 | 13.9 |
| | 40-45 | 16 | 11.1 |
| | 45 and above | 11 | 7.6 |
| Gender | Male | 93 | 64.6 |
| | Female | 51 | 35.4 |

Table (1), shows demographic analysis for respondents participated in this study. 41 participants were from age 20-25 years old, 30 respondents were from age 26-30 years old, 26 respondents were from age 31-35 years old, 20 respondents were from age 36-40 years old, 16 respondents

were from age 40-45 years old and only 11 respondents were from age 45 years old and above. In terms of participants' gender; 93 participants were male and 51 participants were female.

Table 2- Factor analysis

| Factor | Items | Factor loading |
|-------------------------|---|----------------|
| Turnover | I would quit my present job for a similar position with better pay in another organization at the least opportunity | .512 |
| | Continuation with my present employer will not fulfill my life expectation | .613 |
| | As soon as I can find a better job, I will quit this organization | .704 |
| | I often think about quitting my job | .811 |
| | I will probably look for a job outside of this organization within the next 3 years | .757 |
| | It is very unlikely that I would ever consider leaving this organization | .614 |
| | I prefer very much not to continue working for this organization | .534 |
| | I will likely actively look for a new job in the next year. | .789 |
| Job satisfaction | I consider my job unpleasant. | .656 |
| | I am often bored with my job. | .898 |
| | I feel fairly well satisfied with my present job. | .749 |
| | Most of the time, I have to force myself to go to work. | .715 |
| | Most days, I am enthusiastic about my work. | .864 |
| | I am disappointed I ever took this | .766 |

Factor analysis determines essential variables that clarify the outline of associations within a set of perceived variables. Factor analysis is frequently used in reducing data to classify a small number of variables that clarify

most of the variance perceived in greater number of visible variables. Table (2) indicates that the turnover factor has 8 items and job satisfaction factor has 6 items.

Table 3-Reliability Statistics

| Factor | Cronbach's Alpha | N of Items |
|-------------------------------|------------------|------------|
| Turnover | .812 | 7 |
| Job satisfaction | .799 | 6 |
| Turnover and job satisfaction | .805 | 13 |

Table (3) shows the reliability analysis for both factors (turnover and job satisfaction). According to the reliability tests, the researchers found out Cronbach's Alpha for turnover items =.812 which are greater than .6 this means that 7 items for turnover factor were reliable for this study and the Cronbach's Alpha for job satisfaction items =.799

which are greater than .6 this means that 6 items for job satisfaction factor were reliable for this study and the out Cronbach's Alpha for turnover and job satisfaction items =.805 which are greater than .6 this means that 13 items for turnover and job satisfaction factors were reliable for this study.

Table 4-Correlations analysis

| | | turnover | Job satisfaction |
|--------------|---------------------|----------|------------------|
| turnover | Pearson Correlation | 1 | .386** |
| | Sig. (2-tailed) | | .000 |
| | N | 144 | 144 |
| satisfaction | Pearson Correlation | .386** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 144 | 144 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table (4) shows the correlation between job satisfaction factor as independent factor and turnover as dependent factor. The value of R for the Job satisfaction = .386** which indicates that turnover is significantly but has weak correlation with turnover intention.

Table 5-Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------------------------------------|-------------------|----------|-------------------|----------------------------|
| 1 | .386 ^a | .149 | .143 | 1.57898 |
| a. Predictors: (Constant), turnover | | | | |

As seen in the table (5), the value of R square = .149 which indicates that 15% of variables have been explained.

Table 6-ANOVA

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|-------|------------|----------------|-----|-------------|--------|-------------------|
| 1 | Regression | 61.967 | 1 | 61.967 | 24.855 | .000 ^b |
| | Residual | 354.033 | 142 | 2.493 | | |
| | Total | 416.000 | 143 | | | |

a. Dependent Variable: Turnover

b. Predictors: (Constant), Job satisfaction

Table (6) shows the value of F for an independent factors and a dependent factor is $24.855 > 1$ which indicates there is a significant association between three independent factors and dependent factor.

Table 7-Coefficientsa

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|------------|-----------------------------|------------|---------------------------|-------|------|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 5.942 | 2.022 | | 2.939 | .004 |
| | turnover | 2.512 | .504 | .386 | 4.985 | .000 |

a. Dependent Variable: Turnover

Table (7) shows the coefficients analysis for this study. As seen in the above table the value Beta for turnover = $.386 > 0.01$, this indicates that turnover factor was positively and weak correlation with job satisfaction.

V. CONCLUSION

According to the research findings, the following conclusions are illustrated. Job satisfaction has significant but weak influence (.386) on turnover intention of the participants. The outcome of this research could be used as useful administrative tools that might further improve the hospitals' effectiveness and efficiency. On job satisfaction, most of participants are unclear regarding the level of job satisfaction in their hospital. This demonstrates that there is still need for enhancement in their service. This study showed that the greater is the employee's Job satisfaction the less likely they are to express the intention to quit. Finally, on the turnover intentions of private hospital personnel in Erbil, most of them would quit in case if they have a better opportunities.

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Administrative Crisis: The Role of Effective Leadership Styles in Crisis Management

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Received: 09 Apr 2021; Received in revised form: 07 May 2021; Accepted: 29 May 2021; Available online: 06 Jun 2021

Abstract— *The current study's major goal is to look into the relationship between leadership styles and crisis management at Erbil's Ministry of Planning. A quantitative methodology was employed to pursue the goals of this study. A total of 630 people took part in the survey. The data show that charismatic leadership had the highest value of all leadership types. The study concluded that charismatic leadership has become more rigorous in recent decades, and that organizations' growth strategies frequently require modification during times of crisis. The current study's findings will serve as a guide for government organizations, particularly Erbil's Ministry of Planning, in identifying individuals who are capable of leading in a charismatic manner during times of crisis.*

Keywords— *Charismatic Leadership, Transformational Leadership, Transactional Leadership, Crisis Management, Iraq.*

I. INTRODUCTION

The importance of a leader's aptitude and talent is in managing crises and transitioning from a current financial condition (Abdullah et al. 2021) and a society based on logic and linearity to a financial position and a society based on inventiveness and creativity (Ahmed et al. 2021). Government officials, managers, and leaders of corporate firms and huge organizations make critical decisions on a regular basis and anticipate favorable results (Ahmed et al. 2021) in attaining their goals (Akoi et al. 2021). Continually, decisions are made to issue an order, fix a problem, handle a crisis (Ali & Anwar, 2021), or deal with several unsatisfactory outcomes (Ali et al. 2021). The most essential thing is to make the best decision possible, one that is well-understood by all parties (Ali et al. 2021) involved and leads in positive outcomes. Leadership is related to making the proper decision (Ali et al. 2021). As a result, in order to deal with or handle any problem or crisis (Ali, 2014), it is strongly recommended to manage less and lead more (Ali, 2016). The focus of this research is on leadership styles and their link to crisis management (Ali, 2020). Leaders frequently regard this as a source of inspiration for their people. Leadership has a critical role in ensuring that

effective performance is maintained. For example (Ali, 2021), followers who are aware of the link between the firm's performance and the firm's or organization's objectives and values increase their efforts in positively contributing to the firm's or organization's aims (Ali, et al. 2021). Leadership has a crucial influence in shaping an organization's culture (Andavar et al. 2020). Organizational culture is typically articulated by leaders who create values, promote proper member behavior (Anwar & Abd Zebari, 2015), and reinforce punishment and rewards (Anwar & Abdullah, 2021). On the other hand, in today's world, organizations seek to form a team as their first step in overcoming crises that may cause future damage to the organization (Anwar & Balcioglu, 2016). Many past academic academics have undertaken study in the subject of leadership that distinguishes the leadership idea from the management idea (Anwar & Climis, 2017), as well as their successes in achieving achieved outcomes and efficiency in the organization (Anwar & Ghafoor, 2017). Several academics and researchers have sought to offer the accurate classification and description of their vital tasks and responsibilities by relying on a variety of organizational behavior perception and theories and translating them to the

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actual leading duties and activities (Anwar & Qadir, 2017). Organizational Behavior investigates leadership styles and managers based on their personality and characteristics (Anwar & Shukur, 2015), and assists in responding to diversification, economic force, enhanced labor abilities (Anwar & Surarchith, 2015), work-life balance, improved customer service, and the creation of an ethical workplace environment (Anwar, 2016). OB focuses on how managers may improve efficiency and effectiveness (Anwar, 2017), raise employee commitment (Anwar, 2017), decrease turnover within the organization, raise employee satisfaction, and boost customer satisfaction. Additionally, OB provides and demonstrates the direction and plan for leaders, particularly managers, to select the suitable and relevant styles that best meet the organization's values in order to achieve corporate goals and personal objectives (Anwar, K., & Louis, 2017). As a result (Aziz et al. 2021), it is accurate to declare that it is a perspective that an investigation of the effects an individual labor and group of labors, as well as the organizational chart (Demir et al. 2020), have on internal behavior that corresponds to their goals to achieve a healthy and ethical environment. Firms are looking for leaders with a clear vision to inspire their followers while also possessing the transformational leadership qualities and charisma necessary to set and sell their vision to their followers (Faraj et al. 2021). Furthermore (Hameed & Anwar, 2018), a leader's actual performance might be a result of displaying the appropriate behaviors; several authors and academicians have noted that employees may have a pretty consistent or standardized understanding of the leader's behavior or vision (Hamza et al. 2021). One of the most important goals in the construction of public sectors is to maximize profit and raise its market value; while the public sector achieves this goal on one hand (Ismael et al. 2021), it also contributes to the country's progress and civilization's prosperity on the other (Jamal et al. 2021). However, the public sector, which operates in an environment of risk and uncertainty, may face difficulties from time to time (Sabir et al. 2021). These challenges that the public sector faces could stem from within its own structures as well as from the country's overall economic situations (Saleh et al. 2021). Because of the growth in the frequency of occurrence of leadership and crisis (Sorguli et al. 2021), as well as the negative impacts on the public sector at various levels, this study looked into the notion of leadership and crisis in depth (Talim, et al. 2021). The environment in which government agencies operate is always changing, exposing them to a variety of threats (Top & Ali, 2021). The chances of the public sector surviving if it is unable to identify timely and proper solutions to such threats, lacks the ability to fix problems as they arise, and is unable to take the required steps to avoid

recurrence of previously handled problems are dwindling. Being prepared for crises is the only way to get rid of them without causing damage, or at the very least with the least amount of damage feasible (Anwar & Abd Zebari, 2015). This, in turn, needs the presence of early warning systems within public sector institutions that are capable of detecting crisis signals prior to the occurrence of the aforementioned crises (Anwar & Abdullah, 2021). The environmental activities to overcome any hazards that may influence a person, enterprises, or organizations are referred to as crisis management (Anwar & Balcioglu, 2016). Crisis management has unquestionably emerged as a new management principle (Anwar & Climis, 2017). The role of crisis management is to advise managers in dealing with uncertain and unpredictable events that occur inside the business, and to assist them in developing a better plan for increasing productivity and achieving high performance quality (Anwar & Ghafoor, 2017). Furthermore, according to (Anwar & Qadir, 2017), crisis management is the process by which a company handles a major event that threatens to harm the company, its partners, or the general public (Anwar & Shukur, 2015). The government should find the best suitable leader who fits the current situation in order to manage the crisis, or leaders should be able to change their current leadership styles or leadership characteristics to the best match with the current situation, according to this study (Anwar & Surarchith, 2015). If the leaders of Kurdistan failed to address and solve the current financial crisis, the government should find the best suitable leader who fits the current situation in order to manage the crisis, according to this study (Anwar, 2016). This research looked at three different leadership styles: transformational leadership, transactional leadership, and charismatic leadership (Anwar, 2017).

II. LITERATURE REVIEW

Leadership, according to (Anwar, 2017), refers to a person's ability to influence the remainder of a group of individuals in order to achieve a goal or set of goals. As a result, leadership is about duplicating with change and vision creation for motivating individuals (Anwar, K., & Louis, 2017). It is also about the talents and competences that a leader exhibits to influence a group of people to achieve a vision or a created set of targets (Aziz et al. 2021). Furthermore, as discussed by (Hameed & Anwar, 2018) (Hameed & Anwar, 2018), it is critical to note that leadership is viewed as a social growth, as well as the importance of recognizing how an individual acts and fees. According to (Ali et al. 2021), it entails demonstrating the path that will drive people to work joyfully by fostering harmony in the pursuit of a common objective. It is true to

say that the efficacy of leadership within a company is determined by how individuals perform and act in terms of achieving objectives successfully (Ali, et al. 2021), and for this reason, successful leaders are those who are able to create value by choosing the greatest fit for the scenario (Jong, et al., 2016). Meanwhile, a successful leadership style focuses on determining what the organization's future looks like, assisting in bringing individuals together with the leader's vision (Anwar, K., & Louis, 2017), and influencing each individual to attain the corporate vision despite all obstacles (Anwar, 2017). Furthermore, according to the functional method, leadership is defined by four major actions: the ability to adapt to change, commitment to the company and organizational vision, determining the direction, and developing corporate mission (Anwar, 2016).

Researchers and many scholars have decided to establish definitions for a manager and management in order to find the best ways to present evidence for approaches to leadership effectiveness (Anwar & Surarchith, 2015), argued that managers use authority to implement the vision and strategy provided by leaders, coordinates and staffs the organization, and deals with problems (Anwar & Shukur, 2015). Some examples of leadership styles are as follows: According to (Anwar & Qadir, 2017), transformational leadership is an important performance supplied by the leader to inspire the followers to desire the group's interest over individual interests, and the leader pays attention to the interests of their followers (Anwar & Ghafoor, 2017). Individuals are inspired by transformational leaders who show and direct them down the correct route, demonstrate each follower's responsibilities, and inspire them with good attitudes. According to (Anwar & Climis, 2017), there is a favorable and significant relationship between transformational leadership and leader member exchange. The distinction between transactional and transformational leadership has been the subject of numerous previous studies. Individual growth is the goal of transformational leadership, which includes a leader who has an impact on an individual's issue by screening and examining prior concerns using current methods, as well as a leader who stimulates individuals with positive attitudes. The transactional leaders, according to (Anwar & Balcioglu, 2016), direct individuals by explaining each individual's responsibilities and duties in order to achieve corporate goals. Furthermore, according to (Anwar & Abdullah, 2021), transactional leadership assists individuals in determining and assigning obligations to each follower in order to achieve corporate goals (Anwar & Abd Zebari, 2015).

According to (Anwar, K., & Louis, 2017), transactional leaders develop objectives and targets in order to certify achievement; they communicate actions effectively, and

align assets with employee collaboration to achieve the objectives, which ultimately motivates employees. Earlier studies (Anwar, 2017) and (Bass et al., 2003) demonstrated a substantial link between individual conduct and transactional leadership, as well as a favorable link between individual attitude and transactional leaders. Several recent studies (Anwar, 2016) have found a strong link between transactional leadership and OCB. Leaders who are transformative and transactional are not dissimilar; nonetheless, they are not equally important (Anwar & Surarchith, 2015). Finally, charismatic leadership is defined by (Anwar & Shukur, 2015) as a person who has an impact on followers through the employment of symbols, stories, and images in order to achieve amazing results. Charismatic leaders have a vision for their followers' future success. Furthermore, charismatic leaders are willing to put everything on the line to demonstrate their dedication. Previous research, such as (Anwar & Qadir, 2017), has found a link between charismatic leadership and organizational success. Furthermore, both (Anwar & Ghafoor, 2017) and (Anwar & Climis, 2017) have found a positive association between charismatic leadership and OCB. In addition, (Anwar & Balcioglu, 2016) presented findings from other studies that validated the effects of charismatic leadership on OCB. Inspired followers under charismatic leadership can achieve positive results through determination, comprehensiveness, and identification with organizational objectives, according to (Anwar & Abdullah, 2021). (Anwar & Abd Zebari, 2015) identified empirical studies that confirmed the positive relationship between charismatic leadership and OCB, as well as several studies that identified charismatic leader's characteristics. One of the studies mentioned four main charismatic leader's characteristics, the first of which is taking risks in order to achieve the vision, leaders are concerned about their followers' needs, and leaders are willing to take risks in order to achieve the vision (Andavar et al. 2020).

Crisis is an unplanned transformation process that threatens the entire organization's assets, goals, and resources, creates tension among members of the organization due to uncertainties and time pressure, and covers a limited time period for removing or minimizing the effects through necessary precautions. Crisis, according to (Anwar & Abd Zebari, 2015), is a scenario in which the fundamental structures and conventions are impacted.

Unforeseen developments have had a negative impact. According to (Minh Ly-Le, 2015), the crisis is simply a significant condition of imbalance that has obliterated the public sector's normal operations. This phase is one that poses a threat to the organization's short and long-term goals, needs quick response while also limiting the decision-making period for the reaction, and most

importantly, surprises decision-making units with its presence. In this sense, the crisis can be defined (Anwar & Abdullah, 2021), as a situation that has reached a critical stage, transformations that require swift conformity, and the consequences and reflections of a disorganized and unplanned event on the entire public sector. According to (Anwar & Balcioglu, 2016), a crisis is a tense condition that jeopardizes the top goals of public sectors, sometimes even jeopardizing their survival, and necessitates immediate action, as well as a condition in which prediction and preventative procedures are insufficient (Anwar & Climis, 2017).

It is not a correct strategy, according to (Anwar & Ghafoor, 2017), to describe all poor conditions observed within organizations as crises. For example, a government leadership that forecasts next year's inflation to be significantly lower than this year's may face challenges, and this circumstance may be classified as a crisis. When considering a crisis as a leadership issue, all financial challenges that do not jeopardize the organization's existence or make its status unbalanced cannot be considered a crisis. It is incorrect to refer to common leadership issues that lead to low morale and motivation

(getting the business and its leaders into difficulty, inability to collect accurate and comprehensive information, presence of communication issues, and differing employee expectations) as a crisis (Anwar & Qadir, 2017).

While crises are often preceded by warning signs, they can also occur as a result of a series of unexpected occurrences. In this context, crises can be classified into two types: abrupt and ongoing crises (Anwar & Shukur, 2015): These include the unexpected deterioration and imbalance of events that have a detrimental impact on employees, leaders, investors, consumers, suppliers, public opinion, organization revenues, and outcomes, all without prior notice to the firm's leaders. According to (Anwar & Surarchith, 2015), crises can occasionally be caused by the organization's internal deficiencies. In other words, conditions such as organizational structure rigidity, communication breakdowns, and managerial incapacity can all be crisis factors. The shortcomings and flaws within leadership styles are a second key reason for the occurrence of leadership crises. Several internal variables in a leader's life might be identified as reasons that can lead to failure and even crises (Anwar, 2016).

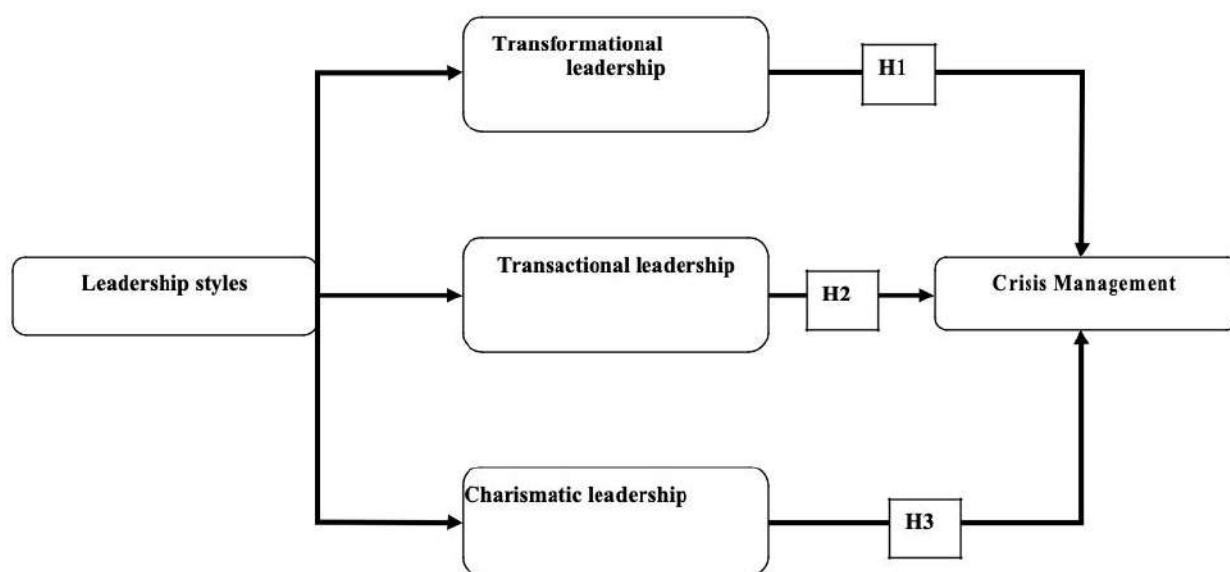


Fig.1: Conceptual framework

Research Hypotheses

H1: There is a significant affect of transformational leadership on Crisis management

H2: There is a significant affect of transactional leadership on Crisis management

H3: There is a significant affect of charismatic leadership on Crisis management

III. METHODOLOGY

Research Design

The researchers used a quantitative technique to test this study. A questionnaire used to collect necessary data. According to (Kumar, 2005) this study can be described as a cross-sectional study, based on the number of possible contacts out of the chosen study population.

Sampling

A sample design is a plan for attaining certain sample from a provided population. Sample design refers to the procedure or method the researcher is willing to accept in choosing items for the sample. Sampling is “the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information. The research used random sampling method to find out the relationship between leadership styles and crisis management. Sampling elements therefore have to be representative for the main population. The mentioned random sampling was carried out in locations in the ministry of planning in Erbil. A total of 800 questionnaires were distributed in the ministry of planning, however 630 questionnaires were received and being completed properly and the data were collected through in hard copies.

Questionnaire

The researchers adopted questionnaire from earlier studies to test the current study. The questionnaire has been validated by earlier researchers to be ideal for measuring, the questionnaire modified from (Gill, et al., 2011, Sadeghi

and Pihie, 2012, Murphy & Ensher, 2008, Flynn & Staw, 2004, Hinkin & Tracey, 1999, Judge & Piccolo, 2004). The questionnaire consisted of two main sections; the first section included five personal information questions for each participant such as; age, gender, level of education and participant's position, the part two of the survey comprised of 102 items for all variables. The study is investigating the three leadership styles (transformational leadership, transactional leadership and charismatic leadership) as independent factor and crisis management as dependent factor. The participants were asked to rate how important each item are according to the five point ordered scales, ranging from 1= strongly disagree to 5= strongly agree.

IV. ANALYSIS AND FINDINGS

The main aim of this research is to analyse the relationship between leadership styles and crisis management. As it mentioned previously total of 630 participants were involved in completing the questionnaire. The respondents were requested to rate how important they perceived each item on five point ordered scales. All data were analyzed by using SPSS version 20.

Table 1. Reliability Test

| Factor | Cronbach's Alpha | N of Items |
|-----------------------------|------------------|------------|
| Transformational leadership | .76 | 37 |
| Transactional leadership | .66 | 26 |
| Charismatic leadership | .68 | 28 |
| Crisis management | .712 | 30 |

Table (1) presents the reliability test for three independent variables and a dependent The Alpha for transformational leadership styles =.760> .6 (Kothari, 2004) this means that 37 items used for transformational leadership style were reliable, The Alpha for transactional leadership styles =.660, this means that 26 items used for transactional leadership style were reliable. The Alpha for charismatic

leadership styles =.680, this means that 28 items used for charismatic leadership style were reliable and the Alpha for crisis management =.712, this means that 30 items used for crisis management were reliable.

Table 2. Correlations Analysis

| Factors | Pearson Correlation | Crisis Management |
|-----------------------------|---------------------|-------------------|
| Transformational leadership | Pearson Correlation | .662** |

| | | |
|--------------------------|---------------------|--------|
| | Sig. (2-Tailed) | .000 |
| | N | 630 |
| Transactional leadership | Pearson Correlation | .526** |
| | Sig. (2-Tailed) | .000 |
| | N | 630 |
| Charismatic leadership | Pearson Correlation | .629** |
| | Sig. (2-Tailed) | .000 |
| | N | 630 |

**, Correlation is significant at the 0.01 level (2-tailed).

Table (2) presents the correlations between three independent variable and dependent variable. It was found that transformational leadership style has significant correlation ($r=.662^{**}$, $p<0.01$) with crisis management. Concerning the strength of the linear relationship is moderate between transformational leadership and crisis management. Furthermore, transactional leadership style

has significant correlation ($r=.526^{**}$, $p<0.01$) with crisis management. Concerning the strength of the linear relationship is moderate between transactional leadership and crisis management and charismatic leadership style has significant correlation ($r=.629^{**}$, $p<0.01$) with crisis management. Concerning the strength of the linear relationship is moderate between charismatic leadership and crisis management.

Table 3: Coefficients

| Independent variable | Coefficients | t-value | P-value |
|-----------------------------|--------------|---------|---------|
| Charismatic leadership | .529 | 9.455 | .000 |
| Transactional leadership | .046 | 6.929 | .000 |
| Transformational leadership | .426 | 8.208 | .000 |
| R^2 | .642 | | |
| F value | 374.202 | | .000 |

Dependent Variable: Crisis Management

Table (3) present the findings of multiple regression analysis, it was found that charismatic leadership has significantly predicted crisis management (Beta is weight

0.529, $p < .001$) this indicates that charismatic leadership will have a direct positive association with crisis management, transactional leadership has significantly predicted crisis management (Beta is weight 0.046, $p < .001$) this indicates that transactional leadership will have a direct positive but weak association with crisis management and transformational leadership has significantly predicted crisis management (Beta is weight 0.426, $p < .001$) this indicates that transformational leadership will have a direct positive but weak association with crisis management. Furthermore, it was found that the value of R square = .64 this indicates that 64% of total variation in crisis management has explained by the three styles of leadership (charismatic leadership, transformational leadership and transactional leadership), also the F value for the three styles of leadership (charismatic leadership, transformational leadership and transactional leadership) as independent variable = 374.202 ($374.202 > 1$) this indicates there is a significant relation between three styles of leadership (charismatic leadership, transformational leadership and transactional leadership) and crisis management.

V. DISCUSSION

The highest value among all leadership styles was found to be charismatic leadership. (Bipath, 2012), discussed that leader's vision characteristic ought to leave of personal style and try to make the most excellent to convince all to be member, and the leadership style mostly with leader's vision characteristic will make appropriate strategies within timeframe. (Jong, et al., 2016), stated that leader's vision characteristic) motivating and coaching employees could drive leaders to present carefully their leadership style. (Jordan, et al., 2016), argued that leader's vision characteristic would have the role of tactician, which is, and management during crisis should to take the leader's vision characteristic as the core. As for administration, leadership contents ought not to be restricted only to explaining different styles or caring staffs and productive effectiveness. (Lai, et al., 2016), presented that leaders should have the power of leader's vision characteristic further to their leadership style if supposing to lead an organization during crisis to the maintainable operation and administration. Consequently, (Bipath, 2012), discussed that leaders should make vision as the core of the leadership style and get benefits of the communication and integration to efficiently execute the practice and management during crisis. At the time an organization experiences crisis, the way that charismatic leaders with personal risk characteristic deal with such crisis establishes new values, new norms, and exposes significant assumptions. Crises are particularly important in creating a culture and transmission because the

reason is the emotional association during such eras raises the strength of learning. For instance, a firm faced bankrupt, the reason behind bankrupt is over engineered, also the firm's products are so expensive. The firm tried to maintain by producing lower quality of products in order to be able to remain competitive in the market area. Later on the market area required high quality products based on customer's demand, this firm was not able to produce better quality of the product to protect itself from bankrupt. Crises about matters of internal integration could also expose and embed the assumptions of leader. The best time to control an organization is when performances of insubordination took place. Thus much of the culture of an organization is based on hierarchy, power, authority, and power. For instance, Olsen visibly and frequently exposed his assumption that he didn't believe that he recognized best based on his understanding and motivating behaviour when followers discussed with him.

Charismatic leader's sensitivity to follower characteristic one of the most understated yet most powerful methods in which founder's assumptions become embedded and continued is the practice of choosing new members. For instance, Olsen supposed that the best method to shape an organization was to employ very clever, tough, independent individual, articulate, and then assign them lots of responsibility. Another example by Ciba-Geigy employed very clever person who should be suitable into the culture that had developed over a century.

Previous studies supported the study is in line with about the national culture. Indonesia has a score of 46 low-to moderate masculinity. This suggests that low levels of encouragement to produce high performance or a strong-organizational culture. If the traditional culture is not formed into a powerful organizational culture that fit the global business environment, the organizational culture had no effect on organizational performance. This study is also consistent with the "dysfunctional culture, dysfunctional organization capturing the behavioural norms of organizational culture and drive performance". He found that a charismatic leader with sensitivity to follower's characteristic has significant effect on organizational culture improvement during crisis.

According to (Martin, 2015), Leaders' unconventional behaviour characteristic is the main aspect that defines the growth in organizational performance in crisis time, this type of characteristic arises from some group dynamics, the practice to affect others as well as a mechanism in accomplishing organizational goal in crisis time. When we usually go into an organization will be able to see the difference between each organization with various leaders. The phenomenon that we enter in an organization,

for instance employee behaviours, team workers, integrity, and so on, all of those reflect the leadership and leaders of that organization. Organizational culture also is the main aspect for innovation, creativity, knowledge management, and leadership. Leaders' unconventional behaviour characteristics, in numerous researches have shown empirically and theoretically, as the main aspect enhancing performance of an organization. Organizational culture, based on Schein is the concept of creating on three levels: values, artefacts, and basic assumption, based on the symbols that apply. According to the viewpoint of organizational learning, Leaders' unconventional behaviour characteristic is the simple assumptions that have been created before, and as a direction of behaviour for individuals of the organization regarding of problems.

VI. CONCLUSIONS

The rapid transformations experienced in economy and other external environment conditions and certain negativities present within the structure of the organization may drag the management into extraordinary situations named as „crisis“. When it is considered that the crisis is the situations that can be affected and even end the activities and presence of the organization, it is essential to take the necessary precautions accordingly. This study mainly discussed the relationship between the leadership style, the crisis management in the ministry of planning in Erbil, and also inspected whether interaction between certain leadership characteristic and crisis management. Research results showed that charismatic leadership has turn out to be rigorous in latest decades and that firms growth tactics usually request modifying during crisis time. Thus, an organization is more enthusiastic comparing with individual who is carrying the charisma and has ability to modify and transform firms' tactics and culture and facilitate the firm to be more flexible to exterior environmental needs at the time of crisis. The crisis is the chaotic situations that the organizations and the society can encounter and create chaos. On the other hand, there is not any method that can thoroughly prevent the possibility of crisis. When the crisis in question is a natural disaster, knowing this beforehand and foretelling the results is impossible at least for knowledge. The step to be taken to be prepared against crisis and the results to be created, to take necessary precautions to develop early warning systems and to get rid of the crisis with minimum damage by managing the chaotic situation created by the crisis. The other precautions utilized against crisis, on the other hand, were dismissal of personnel reduction of expenditures and ceasing of investments. However, certain organization went too far in such applications by disregarding the future. Certain other

organization on the other hand, by regarding that the crisis is only temporary, have prepared themselves to their reanimation period without discontinuing investment. The most important issue to be mentioned regarding this subject is that the easiest way of getting rid of crisis is the necessity of taking the necessary precautions at the organization prior to the occurrence of crisis.

VII. IMPLICATIONS FOR FUTURE STUDIES

According to the research findings mentioned previously, there is more to uncover on the subject of leadership styles and crisis management in the ministry of planning in Erbil. A bigger sample size and including all the key races in Erbil would provide support. The findings of this study will be beneficial for the field of culture studies for instance culture diversification and its relationship with leadership styles, moreover the researchers suggested further studies to be conducted in the field of cultural issues with the relationship with leadership styles to find out whether culture will have an effect of accepting certain leadership style.

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Porter's Generic Competitive Strategies and its influence on the Competitive Advantage

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Received: 03 Apr 2021; Received in revised form: 11 May 2021; Accepted: 24 May 2021; Available online: 06 Jun 2021

Abstract— *The ever-changing competitive business climate poses major hurdles to investment businesses, particularly the banking sector, as well as any other firm in Iraq's Kurdistan area, and business managers have been striving to stay competitive. Porter demonstrated that pursuing a competitive generic strategy can lead to a stronger competitive advantage. The purpose of this research is to determine the effects of Porter's generic strategies on competitive advantage in the investment industry, specifically in the banking sector. Also, which strategy is superior to the others in terms of gaining a competitive advantage in the investing industry? The data in this study was analyzed using a qualitative method. In Erbil, a random sample method was employed to collect data from private banks. The sample size for this study was 128 units, whereas the population was roughly 210 units. According to multiple regression analysis, the researcher discovered that cost leadership has a strong predictive value for competitive advantage (Beta is weight 0.708, p.001), indicating that cost leadership approach will have a direct beneficial impact on competitive advantage. The initial hypothesis was confirmed as a result of these findings. In terms of the second research hypothesis, differentiation strategy has a weak positive influence on competitive advantage (Beta is weight 0.180, p.001), implying that differentiation strategy has a weak positive impact on competitive advantage. The second hypothesis was supported based on these findings, and the third research hypothesis was supported based on these findings: focus strategy has significantly predicted competitive advantage (Beta is weight 0.102, p.001), indicating that focus strategy will have a weak positive impact on competitive advantage.*

Keywords— *Porter's Generic Strategy, Cost Leadership, Differentiation, Focus, Investment, Banking Sector.*

I. INTRODUCTION

Investment industries have recently experienced a significant boost in demand (Hamza et al. 2021). Investment sectors are projected to continue to be the primary source of the country's economy in the foreseeable future (Ismael et al. 2021). The focus of this research is on banking investment in Iraq's Kurdistan region. In Iraq's Kurdistan Region (Jamal et al. 2021), the banking industry is one of the most significant and rapidly rising. Kurdistan (Sabir et al. 2021), Iraq's Kurdistan, has recently become one of the hottest investment destinations in the world (Saleh et al. 2021).

The banking sector is constantly expanding, and it is becoming more and more appealing for investment every day (Sorguli et al. 2021). This is regarded as one of the most important contributions to a country's economy, and an increasing number of banks are looking to invest in the region. Many banks are in the beginning stages of their operations (Talim, et al. 2021), and the region as a whole is still developing and adjusting to global standards (Top & Ali, 2021).

Banks are currently in need of a defined strategy and direction. The banks are working hard to achieve the deadlines set by the region's municipal governments and to begin serving customers as soon as feasible (Abdullah et al.

2021). Bank competition has increased, making it difficult for new potential banks to enter the market (Ahmed et al. 2021). As a result, in today's competitive market, strategies have become an extremely important managerial tool (Akoi et al. 2021). The major direction of the firm is shown by strategic management (Ali & Anwar, 2021), which comprises organizational goals, formulating plans and policies to achieve these goals, and allocating resources to implement a set of strategies (Ali et al. 2021).

This study focuses on Porters' generic strategy model (Ali et al. 2021), which includes cost leadership strategy, focus strategy, and differentiation strategy (Ali, 2014), to enable banks to get a competitive edge in the market place (Andavar et al. 2020).

Research Objectives

The primary goal of the study was to determine the impact of Porter's generic tactics on competitive advantage in the investment industry, namely in the banking sector. To achieve this research goal, the study needed to determine the impact of three generic strategies on competitive advantage: first, the impact of cost leadership strategy on competitive advantage, second, the impact of differentiation strategy on competitive advantage, and third, the impact of focus strategy on competitive advantage. Also, which strategy is superior to the others in terms of gaining a competitive advantage in the investing industry?

II. LITERATURE REVIEW GENERIC STRATEGY

Strategy, according to (Anwar & Abd Zebari, 2015), can be defined as "building a strong defense against the five competing factors (Anwar & Abdullah, 2021). To cope successfully with Porter's five competing forces and so generate a lasting competitive advantage, businesses in the Oil and Gas industries must generate an insecure position through competitive strategy (Anwar & Balciglu, 2016).

Despite the fact that a company's strengths and shortcomings may differ from those of its competitors (Anwar & Climis, 2017), it can only have one of two forms of competitive advantage: low cost or differentiation (Anwar & Ghafoor, 2017). Strategy, according to (Anwar & Qadir, 2017), is the process of developing an useful and distinct position through a variety of activities (Anwar & Shukur, 2015). A company must choose between being a differentiator or a cost leader (Anwar & Surarchith, 2015); it is impossible to achieve both at the same time (Anwar, 2016). The two types of competitive advantage (Anwar, 2017), together with the range of competitive actions that the company tries to achieve them, result in three generic

strategies that surpass competitors (Anwar, K., & Louis, 2017).

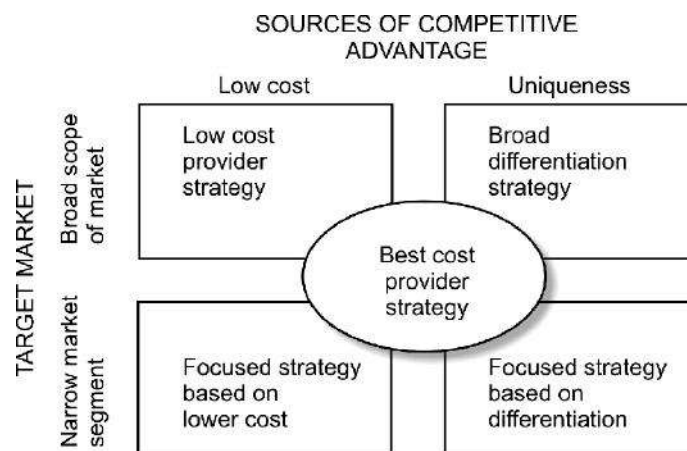


Fig.1: Generic competitive strategy, Porter (1980)

As seen in figure (1) the generic competitive strategies. Three kinds of strategies are considered as generic (Aziz et al. 2021), the reason is because all three strategies apply into different types of businesses (Demir et al. 2020). Every business should apply only one of those generic strategies, in case if a business fails with all three strategies this means that the business has no advantages (Faraj et al. 2021). Each of the generic strategies involves a different route to competitive advantage (Hameed & Anwar, 2018). Cost leadership strategy connects the business to be the lowest cost seller or producer within the industry with the same potential profit (Hamza et al. 2021). Differentiation strategy makes the business to produce or sell unique products or services (Ismael et al. 2021). Focus strategy that makes the business to efficiently serve a specific customer or market segment (Jamal et al. 2021).

Cost Leadership Strategy: This strategy concentrates on low cost in terms of businesses' activities and could functionalized as low pricing, low input (Sabir et al. 2021), experience, the design of the products, economies of scale and the design of the process (Saleh et al. 2021). Concerning low pricing is the process of creating similar product in terms of features to competitors but in lower price (Sorguli et al. 2021). While low input including having inexpensive labour and location is closer to the raw materials and storage (Talim, et al. 2021). In terms of experience, more experience will have positive impact on effectiveness and efficiency (Top & Ali, 2021). Economies of scale needs larger scale operations and the design of the process/ the design of the product effect effectively through creating goods from lower price (Abdullah et al. 2021).

Differentiation strategy: This sort of strategy concentrates on product or service uniqueness, which provides consumer

with valuable product (Ahmed et al. 2021). The differentiation can be done by special features, brand name/image, technology, supplier or distributors, marketing message or advertising (Akoi et al. 2021).

Focus strategy: This strategy concentrates on specific target or market segment (Ali & Anwar, 2021). In case of that differentiation strategy failed or cost leadership strategy failed also, then organization can adapt focus strategy (Ali et al. 2021). Also this strategy can be implementing for time limitation product or services (Ali et al. 2021).

Conceptual Review

Figure (2) shows the conceptual framework of this study. The researcher identified two variables in below research model, competitive advantage as dependent variable on the other hand, generic strategies (focus, differentiation and cost leadership) as independent variables. The framework is according to the research hypothesis that adoption of Porter's generic strategies in order to gain competitive advantage in the marketplace.



Fig.2: Research model, created by the researcher

Research hypothesis:

H1: There is a positive impact of differentiation strategy on competitive advantage

H2: There is a positive impact of cost leadership strategy on competitive advantage

H3: There is a positive impact of focus strategy on competitive advantage

III. METHODOLOGY

This section introduces the design of the study, sampling size, target population and instruments.

Design of the study

Qualitative method used in this study to analyze data. The researcher used a questionnaire and distributed in four banks in Erbil city. The questionnaire consisted of two sections; first section was demographic questions (participants' background information). The demographic questions consisted of participant's age, gender, level of education and year(s) of experience. The second section of the questionnaire was questions regarding of Porter's three generic strategies (Cost leadership strategy, differentiation strategy and focus strategy). In terms of differentiation strategy, the researcher asked 6 questions, focus strategy 13 questions, cost leadership 8 questions and competitive advantage 6 questions.

Sampling size and target population

The researcher used random sampling method in order to gather data from private banks in Erbil city. The population of this study was approximately 210 units. The target population was 142 units. The researcher distributed 150 questionnaires at four different private banks, from 150 questionnaires; the researcher was able to gather 128 questionnaires that have been completed properly. Accordingly, the sample size of this study was 128 units.

Instruments

The questionnaire was designed in a multiple choice questions. The respondents were asked to mark each question on five scales ranging from strongly disagree to strongly agree. The questionnaire was adapted from two different sources (He, et al. 2012) and (Kinyuira 2014).

IV. DATA ANALYSIS

Table.1: Demographic analysis

| Gender | Frequency | Percent |
|--------|-----------|---------|
| Male | 84 | 65.6 |
| Female | 44 | 34.4 |
| Age | Frequency | Percent |

| | | |
|----------------------|------------------|----------------|
| 20-29 | 42 | 32.8 |
| 30-39 | 51 | 39.8 |
| 40-49 | 22 | 17.2 |
| 50-59 | 12 | 9.4 |
| 60 and above | 1 | .8 |
| Education | Frequency | Percent |
| Bachelor | 121 | 94.5 |
| master | 5 | 3.9 |
| PhD | 2 | 1.6 |
| Experience(s) | Frequency | Percent |
| Less than a year | 1 | .8 |
| 1-2 | 23 | 18 |
| 3-4 | 24 | 18.8 |
| 5-6 | 33 | 25.8 |
| 7-8 | 18 | 14.1 |
| 9-10 | 17 | 13.3 |
| 11 and over | 12 | 9.4 |

Table (1) explain demographic analysis for respondents participated in this study. As seen in the above table 84 male participants participated in this study and 44 participants participated in this study. 42 respondents fall into a group of 20-29 years old, 51 respondents fall into a group of 30-39 years old, 22 respondents fall into a group of 40-49 years

old, 12 respondents fall into a group of 50-59 years old and only one participant fall into group of 60 years old and above. 121 participants had bachelor degree, 5 participants had Masters degree and 2 participants had PhD degree. Only one participant had less than one year experience, 23 participants had 1-2 years of experiences, 24 participants

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had 3-4 years of experiences, 33 participants had 5-6 years of experiences, 18 participants had 7-8 years of experiences,

17 participants had 9-10 years of experiences and 12 participants had 11 years of experiences and over.

Table 2 Reliability test

| Variables | Cronbach's Alpha | Number of items |
|-----------------------|------------------|-----------------|
| Differentiation | .776 | 6 |
| Focus | .960 | 13 |
| Cost leadership | .975 | 8 |
| Competitive advantage | .823 | 6 |

Table (2), shows reliability analysis for three independent variables and competitive advantage as dependent variable, According to the reliability analysis, the researcher found out Cronbach's Alpha for differentiation factor = .776 for which is greater than .7 this means that items of differentiation factor were reliable for this study, Cronbach's Alpha for focus factor = .960 for which is

greater than .7 this means that items of focus factor were reliable for this study, Cronbach's Alpha for cost leadership factor = .975 for which is greater than .7 this means that items of cost leadership factor were reliable for this study and Cronbach's Alpha for competitive advantage factor = .823 for which is greater than .7 this means that items of competitive advantage factor were reliable for this study.

Table.3: Correlation analysis

| Correlations | | | | |
|-----------------------|---------------------|---------------|-----------------|--------|
| | | Costleadersip | Differentiation | Focus |
| Costleadersip | Pearson Correlation | 1 | .564** | .470** |
| | Sig. (2-tailed) | | .000 | .000 |
| | N | 128 | 128 | 128 |
| Differentiation | Pearson Correlation | .564** | 1 | .544** |
| | Sig. (2-tailed) | .000 | | .000 |
| | N | 128 | 128 | 128 |
| Focus | Pearson Correlation | .470** | .544** | 1 |
| | Sig. (2-tailed) | .000 | .000 | |
| | N | 128 | 128 | 128 |
| Competitive advantage | Pearson Correlation | .627** | .865** | .572** |
| | Sig. (2-tailed) | .000 | .000 | .000 |
| | N | 128 | 128 | 128 |

** . Correlation is significant at the 0.01 level (2-tailed).

Correlations analysis presents the values of the identified correlation tests; Table (3) shows the correlations between the scales using person correlation. Correlation analysis is determined the strength of relationship between variables. The researcher correlated Cost leadership strategy, differentiation strategy and focus strategy as independent variables with competitive advantage as dependent variable. According to correlation test, the researcher found out that

cost leadership strategy has significant correlation ($r=.627^{**}$, $p<0.01$) with competitive advantage. Concerning the strength of the linear relationship is moderately strong between cost leadership strategy and competitive advantage, also differentiation strategy has significant correlation ($r=.865^{**}$, $p<0.01$) with competitive advantage. Concerning the strength of the linear relationship is moderately strong between focus strategy and competitive

advantage, and focus strategy has significant correlation ($r=.572^{**}$, $p<0.01$) with competitive advantage.

Regression analysis

Table.4: Model summary

| Model Summary | | | | |
|--|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .886 ^a | .784 | .779 | .360 |
| a. Predictors: (Constant), Focus, Costleadersip, Differentiation | | | | |

Regression analysis is analyzing relationships among factors. $Y=f(x_1, x_2 \dots x_c)$. Regression analysis is to estimate the how Y will influence and change X and predict. In this research cost leadership strategy, differentiation strategy and focus strategy as independent variables and competitive advantage is dependent. The competitive advantage's overall difference could be measured by its variance. The differences are measured as the sum of the square between participant's forecasted competitive advantage values and

the total mean divided by the number of participants. After division it will clarify variance by the total variance of competitive advantage, the researcher found out the amount or the number of total difference or variance that is accounted based on regression calculation. The number should vary between 0 -1 and is symbolized by R Square. Table (4) shows the value of R square = .784 this indicates that 78% of total variance has been explained.

Table.5: ANOVA

| ANOVA ^a | | | | | | |
|--|------------|----------------|-----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 58.488 | 3 | 19.496 | 150.351 | .000 ^b |
| | Residual | 16.079 | 124 | .130 | | |
| | Total | 74.568 | 127 | | | |
| a. Dependent Variable: competitiveadvantage | | | | | | |
| b. Predictors: (Constant), Focus, Costleadersip, Differentiation | | | | | | |

Table.6: Coefficients

| Model | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|-------|-----------------------------|------------|---------------------------|--------|------|
| | B | Std. Error | Beta | | |
| 1 | (Constant) | -.535 | .436 | -1.228 | .225 |
| | cost leadership | .911 | .085 | 10.715 | .000 |
| | Differentiation | .280 | .171 | 1.639 | .108 |
| | Focus | .088 | .156 | .564 | .575 |

Dependent Variable: Competitive Advantage

Table (6) explains the result of research hypotheses, in terms of first research hypothesis, cost leadership has significantly predicted competitive advantage (Beta is weight 0.801, $p<.001$) this indicates that cost leadership strategy will have a direct positive impact on competitive advantage based on this results the first hypotheses was supported. In terms of second research hypothesis, differentiation strategy has significantly predicted

competitive advantage (Beta is weight 0.250, $p<.001$) this indicates that differtation strategy will have a weak positive impact on competitive advantage based on this results the second hypotheses was supported, and in terms of third research hypothesis, focus strategy has significantly predicted competitive advantage (Beta is weight 0.087, $p<.001$) this indicates that focus strategy will have a weak

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positive impact on competitive advantage based on this results the third hypotheses was supported.

V. CONCLUSION

Generally most organizations have different strategies to gain and win competitive advantage. Micheal ported developed generic strategies such as cost leadership, differentiation and focus strategy in order to enable organization to gain competitive advantage. However, previous researches have explained that there is an association between porter's generic strategies and competitive advantage. The current research evidence demonstrated the positive association between porter's generic strategies (cost leadership, differentiation and focus) with firm's competitive advantage. The finding of this research was based on three different strategies and its relation with competitive advantage, the first factor is cost leadership, the correlation of cost leadership strategy as independent variable with competitive as dependent variable. According to correlation test, the researcher found out that cost leadership strategy has significant correlation ($r=.627^{**}$, $p<0.01$) with competitive advantage. Concerning the strength of the linear relationship is moderately strong between cost leadership strategy and competitive advantage. The result of first research hypothesis, cost leadership has significantly predicted competitive advantage (Beta is weight 0.708, $p<.001$) this indicates that cost leadership strategy will have a direct positive impact on competitive advantage based on this results the first hypotheses was supported. In terms of differentiation strategy, the researcher found out that differentiation strategy has significant correlation ($r=.516^{**}$, $p<0.01$) with competitive advantage. Concerning the strength of the linear relationship is moderately strong between differentiation strategy and competitive advantage. The result of second hypotheses, differentiation strategy has significantly predicted competitive advantage (Beta is weight 0.180, $p<.001$) this indicates that differentiation strategy will have a weak positive impact on competitive advantage based on this results the second hypotheses was supported. In terms of focus strategy the researcher found out that focus strategy has significantly predicted competitive advantage (Beta is weight 0.102, $p<.001$) this indicates that focus strategy will have a weak positive impact on competitive advantage based on this results the third hypotheses was supported. According to the multiple regression analysis, the researcher found out that the highest value was for cost leadership strategy, accordingly it concluded that a successful investment company should adapt cost leadership strategy in order to be able to gain competitive advantage in the marketplace.

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Effectiveness of the Public Financial Management Assessment Tool or (PFMAT) in Strengthening the Financial Capability of Local Government unit in Talavera, Nueva Ecija

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Received: 08 Apr 2021; Received in revised form: 20 May 2021; Accepted: 02 Jun 2021; Available online: 14 Jun 2021

Abstract— In both theoretical and practical areas, the issue of public sector management and the use of public finances is highly critical. The management of public finances is vital if public services, like local government, are to operate smoothly and effectively. If public financial management is such a vital element in a country's growth, it is crucial to know, quantify and develop the factors leading to poor public financial management. This descriptive research interest is on the effectiveness of the public financial management assessment tool or PFMAT for local government units. The chosen subject of the study is the Municipality of Talavera, Nueva Ecija, and the focus is on the results of the PFMAT report of the municipality for the covered fiscal years 2014-2016 and 2016-2018. The study revealed that the PFMAT is a standard tool that states the weak areas of the public financial performance of LGU-Talavera, thus paving the way for improved services for the residents of the municipality. LGU-Talavera has gradually improved its public financial performance in 2014-2018. PFMAT is therefore an effective tool for evaluating public finances to strengthen the town's financial capability, thereby enhancing the overall performance of the LGU.

Keywords— Assessment tool, effectiveness, financial capability, local government unit, public financial management system.

I. INTRODUCTION

For several years, research has centered on the fair utilization and efficient control of public finances. Evermore important for the smooth and productive operation of public institutions, like local government, in the sense of social and economic transition [1]. Borrowing, raising, and spending of public finances are guided by a key tool, Public Financial Management (PFM) systems, which translate policy statements into the delivery of

services[2]. PFM provides a general framework for revenue generation, spending control, and resource allocation which are essentially linked to the execution of LGU mandates[3]. If there is strong financial control, and openness in the use of public funding, the public will have more trust in public sectors [4]. Governments need to make the right decision as this impacts the areas in fiscal sustainability, operational management, governance, and fiduciary risk management [5]. Several PFM diagnostics were introduced in the 1990s, the International Monetary

Fund Code of Good Practices for Fiscal Transparency (1998), Standard and Codes Observance Report (ROSC), Public Expenditure and Financial Accountability (PEFA, 2002), and International Budget Partnership's Open Budget Survey [6]. A comprehensive review of fiscal transparency and of how the PFM systems guarantee fiscal discipline, promote good financial management, and safeguard against fiscal risk every two years in 100 countries by civil society groups. The tool has four components included in each pillar, differentiating between basic, good, and advanced practices [7]. Budget Practices and Procedures queries from 26 countries in Africa compare budget practice structures, including budget plans, off-budget expenditure, aid management, and liquidity [8]. The 2013 amended PEFA Program aims to assess public spending, financial accountability, and procurement process. The World Bank, the IMF, and the European Commission all developed it [9]. The framework provides the basis for evidence-based measurement of PFM systems by a set of indicators at the national level [10]. International standards are used with the PEFA Methodology. A country-led approach to enhancing efficiency and getting stakeholders into line with shared priorities [11]. PEFA reports outline the economic environment faced by the public sector, examine the nature of policy-based strategy and planning, and analyze how budget decisions are implemented [12]. An uncoordinated evolution of a wide array of assessment tools noted that diagnostics did not give users an objective way of measuring progress in addressing PFM system weaknesses thus creates gaps and twofold coverage. Country ownership of diagnostics was lacking, reflected in a variety of action plans externally driven [13].

On the local level, fiscal controls will be strengthened by an automated system to plan the accrual, operational, and reporting budgets to satisfy multiple stakeholders' needs. The cash basis does not measure the money spent over the review period, so real government services and project expenses are misleading. Without reliable cost statistics, productivity and cost-effectiveness steps cannot easily be calculated [14]. In the correlational study of six localities in Tanzania, councils with better financial management practices, budget planning, and project implementation achieve better results in the local management of financial resources [15].

The history of the Philippines' post-war squandering progress by poor economic governance, civic transparency, and the need for a holistic PFM overhaul has become increasingly evident in the new century [16]. The route map concentrated primarily on a new Government Integrated Financial and Management Information System (GIFMIS) and PFM competency system and improvement

of internal control audit pursuit the conclusion of the first PEFA report in 2006 [17]. The key was to create an integrated financial information framework, adoption of the performance-based budget, procurement planning, individual treasury account, CSO management engagement, and establishment of substantive PFM legislation [18]. The LGUs Public Financial Management Assessment Tool was created by a team of experts in 2010. The initial version was based on the PEFA launched framework and made terminologies that suited the Philippine locale [19]. It helps LGUs to calculate their PFM results. Outlines an effective PFM system, establishes efficiency metrics to analyze how the LGU works in a certain region of PFM [20]. PFM is strictly mediated by the Local Government Code for LGU on related taxation and fiscal matters. [21] The growing demand for systematic and consistent monitoring of the LGUs – PFM system makes the researchers interested in how the Philippines PFM Assessment improves the financial performance of the LGU. It is specifically intended to: Discuss the condition of public financial management in the LGU-Talavera from covering fiscal years 2014-2016 and 2016-2018 established on the pursuit of critical dimensions; (a) Policy-based budgeting, (b) Comprehensive and Transparency, (c) Budget Credibility, (d) Predictability and control in the budget execution, (e) Accounting, recording, and reporting, (f) Internal and external audit, and (g) Participation of Citizens. Also, this revealed the best practices and pitfalls of LGU Talavera in implementing its Public Financial Management Systems.

II. METHODOLOGY

The researchers used the descriptive research design. Gay (1992) states that it gathers data to address inquiries and test theories on the current subject [22]. The sample study was made in the Municipality of Talavera, a first-class town in Nueva Ecija, propelled by its governance thrust: Nagbibigay ng Serbisyo at Malasakit. It is one of the progressive municipalities in Nueva Ecija and proposals have been planned for cityhood [23]. With this progress, it is important to measure the financial capability and examine if there are performance improvements or failures brought about, partly, or whole in the municipality based on the results of PFMAT. A self-assessment instrument for LGUs is the Public Financial Management Assessment Tool used as a research instrument. The data presentation is constructed using the orderly and open PFM systems' seven critical dimensions twenty (20) performance indicators and interpreted using the provided Interpretation Guide by the Department of Budget and Management on the PFMAT Book p.19 [24]. Every LGU has a PFM team assigned to respond to each achievement to indicators and

sub-indicators. [25] Links to the PFMAT summarized results and online submission is given, and the researcher gathered the available data to the LGU-Talavera Municipal Budget Officer and was followed up by the respective offices responsible for the analysis. The statistical treatment used is a percentage and averaging. If the previous year's weak areas changed during previous rating cycles, the tool has been able to assess and monitor LGU performance effectively. Improved LGU performance enhances basic amenities and improves people's quality of life.

The study used the logic model (also known as a logical framework, or program matrix), a tool created by

Martin Quigley to evaluate the effectiveness of a program [26]. The framework used the result of PFMAT fiscal years 2014-2018, was not only concerned with measurement such as collecting data, analyzing variances, and reporting results but in managing LGU performance by developing PFM action plans to close those gaps to find out if PFMAT is an effective tool to strengthen financial capability of LGU-Talavera [27].

III. RESULTS AND DISCUSSION

The following are the summarized results of the PFMAT rating of the LGU-Talavera, data for each critical dimension and performance indicator are presented below.

Table 1. Public Financial Management (PFM) Assessment Result for the Local Government Unit of Talavera for the period 2014-2016 & 2016-2018

| Indicator No. | SUMMARY OF LGU SCORES, BY CRITICAL DIMENSION | | SCORE | |
|---|---|---|-----------|-----------|
| | CRITICAL DIMENSION | INDICATOR | 2014-2016 | 2016-2018 |
| 1 | 1. POLICY-BASED BUDGETING | Multi-year perspective in fiscal planning and budgeting | 3.67 | 4.00 |
| 2 | | PFM improvement policies are included in the budgets covered by appropriation ordinances | 3.00 | 3.00 |
| 3 | | The orderliness of activities in the annual budget preparation and authorization phases | 3.33 | 3.67 |
| 4 | | Financial self-reliance of local economic enterprises (LEEs) and public utilities (PUs) | 4.00 | 4.00 |
| Mean Score for policy-based budgeting | | | 3.50 | 3.67 |
| 5 | 2. COMPREHENSIVENESS AND TRANSPARENCY | The comprehensiveness of budget information contained in the appropriation ordinance covering the annual budget | 4.00 | 4.00 |
| 6 | | Public access to key information | 3.00 | 3.00 |
| Mean Score for Comprehensiveness and Transparency | | | 3.50 | 3.50 |
| 7 | 3. CREDIBILITY OF THE BUDGET | Actual revenue collections compared with estimated revenues in the budget | 3.00 | 4.00 |
| 8 | | Actual expenditures compared with appropriations, by allotment class | 3.67 | 3.67 |
| Mean Score for the credibility of the budget | | | 3.33 | 3.83 |
| 9 | 4. PREDICTABILITY AND CONTROL IN BUDGET EXECUTION | Real property tax accomplishment rate (RPTAR) | 0.00 | 0.00 |
| 10 | | Effectiveness of tax enhancement measures | 3.00 | 1.67 |
| 11 | | Predictability in the availability of cash for committed expenditures | 4.00 | 4.00 |
| 12 | | Value for money and controls in procurement | 2.60 | 1.60 |
| 13 | | Effectiveness of payment controls | 4.00 | 4.00 |
| 14 | | Effectiveness of internal controls for non-personal services (PS) expenditures | 4.00 | 4.00 |
| Mean Score for predictability and control in budget execution | | | 2.93 | 2.54 |

| | | | | |
|--|---|---|------|------|
| 15 | 5. ACCOUNTING, RECORDING, AND REPORTING | Timeliness and regularity of accounts reconciliation | 4.00 | 4.00 |
| 16 | | Quality and timeliness of regular financial reports and annual financial statements | 4.00 | 4.00 |
| Mean Score for the credibility of the budget | | | 4.00 | 4.00 |
| 17 | 6. INTERNAL AND EXTERNAL AUDIT | Effectiveness of internal audit | 0.67 | 3.67 |
| 18 | | Follow-up on external audit | 2.67 | 2.50 |
| Mean Score for internal and external audit | | | 1.67 | 3.08 |
| 19 | 7. CITIZEN’S PARTICIPATION | Civil society organization (CSO) accreditation by local sanggunian | 4.00 | 4.00 |
| 20 | | Degree of citizen’s participation in the budget process | 3.00 | 4.00 |
| Mean Score for citizen’s participation | | | 3.50 | 4.00 |
| OVERALL PFMAT SCORE | | | 3.20 | 3.52 |

Table 1 displays the summarized result of the PFMAT for the LGU-Talavera from the years 2014-2016 & 2016-2018. It shows that from the covering fiscal years, the overall PFMAT score improved by 0.32. Then, the highlighted mean score distribution of ratings by critical dimension reveals that Accounting, Recording, and Reporting consistently receive the highest score for covering fiscal years while Internal and External Audit dramatically increases from 1.67 to 3.08. On the other hand, Predictability and Control in Budget Execution

decrease from 2.93 to 2.54. Furthermore, the distribution of ratings for fiscal years by indicators appears that indicators 5, 11, 13, 14, 15, 16, and 19 maintain the highest score while indicator 17 significantly increases contrary to decline performance for indicators 10, 12, and 18 as well the indicator 9 which remains the lowest. It is an indication in the assessment provided by PFMAT for LGUs that elements of an open and orderly PFM system of LGU Talavera are complete, nevertheless not fully operational.

Table 2. Indicator #4 Financial self-reliance of Local Economic Enterprises (LEEs) and Public Utilities (PUs)

| Year | Total Financial Req. for Operations of All LEEs / PUs (a) | Total Income of All LEEs/ PUs (b) | Total LGU Transfers to LEEs / PUs(c) | % of Total Financial Requirements of all LEEs Covered by Income of All LEEs/ PUs (d=b/a) | % of Total Financial Requirements of all LEEs Covered by Transfers/ Advances to LEEs/ PUs (e=c/a) |
|------|---|-----------------------------------|--------------------------------------|--|---|
| 2018 | 12,976,905.00 | 13,195,774.65 | - | 102 % | 0 % |
| 2017 | 11,985,000.00 | 12,846,241.78 | - | 107 % | 0 % |
| 2016 | 9,348,221.94 | 13,186,804.70 | - | 141 % | 0 % |
| 2015 | 8,638,190.47 | 12,500,602.65 | - | 145 % | 0 % |
| 2014 | 8,185,289.84 | 14,381,292.31 | - | 176 % | 0 % |

Source/s: Last five years' Local Economic Enterprises and Public Utilities Financial Requirements for Operations

Table 2 shows that for all covering fiscal years, 100% of the total financial requirements for operations of all LEEs / PUs were funded by their respective incomes. It is a special account funding charged against 20% of the IRA for development projects of LGUs, more than 100% signified that it is an income-generating project.

Table 3. Indicator #7. Actual Local Revenue Collections compared to Estimated Revenues in Budget

| Year | Income Type | | | | | | |
|---------------------------------|---------------|----------------------|-------------------|-----------------------|------------------|--------------|----------------------|
| | RPTs | Income from Business | Other Local Taxes | Income from LEE's/PUs | Fees and Charges | Other Income | TOTAL |
| 2018 <i>Estimated</i> | 22,324,000.00 | 16,900,000.00 | 2,000,000.00 | 12,976,905.00 | 14,376,982.00 | 25,000.00 | 68,602,887.00 |
| <i>Actual</i> | 15,467,480.15 | 23,445,663.70 | 2,208,973.43 | 13,195,774.65 | 19,192,911.80 | 94,304.93 | 73,605,108.66 |
| % | 69 % | 139 % | 110 % | 102 % | 133 % | 377 % | 107 % |
| 2017 <i>Estimated</i> | 19,310,000.00 | 14,595,000.00 | 2,000,000.00 | 11,985,000.00 | 12,085,000.00 | 25,000.00 | 60,000,000.00 |
| <i>Actual</i> | 11,345,072.40 | 16,500,511.56 | 2,044,521.23 | 12,846,241.78 | 16,428,332.14 | 156,921.63 | 59,321,600.74 |
| % | 59 % | 113 % | 102 % | 107 % | 136 % | 628 % | 99 % |
| 2016 <i>Estimated</i> | 17,103,300.00 | 13,095,000.00 | 2,050,000.00 | 11,020,000.00 | 9,587,100.00 | 600,000.00 | 53,455,400.00 |
| <i>Actual</i> | 10,085,956.75 | 14,712,317.33 | 1,685,936.17 | 13,186,804.70 | 14,302,443.52 | 309,329.70 | 54,282,788.17 |
| % | 59 % | 112 % | 82 % | 120 % | 149 % | 52 % | 102 % |
| 2015 <i>Estimated</i> | 14,985,000.00 | 13,149,704.00 | 2,050,000.00 | 11,595,631.00 | 12,081,304.00 | 985,532.00 | 54,847,171.00 |
| <i>Actual</i> | 9,056,907.60 | 13,122,271.63 | 1,556,852.30 | 12,500,602.65 | 12,297,328.28 | 492,795.01 | 49,026,757.47 |
| % | 60 % | 100 % | 76 % | 108 % | 102 % | 50 % | 89 % |
| 2014 <i>Estimated</i> | 12,951,317.00 | 9,878,577.00 | 2,000,000.00 | 13,857,373.00 | 10,069,813.00 | 800,000.00 | 49,557,080.00 |
| <i>Actual</i> | 7,908,751.00 | 9,899,007.82 | 1,555,116.64 | 14,381,292.31 | 10,031,517.43 | 211,910.05 | 43,987,595.25 |
| % | 61 % | 100 % | 78 % | 104 % | 100 % | 26 % | 89 % |

Source/s: Annual Budgets and Statement of Receipts & Expenditures (SREs). EST. thru historical data of mandated organization and reasonable assessments/expected revenues for the ensuing fiscal year.

Table 3 presents that in the years 2016 to 2018, total actual local revenue collections were 90% to more than 100% of the estimated local revenues, while the year 2014 to 2015 were both 89%. In this context, LGU realized the estimated revenues which contribute to the collection efficiency of the LGU. However, Real Property taxes still represent the largest source of untapped municipal revenue. Making real property taxes as the productive sources of municipal revenues should be the main priority of LGUs to further stimulate the accomplishment of the Annual Investment Program (AIP) of the LGU set for community development.

Table 4. Indicator # 8 – Actual Expenditures Compared with Appropriations by Allotment Class

| Particulars | | Personal Services (PS) | | Maintenance and Other Operating Expenses (MOOE) | | Capital Outlays | | TOTAL | |
|--------------------|-------------------|------------------------|----------------|---|----------------|-----------------|----------------|-------------|--------------|
| Allotments as % of | 2018 (b/a) | 107,636,771 | 99.76 % | 168,478,945 | 99.85 % | 291,945,888 | 99.98 % | 568,061,605 | 100 % |
| | | .85/ | | .92/ | | .16/ | | .93/ | |

| | | | | | | | | | |
|-----------------------------------|-------------------|-----------------------------------|----------------|-----------------------------------|----------------|-----------------------------------|-----------------|-----------------------------------|--------------|
| Appropriations | | 107,895,375.43 | | 168,731,945.92 | | 291,999,188.40 | | 568,626,509.75 | |
| | 2017 (f/e) | 94,713,915.65/ 95,453,442.82 | 99.23 % | 156,195,276.44/ 156,234,616.44 | 99.97 % | 55,601,423.18/ 55,601,423.18 | 100 % | 306,510,615.27/ 307,289,482.44 | 100 % |
| | 2016 (j/i) | 93,497,555.71/ 93,497,555.71 | 100 % | 134,286,234.13/ 134,286,234.13 | 100 % | 35,528,034.20/ 35,528,034.20 | 100 % | 263,311,824.04/ 263,311,824.04 | 100 % |
| | 2015 (n/m) | 79,384,263.77/ 80,065,908.46 | 99.15 % | 131,325,819.78/ 141,415,417.26 | 92.87 % | 133,599,623.28/ 143,099,623.28 | 93.36 % | 344,309,706.83/ 364,580,949.00 | 94 % |
| | 2014 (r/q) | 76,382,647.90/ 76,382,647.90 | 100 % | 101,616,327.36/ 104,086,917.75 | 97.63 % | 150,568,695.15/ 158,068,695.15 | 95.26 % | 328,567,670.41/ 338,538,260.80 | 97 % |
| Obligations as % of Allotments | 2018 (c/b) | 102,426,274.18/ 107,636,771.85 | 95.16 % | 150,923,865.78/ 168,478,945.92 | 89.58 % | 75,239,569.49 / 291,945,888.16 | 25.77 % | 328,589,709.45/ 568,061,605.93 | 58 % |
| | 2017 (g/f) | 91,847,254.36/ 94,713,915.65 | 96.97 % | 140,580,063.89/ 156,195,276.44 | 90.00 % | 46,114,144.62/ 55,601,423.18 | 82.94 % | 278,541,462.87/ 306,510,615.27 | 91 % |
| | 2016 (k/j) | 88,261,444.19/ 93,497,555.71 | 94.40 % | 117,405,433.51/ 134,286,234.13 | 87.43 % | 33,017,020.33/ 35,528,034.20 | 92.93 % | 238,683,898.03/ 263,311,824.04 | 91 % |
| | 2015 (o/n) | 77,735,071.35/ 79,384,263.77 | 97.92 % | 114,098,017.93/ 131,325,819.78 | 86.88 % | 127,373,232.30/ 133,599,623.28 | 95.34 % | 319,206,321.58/ 344,309,706.83 | 93 % |
| | 2014 (s/r) | 73,710,506.56/ 76,382,647.90 | 96.50 % | 88,437,431.43/ 101,616,327.36 | 87.03 % | 137,625,942.21/ 150,568,695.15 | 91.40 % | 299,773,880.20/ 328,567,670.41 | 91 % |
| Disbursements as % of Obligations | 2018 (d/c) | 102,414,046.83/ 102,426,274.18 | 99.99 % | 146,814,158.35/ 150,923,865.78 | 97.28 % | 75,257,591.14/ 75,239,569.49 | 100.02 % | 324,485,796.32/ 328,589,709.45 | 99 % |
| | 2017 (h/g) | 91,835,687.86/ 91,847,254. | 99.99 % | 132,861,415.86/ 140,580,063 | 94.51 % | 42,782,203.93/ 46,114,144. | 92.77 % | 267,479,307.65/ 278,541,462 | 96 % |

| | | | | | | | | | |
|--|-----------------------|---|--------------------|---|----------------|---|--------------------|---|-------------|
| | | 36 | | .89 | | 62 | | .87 | |
| | 2016 (l/k) | 88,096,972. 90/ 88,261,444. 19 | 99.81 % | 115,694,105 .14/ 117,405,433 .51 | 98.54 % | 32,369,336. 92/ 33,017,020. 33 | 98.04 % | 236,160,414 .96/ 238,683,898 .03 | 99 % |
| | 2015 (p/o) | 77,716,108. 97/ 77,735,071. 35 | 99.98 % | 113,861,817 .02/ 114,098,017 .93 | 99.79 % | 31,387,793. 78/ 127,373,232 .30 | 24.64 % | 222,965,719 .77/ 319,206,321 .58 | 70 % |
| | 2014 (t/s) | 73,698,484. 69/ 73,710,506. 56 | 99.98 % | 86,825,683. 74/ 88,437,431. 43 | 98.18 % | 118,081,322 .53/ 137,625,942 .21 | 85.80 % | 278,605,490 .96/ 299,773,880 .20 | 93 % |

Source/s: Statement of Appropriations, Allotments, Obligations, and Balances (SAAOB) and SREs of covering fiscal years.

Table 4 reveals that in all the last five years, total released allotments for each allotment class were 90-100% of the total appropriation, then total actual obligations were above 90% from 2014-2017 of the total allotments released, lastly, for four years total actual disbursements were more than 90% of the total obligations. The fall below 90% of expenditures and disbursements in years 2018 and 2015 occurred to secure net debt service ceiling and borrowing capacity by the year-end financial reports for loans and borrowings of the LGU. Still, more than 90% determines that the amount duly appropriated was spent as intended for approved appropriation ordinances, and the magnitude of obligations paid by the LGU.

Table 5. Indicator # 9 - Real Property Tax (RPT) Accomplishment Report

| Real Property Taxes Revenues | 2018 | 2017 | 2016 | 2015 | 2014 |
|---|---------------|---------------|---------------|---------------|---------------|
| ESTIMATED | 22,324,000.00 | 19,310,000.00 | 17,103,300.00 | 14,985,000.00 | 12,951,317.00 |
| ACTUAL | 15,467,480.15 | 11,345,072.40 | 10,085,956.75 | 9,056,907.60 | 7,908,751.00 |
| Actual Revenues as % of Estimated Revenues | 69 % | 59 % | 59 % | 60 % | 61 % |

Source/s: Municipal Assessor's Reports on Taxable Real Property Tax limited to LGUs share and SREs

It reveals that in all the last five years, Real Property Tax Accomplishment was less than 70%. It is a signal that LGU has not fully exercised its potent resources. Regular updates of the Revenue Code and schedule of market values are needed to improve the collection efficiency rate of the LGU.

Table 6. Indicator # 10 - Effectiveness of Tax Enhancement Measures (Delinquent Real Property Tax)

| Real Property Tax (RPT) Delinquencies | | | | | | % of Increase in Collection |
|--|-------------------------------|--------------------|---|-------------------------------|------------------------|--|
| Amount Due | Actual Collections | % Collected | Amount Due | Actual Collections | % Collected | |
| Next Preceding Year's Collection (2017) | | | Immediately Preceding Year's Collection (2018) | | | -11 % |
| 32,833,217.14 | 15,839,101.46 | 48 % | 46,039,393.40 | 16,944,912.80 | 37 % | |
| Next Preceding Year's Collection (2015) | | | Immediately Preceding Year's Collection (2016) | | | 21% |
| 46,884,938.68 | 12,892,958.26 | 27 % | 28,236,598.46 | 13,516,397.80 | 48 % | |

Source/s: LGUs Real Property Tax Account Register -Certified List of All RPT delinquent accounts settled for the next preceding and immediately preceding years of covering fiscal years.

Table 6 shows that year 2015-2016, RPT collection strategies contributed to at most a 20% increase in the percentage of delinquent RPT collected in the last two years while in the year 2017-2018, RPT collection strategies did not contribute to an increase for last two years. Since, there is difficulty in the participation of different barangays in the tax information drive of the Municipality, and coordination of the Provincial Treasurer in the application of administrative remedies for delinquent taxpayers needed to improve voluntary compliance of taxpayers to minimize delinquent accounts. Hence, the tax efficiency rate is relatively low and tax enhancement measures became ineffective.

Table 7. Indicator # 11 - Predictability in the availability of cash for commitment of expenditures

| Year | Current Year | Continuing Appropriations | Prior Year's Liabilities | Total | Cash Available | % of Allotment with Available Cash |
|------|----------------|---------------------------|--------------------------|----------------|----------------|------------------------------------|
| 2018 | 568,626,509.75 | 15,700,530.17 | 417,992.85 | 584,745,032.77 | 584,745,032.77 | 100% |
| 2017 | 307,289,483.04 | 7,402,841.55 | 370,686.40 | 315,063,010.99 | 316,877,222.39 | 101% |
| 2016 | 263,311,824.04 | 100,182,651.73 | 102,100.00 | 363,596,575.77 | 375,054,266.68 | 103% |
| 2015 | 243,309,706.83 | 1,737,014.27 | 279,634.33 | 245,326,355.43 | 249,001,431.79 | 101% |
| 2014 | 328,567,670.41 | 572,390.45 | 27,456.01 | 329,167,516.87 | 333,876,602.18 | 101% |

Source/s: LGUs Last five years' SAOBs and Statement of Cashflows

Table 7 displays that in all the last five years, 100% of allotments to support budgeted programs, projects, activities (PPAs) including liabilities have available cash. As the LGU exercised cash program-flow analysis, financial and physical performance targets as financial control tools in controlling cash outflows matched with cash inflows ensure that sufficient cash is available to settle obligations as they fall due.

Table 8. Indicator # 12 - Value for Money and Controls in Procurement

| LGUs Annual Procurement Plan- Common-Use Supplies and Equipment (CSE) Monitoring Report and Agency Purchase Requests (APRs) | Fiscal Years 2018-2016 | Fiscal Years 2016-2014 |
|---|------------------------|------------------------|
| Total Amount of CSE Purchased for the Year (a) | P 14,330,610.37 | P 9,690,280.40 |
| Amount of CSE Covered by APRs Submitted to DBM-PS (b) | P 2,486,363.65 | P 0.00 |
| % of Total Amount of CSE Purchased covered by APRs submitted to DBM-PS (c = b/a) | 17.35% | 0 |
| Amount of CSE Actually Purchased from DBM-PS (d) | P 441,036.92 | P 0.00 |
| Total no. of procurement activities undertaken as per approved Annual/Supplemental Plan (A/S PP) | 19 | 13 |
| % of Actual procurement in accordance with the approved A/S PP (c = a / b) | 100 % | 100 % |

Source/s: LGUs Approved Annual/Supplemental Procurement Plan- Common Use Supplies and Equipment (APP-CSE), Procurement Monitoring Reports, and Agency Purchase Requests (APRs).

Table 8 states that only 17.35% of purchases of common-use supplies and equipment were covered by APRs submitted to DBM-PS and Annual/Supplemental Procurement Plan approved by 100% of procurement activities. Many supplies have been acquired using alternate law-sanctioned processes. In compliance with R.A.No 9184 and its IRR, nearly all procurement operations were not posted within the specified time in the PhilGEPS. Whilst 100% of requested goods and services are delivered/completed on time.

Table 9. Indicator 13 & 14. Effectiveness of Payment Controls for PS and Non-PS Expenditures

| Allotment Class | Fiscal Year (2018) | Fiscal Year (2016) |
|--|------------------------|-------------------------|
| Total Personal Services (PS) Expenditures for the immediately preceding year (a) | P102,414,046.83 | P 88,096,972.90 |
| Total PS Expenditures which have adverse COA findings (b) | - | - |
| Total PS Expenditures which have no adverse COA findings (c = a-b) | P102,414,046.83 | P 88,096,972.90 |
| % of PS Expenditures which has no adverse COA findings (d = c/a) | 100 % | 100 % |
| Total Non-PS Expenditures for the immediately preceding year (a) | 264,509,192.84 | P 236,145,311.35 |
| Total Non-PS Expenditures Disallowed in Audit (b) | | 480.00 |
| Total Non-PS Expenditures Allowed in Audit (c = a-b) | 264,509,192.84 | P 236,144,831.35 |
| % of Non-PS Expenditures Allowed in Audit (d = c/a) | 100 % | 100% |

Source/s: LGUs immediately preceding year's SAOBs, and Annual Audit Report (AAR)

Table 9 indicates that 100% there are no adverse COA audit findings for Personal Services (PS) and Non-PS (MOOE & Capital Outlays) expenditures. The results of "no adverse COA findings" imply adherence of the LGU in personal services limitations for the expenditure program. Reconciliation/liquidations of accounts, the quality, and timeliness of regular financial reports of the LGU are made consistently.

IV. CONCLUSIONS AND RECOMMENDATIONS

The study showed the strength of LGU-Talavera lies in its sound accounting, recording, and reporting of financial statements and overall participation of Citizens in the planning and budgeting process. Although internal and external audit dramatically increases, it contributes to the pitfalls of LGU if not taken actions along with the predictability of budget execution. On the financial performance, total actual Local Revenue collections compared to estimated are yearly improving. However, the real property tax accomplishment rate was not realized and RPT enhancement measures for delinquent accounts are not effectively implemented. Though requested goods and services, civil works, and consulting services are delivered/completed on time, the procurement process is partially complied with by the LGU. Financial requirements for operations of all local economic enterprises and public utilities were funded and allotments to support budgeted programs, projects, activities (PPAs) including liabilities have available cash. Thus, obligations are met effectively and assert to financial soundness.

In 2014-2016 & 2016-2018, a considerable improvement was achieved in the evaluated PFM System of LGU-Talavera, N.E. The average overall description rate indicates that the elements are open and organized however, not entirely functional. Furthermore, the LGU needs to improve performance{[28], [29], [30]} on each critical dimension by formulating measures on the elements of the PFM system to be effective. PFMAT,

especially in LGU-Talavera, is an effective LGU performance measurement method. It is comprehensive in its performance indicators of each critical dimension. It can accurately track the successes and limitations and offers a straightforward analysis of a municipality's overall financial results, helping to prepare and execute improvements for the LGU itself. It can compare previous and current success accurately and plan where to reflect on maintaining good financial potential in the future. While PFMAT has successfully chronicled the performance and development of LGUs PFM, it still recognizes that the use of public finances for PFMAT continues to face numerous challenges to satisfy its current utility. To retain its effectiveness in enhancing the financial capabilities of LGUs, PFMAT should, therefore, be continuously improved and adapted to the ever-changing concept of the public financial management system and evaluation.

The study showed and identified the need [31] to further understand the full potential of local government units in updating and implementation of local revenue codes especially the Real property tax which is the biggest and most potent source of revenues. Local government units should establish a more comprehensive study in the Real Property Tax enhancement measures to exert more efforts in the collection of RPT. Request for Condonation of Penalties and Interest to minimize the delinquent accounts to further strengthen the revenues needed for the implementation of long-term plans under the Capacity Development Program of the LGU. More collection efforts

as a means of lessening the municipality's dependence on the Internal Revenue Allotment (IRA) and realize its goal for accelerated economic growth. Suggestions on the full compliance of the municipality regarding the activities in the procurement process following the RA 9184 and its IRR and the follow-up process on the audit to foster transparency, effectiveness, and efficiently obtain the best value for money on all government operations. It is also recommended that a regular and timely rating may be conducted for each LGU and posted to the DBM website promptly to provide real-time data for researchers. Public Financial Management systems are crucial in the establishment of Good Local Governance. A comparative study on the public financial management of high-performing LGUs may be conducted as a follow-up study to benchmark the best practices to be adopted by low-performing LGUs.

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Viability of Village Dressmaking as an Industry Amidst an era of Ready-To-Wear Garments

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Received: 04 Apr 2021; Received in revised form: 22 May 2021; Accepted: 04 Jun 2021; Available online: 14 Jun 2021

Abstract— This study evaluated the dressmaking livelihood project of the Municipality of Santa Rosa, Nueva Ecija. Using descriptive research design with 15 purposively selected beneficiaries as the respondents, the study revealed that the dressmaking livelihood program was one of the higher platforms to assist the people to have an income and lessened the unemployment rate in the community. However, the livelihood project was not fully effective due to a lack of coordination and improper implementation of the program. Most of the beneficiaries of the dressmaking program were female since in the Philippine culture the stitching was seen as a “woman’s traditional job”.

Keywords— dressmaking, employment, income, livelihood projects, viability.

I. INTRODUCTION

Livelihood program is one of the best alternatives source of income to support the needs of the Filipino families. Due to increasing unemployment one of the main reasons is unavailability of job provided, some causes are economic recession and over population. Lack of investors and businesses that can provide good jobs for the Filipino people is one of the main reasons of unemployment here in the Philippines.

Supporting your basic needs is not an easy thing without the permanent sources of income. People need a source of income to support their everyday living. Municipality, where there is a potential growth of the business was in need of guidance for the enhancement of their livelihood. The livelihood program of the government will be the start up of the business to help the community while providing also an opportunity to others in terms of employment.

Santa Rosa is a first class municipality in the province of Nueva Ecija, Philippines. The town primarily depends in rice cultivation, vegetable production, commercial fishery, and tricycle sidecar fabrication [1]. Just recently, the town started realizing its development potential in the production of ready-to-wear and made-to-measure dresses for all ages and for any gender. In the western part of the

town going to Tarlac, one can see there are lines of shops where busy people are sewing different kinds of dresses and other fabric related products [2].

“Community-based Training for Enterprise development Program of TESDA is primarily addressed to the poor and marginal groups, those who cannot access, or are not accessible by formal training provisions. They have low skills, limited management abilities, and have few economic options. They have no access to capital – most of them are unqualified for formal credit programs. The program goes further than just mere skills training provision. It is purposively designed to catalyze the creation of livelihood enterprises that shall be implemented by the trainees, immediately after the training”[3]. “Likewise, it is designed to assist partner agencies such as LGUs, NGOs, people organizations and other agencies organizations with mission to help the poor get into productive undertakings to help themselves and their community”[4].

Livelihood assistance given by the government sector will be the chance to improve the living of the people. The program like this helps the beneficiaries, while the beneficiaries will create a job opportunity to other people within the area. Moreover, this kind of program in the area will be developed and eventually be acknowledged.

Livelihood refers to the assets and resources possessed by individuals (both material and social) and the activities carried out to generate resources for means of living. Livelihood is "adequate stocks and flows of food and cash to meet basic needs. Thus a livelihood is understood broadly as people and their capabilities, activities, assets, both social (claims and access) and material (resources and stores) and gains from what they do[4].

Provision of livelihood enhancement program is one of the most important things to the community especially to those who have a big potential to establish businesses like dressmaking; one of the sources of income in the municipality. The program will boost the industry of dressmaking, learning a lot, which they used to strategized and also create an opportunity to job seekers to lessen the unemployment rate in the municipality. Targeted training programs have the potential to address the problem of low skills among the poor workers, especially the young ones. Such programs should be developed on a pilot basis and expanded if proven to be cost-effective [5]. The study aimed to assess the livelihood enhancement of the residents of Santa Rosa, Nueva Ecija. To identify the constraints in programs implementation. This study is attempted to evaluate the collaboration of the Municipality

of Santa Rosa, Nueva Ecija under the Philippine Employment Service Office (PESO) and Technical Education and Skills Development Authority (TESDA) in promoting livelihood activities in the municipality of Santa Rosa in the Province of Nueva Ecija.

II. METHODOLOGY

The respondents of the study were the fifteen beneficiaries of the Dressmaking Project by the Municipality of Santa Rosa. The descriptive research design was utilized in this study. "The descriptive research design helps provide answers to the questions of who, what, when, where, and how associated with a particular research problem; a descriptive study cannot conclusively ascertain answers to why. Descriptive research is used to obtain information concerning the current status of the phenomena and to describe "what exists" with respect to variables or conditions in a situation"[6]. The survey questionnaire was the main instrument used by the researchers in conducting this study.

III. RESULTS AND DISCUSSION

1. Profile of Respondents

Table 1. Demographic Profile

| | Profile | Frequency | Percentage |
|-------------------------------|-----------------------|-----------|------------|
| AGE | 18-28 | 3 | 20% |
| | 29-39 | 5 | 33.33% |
| | 40-49 | 1 | 6.67% |
| | 50-59 | 5 | 33.33% |
| | 56 and above | 1 | 6.67% |
| | Total | 15 | 100.00% |
| Gender | Male | 0 | 0.00% |
| | Female | 15 | 100.00% |
| | Total | 15 | 100.00% |
| Civil Status | Single | 1 | 6.67% |
| | Married | 14 | 93.33.00% |
| | Separated | 0 | 0.00% |
| | Widowed | 0 | 0.00% |
| | Total | 15 | 100.00% |
| Educational Attainment | Elementary | 9 | 60.00% |
| | High School | 4 | 26.67% |
| | College Undergraduate | 2 | 13.33% |
| | Total | 15 | 100.00% |

Table 1 shows the demographic profile of the respondents. Based on the gathered data, the majority of the beneficiaries were married, aged 29-39 and 50-59, they were all female, and elementary graduates. “Bryner indicated the trend of employing women in positions as operatives was likely because sewing was seen as “woman’s traditional job”[8].

Table 2. Source of Income Before the awarded of Livelihood Program

| Source of Income | Frequency | Percentage |
|-----------------------|-----------|------------|
| Employees | 0 | 0% |
| Sari-sari Store Owner | 1 | 6.67% |
| Farmers | 0 | 0% |
| Vendor | 2 | 13.33 |
| None | 10 | 73.33% |
| Live Chicken Dealer | 1 | 6.67% |
| TOTAL | 15 | 100% |

It can be viewed from the table that the majority of the beneficiaries have no source of income with 73.33%. It was indicated that the livelihood program is beneficial to the unemployed individuals of the municipality of Santa Rosa in Nueva Ecija.

Table 3. Monthly Income

| Monthly Income | Frequency | Percentage |
|---|-----------|------------|
| Monthly Income before the project was awarded | | |
| 5,000 and below | 12 | 80% |
| 5,001-10,000 | 2 | 13.33% |
| 10,001-15,000 | 1 | 6.67% |
| Total | 15 | 100.00% |
| Monthly Income after the project was awarded | | |
| 5,000 and below | 5 | 33.33% |
| 5,001-10,000 | 1 | 6.67% |
| 10,001-15,000 | 9 | 60% |
| Total | 15 | 100.00% |

Based on the gathered information, 80% of the monthly income of the beneficiaries before the project was awarded was below 5,000 pesos. After the project was awarded to them the monthly income of the majority was 10,001-15,000 pesos or 9 out of 15 respondents while 33.33% or 5 out of 15 answered below 5,000 pesos. Based on the data eight (8) of the respondents increased their income, while the seven (7) were not, since the tool kit, which is their primary need to start in generating their income was not distributed. While the 7 respondents which improved their monthly income, since they have already sewing machines.

2. Challenges Encountered by the Beneficiaries

Table 4. Challenges Encountered by the Beneficiaries

| Problems | Frequency | Percentage |
|-------------------|-----------|------------|
| Lack of Expertise | 1 | 6.67% |

| | | |
|--------------------------------------|----|--------|
| Selling of the products | 8 | 53.33% |
| Insufficient Machinery and Equipment | 6 | 40% |
| TOTAL | 15 | 100% |

As can be gleaned from Table 2, most of the challenges encountered [8] by the beneficiaries were selling of the products (53.33%), and insufficiency of machinery and equipment (40%). As mentioned, the machine or the sewing kit were still not provided by the sector-in-charge of the projects. It is almost a yearsince they finished the livelihood training. As per the respondents, lack of support was extended by the Municipality of Santa Rosa to the respondents in selling their products.

Training and Assistance provided by the Municipality of Santa Rosa

The beneficiaries' training was provided by the Technical Education And Skills Development Authority (TESDA) and received their National Certificate II (NCII) Dressmaking after the completion of the training, they all received financial assistance amounting to Php 2,000.00 for their allowance. Based on the survey questionnaire the Municipality of Santa Rosa, Nueva Ecija lackof assistance to the beneficiaries during the pandemic.

IV. CONCLUSION AND RECOMMENDATION

Mostly females were beneficiaries of the Dressmaking Livelihood Program in the Municipality of Sta. Rosa. The majority of them were elementary graduates and have a monthly income of below 5,000 pesos. The livelihood program is not fully effective due to lack of coordination and improper implementation of the program. The livelihood program is one of all the higher platforms that assist the people to get income and lessened the the unemployment rate in Sta. Rosa. In the light of the findings and the conclusion made, the researchers highly recommend the following: The beneficiaries must be provided with the capability training to familiarize them with more effective marketing and selling strategies. The municipality that provided a livelihood program must assess their livelihood industry, and focus on the enhancement rather than provide a program without a definite plan particularly during pandemic. In that case, the project will be more feasible. The program like this must have proper supervision and training to address the needs of the beneficiaries and to provide the training that will help them improve [10] and be more competitive.

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Comprehensive review on empirical models to estimate global solar radiation on horizontal surfaces

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Received: 18 Apr 2021; Received in revised form: 20 May 2021; Accepted: 02 Jun 2021; Available online: 16 Jun 2021

Abstract— In the present scenario of global warming and climate change, use of solar energy is becoming imminent. Researchers are working on developing models to predict global solar radiation based on meteorological and geographical parameters. A number of models have been developed in the past which have been summarized in the present study. The techniques to develop models have also been presented. In the era of global warming, the role of air pollutants in estimating GSR is more important than developing very complex models. Models related to this aspect have also been discussed.

Keywords— Global solar radiation, models, meteorological parameters and air pollution index.

I. INTRODUCTION

The emission of greenhouse gasses is considered to be responsible for climate change, which is a great concern globally. According to a report released by IPCC [1], if the current rate of emissions continues, the temperature of the earth will increase by 1.5°C between 2030 and 2052. The rise in temperature is due to emission of GHGs in the atmosphere. The use of fossil fuels is responsible for emission of greenhouse gasses in the environment. The fossil fuels are being used to meet out daily energy needs of the population. In order to meet out energy needs of humankind, the shift from fossil fuels to renewable energy is needed to protect the environment. Solar energy is widely known as sustainable form of energy capable to mitigate the environmental problems in the future [2]. For the designing and performance evaluation of solar energy-based system, solar radiation data is required. In the developing countries, the solar radiation measurement equipments are merely available due to their high cost. It necessitates to estimate global solar radiation (GSR) data from meteorological parameters (evaporation, effects of cloudiness, relative humidity, precipitation, temperature, sunshine duration, extraterrestrial solar radiation, and reflection of the environment); geographical parameters (latitude, longitude and altitude of the location); geometrical factors (orientation and inclination angles);

astronomical parameters (solar constant, earth-sun distance, solar declination and hour angle); physical parameters (water vapour content, scattering of air molecules, dust and other atmospheric constituents gasses [3,4]. The first model proposed for estimating global solar radiation was developed by Angstrom [5] and modified by Prescott [6]. Thereafter, till now 165 sunshine-based models, 62 temperature-based models, 16 RH based, 10 Cloud cover based, one Precipitation based, 103 Hybrid models have been developed by various authors worldwide [7]. Although, all the models are supposed to be best fit for their locations but, still work is going on to develop more accurate empirical model using various meteorological and geographical variables and statistical methods/techniques for particular sites. The aim of this study is to present models that have been developed for predicting GSR at various locations worldwide, which will be useful for many researchers globally.

II. MODELS DEVELOPED

The correlation for estimating the global solar radiation on a horizontal surface H using the sunshine hour data was proposed by Angstrom [5] and Prescott [6] modified the Angstrom correlation as

$$\frac{H_g}{H_0} = a + b \left(\frac{n}{N} \right)$$

where, constants a and b are regression coefficients. N is day length (hours), n is measured sunshine hours, H_g is estimated GSR and H_0 is extraterrestrial GSR calculated as

$$H_0 = \frac{24}{\pi} I_{sc} \left(1 + 0.033 \cos \frac{360 n}{365} \right) \left(\cos \varphi \cos \delta \cos \omega + \frac{\pi}{180} \omega \sin \varphi \sin \delta \right)$$

where φ is the latitude of the location and δ is the solar declination angle and ω is sunset hour angle.

The solar declination angle is given by

$$\delta = 23.45 \sin \left(\frac{360(284 + n)}{365} \right)$$

where n is the day of the year i.e. January first $n=1$ to 365 days.

The day length is given by

$$N = \frac{2}{15} \cos^{-1} (-\tan \varphi \tan \delta)$$

The sunset hour angle is given by

$$\omega = \cos^{-1} (-\tan \varphi \tan \delta)$$

Some of empirical models based on the Angstrom-Prescott model and other modified (exponential form, logarithm form, second order to 7th, order, power form and also reverse form) models used for estimating global solar radiation have been presented in Table 1. The first-order polynomial function of the relative sunshine duration has been developed by number of author, but few of them are presented in table 1. In other categories also, few models with latest findings have been presented in the study. Page [8] in 1961 gave the simplest correlation which is still found to be best fit for many locations. After that various author have modified and included many parameters to have accurate correlation for their locations. Glover [9] in 1958 introduced latitude of the location for estimating GSR valid for latitude less than 60°, Torgul [10] in 1999 included declination angle of the location to estimate GSR. Hay [11] was of opinion that the coefficient a and b in Angstrom type equations have the optical properties effects of the cloud cover, ground reflectivity, and average air mass. He incorporated the ground albedo ρ , cloudless sky albedo ρ_a and cloud albedo ρ_c . The numerical

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constants were obtained by assuming $\rho_a = 0.25$ and $\rho_c = 0.6$, N is the modified day length. Rensheng [12] developed the model by considering latitude, longitude and elevation (amsl) of the location in China. In quadratic type of models, 2nd order polynomial equations were developed by Ogelman [13]. In cubic type of models, 3rd order polynomial equations were developed by Bahel [14]. 4th order polynomial equation was developed by Shahrukh [15] in 2019 using sunshine hours data. 5th and 7th order polynomial relationship between the monthly average values of (H_g/H_0) and (n/N) were developed by Bakirci [16]. Argungu [17] developed the model incorporated temperature (θ) of the location and logarithm of relative humidity. Almorox [18] studied the various models and found that third order models have performed better than the other models, but the linear model was preferred due to its greater simplicity and wider application. Shahrukh [15] proposed new model in terms of exponential of sunshine hour. Torgul [19] in 2002 and recently Shahrukh [15] developed the models of power type to estimate GSR. Alhassan [20] developed a reverse model and showed that the linear and reverse models were more accurate, and logarithmic model showed the least accurate model with low values of R . Newland [21] in 1988 developed algorithm model to estimate GSR which was recently modified by Shahrukh [15] in 2019. Shahrukh [15] in 2019 developed simple empirical model although there were more than 160 models already available globally. Quartic model was found to be best fit among cubic, quadratic, exponential, power in their study for Indian locations.

The statistical tests revealed that no single model can be used with higher degree of accuracy for the estimation of GSR at different geographical and climatic locations in Pakistan [22]. Ninomiya [23] considered the effect of rainy days while estimating the GSR. Chandel [24] model based on sunshine hour was found to be best fit for Indian sites. Marwal [25] found that cubic correlation was the best while logarithmic correlation has proved to be worst for Jaipur, Rajasthan (India). They proposed power correlation which showed the values of statistical parameters close to cubic and has a simple form. Kadir [26] found that the monthly linear models and 7th order correlation provided the best estimate of GSR with low errors. They proposed linear equations of each month and seventh order equation for estimating GSR for Erzurum, Turkey. Meenal [27] showed that sunshine duration-based model produced best result with a coefficient of determination ($R^2 = 0.9784$). Soufi [28] found that the quadratic model did not produce better values of GSR. Moreover, the results showed that the correlation of global solar radiation with sunshine hours, air temperature, relative humidity had very accurate estimates for their sites ($R^2 = 0.997$). Muhammad [29]

reviewed the number of models and found that GSR depends upon atmospheric layer, distance between sun and earth, incident angle of solar radiation, day length and rotation of earth, etc. Aggarwal [30] found a new correction factor to estimate GSR. Kumar [31] has developed new correlation using ANN techniques. Suthar [32] proposed an exponential quadratic model

incorporating sunshine hour and air pollution index to estimate GSR for Indian cities after considering other regression models e.g., linear, quadratic, exponential linear and exponential quadratic. They were the opinion that air pollution was major significant factor instead of location for predicting GSR.

Table 1. Models developed for the estimation of global solar radiation

| S. No. | Type of Model | Equation | Reference |
|--------|-----------------------|--|--------------------------|
| | Linear | i) $\frac{H_g}{H_0} = (0.29 + \cos\phi) + 0.52 \left(\frac{n}{N}\right)$ | Glover Mc-Culloch (1958) |
| | | iii) $\frac{H_g}{H_0} = \frac{0.1572 + 0.5566 \frac{n}{N}}{1 - \rho\{\rho_a \left(\frac{n}{N}\right) + \rho_c(1 - \frac{n}{N})\}}$ | Hay (1997) |
| | | ii) $H_g = -1.3876 + 0.518H_0 + 2.3064 \left(\frac{n}{N}\right)$ $H_g = 2.765 + 4.9597 \sin \delta + 2.2984 \left(\frac{n}{N}\right)$ | Togrul (1999) |
| | | iv) $\frac{H_g}{H_0} = (0.275 + 4.27x \cdot 10^{-5}\lambda - 0.141 \cos \phi + 2.63 \cdot 10^{-2}Z)$ $+ 0.542 \left(\frac{n}{N}\right)$ | Rensheng (2004) |
| | | v) $\frac{H_g}{H_0} = 0.2030 + 0.4836 \left(\frac{n}{N}\right)$ | Shahrukh 2019 |
| 2 | Quadratic | i) $\frac{H_g}{H_0} = 0.195 + 0.676 \left(\frac{n}{N}\right) - 0.142 \left(\frac{n}{N}\right)^2$ | Ogelman (1984) |
| | | ii) $\frac{H_g}{H_0} = 0.4114 + 0.2163 \left(\frac{n}{N}\right) + 0.5469 \left(\frac{n}{N}\right)^2$ | Shahrukh (2019) |
| 3 | Cubic | i) $\frac{H_g}{H_0} = 0.16 + 0.87 \left(\frac{n}{N}\right) - 0.61 \left(\frac{n}{N}\right)^2 + 0.34 \left(\frac{n}{N}\right)^3$ | Bahel (1986) |
| | | ii) $\frac{H_g}{H_0} = 0.6949 - 1.8976 \left(\frac{n}{N}\right) + 3.5126 \left(\frac{n}{N}\right)^2 - 1.6201 \left(\frac{n}{N}\right)^3$ | Shahrukh (2019) |
| 4 | 4 th Order | i) $\frac{H_g}{H_0} = -0.0877 + 4.3380 \left(\frac{n}{N}\right) - 13.4870 \left(\frac{n}{N}\right)^2$ $+ 17.7210 \left(\frac{n}{N}\right)^3 - 7.8622 \left(\frac{n}{N}\right)^4$ | Shahrukh (2019) |
| 4 | Fifth order | i) $\frac{H_g}{H_0} = -11.225 + 128.010 \left(\frac{n}{N}\right) - 516.900 \left(\frac{n}{N}\right)^2$ $+ 994.730 \left(\frac{n}{N}\right)^3 - 920.350 \left(\frac{n}{N}\right)^4$ $+ 329.93 \left(\frac{n}{N}\right)^5$ | Bakirci (2008) |
| 5 | Seventh order | i) $\frac{H_g}{H_0} = 78.8586 - 1242.8537 \left(\frac{n}{N}\right) + 8141.6012 \left(\frac{n}{N}\right)^2 -$ | Bakirci (2008) |

| | | | | |
|---|-------------|------|---|-----------------|
| | | | $28578.4590 \left(\frac{n}{N}\right)^3 + 58196.6890 \left(\frac{n}{N}\right)^4 - 68955.3040 \left(\frac{n}{N}\right)^5 + 44150.5770 \left(\frac{n}{N}\right)^6 - 11817.7990 \left(\frac{n}{N}\right)^7$ | |
| 6 | Logarithmic | i) | $\frac{H_g}{H_0} = 0.34 + 0.40 \left(\frac{n}{N}\right) + 0.17 \log \left(\frac{n}{N}\right)$ | Newland (1988) |
| | | ii) | $\frac{H_g}{H_0} = 0.7517 + 0.371007 \left(\frac{n}{N}\right) + 0.000233 \left(\frac{\theta_{ave}}{\theta_{max}}\right) - 0.10309 \ln RH$ | Argungu (2017) |
| | | iii) | $\frac{H_g}{H_0} = 0.6433 + 0.576 \log \left(\frac{n}{N}\right)$ | Shahrukh 2019 |
| 7 | Exponential | ii) | $\frac{H_g}{H_0} = -0.0271 + 0.3096 e^{\left(\frac{n}{N}\right)}$ | Almorox (2004) |
| | | iii) | $\frac{H_g}{H_0} = 0.2776 e^{0.9324 \left(\frac{n}{N}\right)}$ | Shahrukh (2019) |
| 8 | Power | i) | $\frac{H_g}{H_0} = 0.7316 \left(\frac{n}{N}\right)^{0.4146}$ | Togrul (2002) |
| | | ii) | $\frac{H_g}{H_0} = 0.6499 \left(\frac{n}{N}\right)^{0.5013}$ | Shahrukh 2019 |
| 9 | Reverse | | $\frac{H_g}{H_0} = a_o + a_1 \left(\frac{n}{N}\right) + a_2 / \left(\frac{n}{N}\right)$ | Alhassan (2017) |

Estimation of regression coefficients

In table 2 the typical equations to obtain the values of regression coefficients a and b adopted by various authors have been presented. Rietveld [33] used the ratio of sunshine hour in finding the value of a and b. Garipey [34] included ambient air temperature and amount of precipitation in determining the values of regression coefficients. Dogniaux [35] obtained the values of a and b as a function of latitude of the location. Kilic [36] determined the coefficients a and b as a function of the

solar declination (δ) in addition to both φ and Z, where Z is altitude of the location. Zabara [37] proposed monthly a and b values of the modified Angstrom model as a third order function of maximum possible sunshine duration (n) and day length (N). Gopinathan [38] has included latitude, altitude and sunshine ratio to determine a and b. Soler [39] in 1990 included first order ratio of sunshine hours for regression coefficient 'a' and 2nd order ratio of sunshine hour for coefficient 'b'.

Table 2. Typical values of regression coefficient a and b obtained by various authors

| Author | a | b |
|-----------------------------|---|--|
| Rietveld (1978) | $0.10 + 0.24 \left(\frac{n}{N}\right)$ | $0.38 + 0.08 \left(\frac{n}{N}\right)$ |
| Garipey (1980) | $0.3791 - 0.0041T - 0.0176P$ | $0.4810 - 0.0043T + 0.0097P$ |
| Dogniaux and Lemoine (1983) | $0.37022 - 0.00313\varphi$ | $0.32029 - 0.00506 \varphi$ |
| Kilic and Ozturk (1983) | $0.103 + 0.000017Z + 0.0198 \cos(\varphi - \delta)$ | $0.533 - 0.165 \cos(\varphi - \delta)$ |

| | | |
|-------------------|--|--|
| Zabara (1986) | $0.395 + 1.247 \left(\frac{n}{N}\right) + 2.860 \left(\frac{n}{N}\right)^2 - 1.674 \left(\frac{n}{N}\right)^3$ | $0.395 + 1.384 \left(\frac{n}{N}\right) - 3.249 \left(\frac{n}{N}\right)^2 + 2.055 \left(\frac{n}{N}\right)^3$ |
| Gopinathan (1988) | $-0.309 + 0.539 \cos \varphi - 0.0693 h + 0.29 \left(\frac{n}{N}\right)$ | $-0.309 + 0.539 \cos \varphi - 0.0693 h + 0.29 \left(\frac{n}{N}\right)$ |
| Soler (1990) | $0.179 + 0.099 \left(\frac{n}{N}\right)$ | $0.1640 + 0.1786 \left(\frac{n}{N}\right) - 1.0935 \left(\frac{n}{N}\right)^2$ |

Estimation of sun shine hour

The number of empirical models to estimate GSR has been developed by various authors based on sunshine hours where sunshine hour data is recorded. In case sunshine recorder is not available then Umoh [40] proposed equations using four parameters, such as Relative Humidity (RH), Temperature (T), Rainfall (RF) and Wind speed (W) to estimate the possible sunshine hour. The

correlation coefficient R and standard error of estimate σ give the accuracy of the model. The models have been summarized in Table 3. The study found that the correlation at S. No. 4 found to be best fit for the location. However, the highest value of R has been obtained in model given as

$$S = -26.758 + 0.297RH + 1.489T - 11.016RF$$

Table 3. Models to estimate sunshine hour

| S. No. | Variable | Model | R | σ |
|--------|----------|---|-------|----------|
| 1 | One | $-1.584 + 0.715T$ | 0.851 | 0.64112 |
| | | $13.548 - 2.984W$ | 0.652 | 0.92702 |
| 2 | Two | $3.488 + 0.590T - 1.294W$ | 0.885 | 0.60060 |
| | | $7.417 - 0.031RH - 4.243RF$ | 0.788 | 0.79360 |
| 3 | Three | $-26.758 + 0.297RH + 1.489T - 11.016RF$ | 0.943 | 0.45280 |
| | | $12.155 - 0.039RH - 2.449RF - 1.458W$ | 0.831 | 0.76091 |
| 4 | Four | $-22.424 + 0.272RH + 1.388T - 9.791RF - 0.623W$ | 0.950 | 0.45812 |

Development of typical correlation to estimate GSR

Several authors have observed that multiple parameters give best fit rather than one variable, such as, sunshine hour, cloud cover, temperature, relative humidity and precipitation. Some of the estimation models, which use the multiple meteorological parameters are presented and classified based on their input parameters. Some typical correlations for the estimation of GSR have also been included.

Awachie [41] correlated the maximum ambient temperature, T_m with the global solar radiation for Nsukka as:

$$H_g = -8.7 + 0.8T_m$$

Just knowing the maximum temperature of the location, GSR can be estimated.

Okundamiya [42] estimated non-linear correlation as a function of measured sunshine hour for many locations in Nigeria as

$$\frac{H_g}{H_0} = 0.7349 \left(\frac{1}{n}\right)$$

Gana and Akpootu[43] introduced a model in which clearness index is inversely proportional to sunshine ratio for Kebbi, Nigeria as

$$\frac{H_g}{H_0} = 0.747 \left(\frac{1}{n/N}\right)$$

Okonkwo and Nwokoye[44] proposed 2nd order correlation as a function of maximum temperature

$$\frac{H_g}{H_0} = -3.386 + 0.220 (T_{max}) - 0.43(T_{max})^2$$

Kolebaje et al. [45] reported the following model as a function of temperature ratio for Ikeja, Nigeria.

$$\frac{H_g}{H_0} = 2.024 - 2.136(T_R)$$

Okonkwo and Nwokoye [44] reported the 2nd order model as a function of temperature ratio for Minna, Nigeria as:

$$\frac{H_g}{H_0} = -0.987 + 5.526(T_R) - 4.536(T_R)^2$$

Kolebaje and Mustapha [45] estimated the GSR using models as a function of temperature difference for Port Harcourt located in Nigeria.

$$\frac{H_g}{H_0} = -0.141 + 0.210(\Delta T)^{0.5}$$

Second order difference between maximum and minimum temperature employing Hargreaves and Samani type model in the form [45]:

$$\frac{H_g}{H_0} = -2.441 + 1.4341(\Delta T)^{0.5} - 0.2094((\Delta T)^{0.5})^2$$

Boluwaji and Oyedum [46] calibrated the following models as a function of temperature difference and length of the day for different stations in Nigeria.

$$\frac{H_g}{H_0} = 0.346 + 0.217\left(\frac{\Delta T}{N}\right)$$

Ayodele and Ogunjuyigbe [47] developed exponential model as a function of temperature difference and length of the day for Ibadan, Nigeria

$$\frac{H_g}{H_0} = 0.24 + e^{0.064\left(\frac{\Delta T}{N}\right)}$$

Ayodele and Ogunjuyigbe [47] developed the following logarithm model as a function of temperature difference and length of the day for Ibadan, Nigeria as:

$$\frac{H_g}{H_0} = 0.45 + 0.39 \log\left(\frac{\Delta T}{N}\right)$$

Okundamiya and Nzeako [42] reported the model as a function of maximum temperature and temperature ratio for Abuja in Nigeria as:

$$\frac{H_g}{H_0} = -1.2560 + 0.3815(T_R) - 0.05440(T_{Max})$$

Quansah et al. [48] calibrated the logarithm model as a function of temperature difference for Kumasi, Ghana as:

$$\frac{H_g}{H_0} = -0.155 + 0.26 \log \Delta T$$

Kolebaje et al. [45] reported the following model as a function of relative humidity for Ikeja located in Nigeria.

$$\frac{H_g}{H_0} = 2.024 - 0.019(RH)$$

$$\frac{H_g}{H_0} = 3.266 - 0.306(RH)^2$$

The cloud cover impacts the quantity of global solar radiation reaching to particular location due to its scattered effects. The cloud cover is directly proportional the global solar radiation. Okundamiya [49] proposed the following model for Abuja in Nigerian.

$$\frac{H_g}{H_0} = 0.7506 - 0.6455(C)$$

Adaramla [50] correlated the clearness index with precipitation as

$$\frac{H_g}{H_0} = 0.5904 - 0.0218(P)$$

Kolebaje et al. [46] fitted the following model for Ikeja as a function of temperature difference, relative humidity, temperature ratio and the day number of year Y as

$$\frac{H_g}{H_0} = 3.866 - 7.3102\left(\frac{\Delta T + RH}{Y}\right)^{0.5} + 2.135(T_R)$$

The sunshine duration, temperature, relative humidity, latitude and day number in the year (Y) were incorporated as [51]

$$\begin{aligned} H_g = & -3.6889 \cos \varphi + 29.309 \cos Y + 7652(T_{Max}) \\ & + 57.524\left(\frac{n}{N}\right) + 7.9618\left(\frac{T_{Max}}{RH}\right) \\ & + 0.6421(RH) - 3.6827(\cos \varphi \cos Y) \\ & - 8.855\left(\frac{T_{Max}}{RH}\right) + 0.499\left(\frac{T_{Max}}{RH}\right)^2 \\ & + 91.308\left(\frac{n}{N}\right) - 2.9855 \cos^2 Y - 61.20 \end{aligned}$$

Coulibaly and Ouedoraogo [52] developed a model to estimate GSR as a function of extra-terrestrial solar radiation (H_0), sunshine duration, maximum temperature, clearness index and solar declination angle were incorporated with global solar radiation (H_g) in the form.

$$\begin{aligned} H_g = & -58791.68 + 1.76H_0 + 36191.21\left(\frac{n}{N}\right) \\ & - 13.37\left(\frac{H_g}{H_0}\right) - 298.69(T_{Max}) \\ & - 9805.01f(\sin \delta) \end{aligned}$$

Tikyaa [53] developed 15 models for Katsina to estimate GSR. The proposed model was found to be best with $R^2 = 0.941$ and small value of RMSE (0.02531)

$$\frac{H_g}{H_0} = -0.2144(\Delta T)^{0.02062}$$

Intelligent techniques to develop models

The techniques to solve the problem of proposed models since they are non-linear and complex in nature, have classified in two general categories: Statistical Regression Techniques (SRTs) and intelligent methods Bagheri [54]. In the intelligent category, Mellit et al. [55] offered an artificial neural network model for prediction solar

radiation data. A fuzzy model for the prediction of solar radiation has been proposed [56], genetic algorithm optimization of wavelet neural network for estimating solar radiation [57] and a new model for predicting GSR using Particle Swarm Optimization (PSO) technique [58]. Despotovic [59] has proposed Global Performance Indicator to determine the best fit of predicted GSR for any location globally. Soft computing models which can accept many input variables are found to estimate global solar radiation accurately and reliable in different climate conditions across the globe [7]. Kumar et al [60] have compared regression technique and ANN to estimate GSR and found that the ANN produced more accurate results.

III. CONCLUSIONS

The number of models and techniques to estimate GSR has been presented. All the models found to be best fit for their locations. During last 10 years as the emissions of GHGs have increased drastically, it is hard to see blue sky in many cities across the globe. Suthar [32] has realized this aspect and included the air pollution index in their study to estimate GSR. The environmental parameters need to be included while estimating global solar radiation.

ACKNOWLEDGEMENT

The facilities provided by the department of environmental Science, Dr YSP University of Horticulture & Forestry, Nauni (Solan) HP, India.

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Effect of Covid-19 Pandemic among Rice Retailers in Nueva Ecija

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Received: 09 Apr 2021; Received in revised form: 16 May 2021; Accepted: 04 Jun 2021; Available online: 16 Jun 2021

Abstract— This research studied the effect of the COVID 19 Pandemic on selected rice retailers in Nueva Ecija, Philippines. The researchers made use of guided survey questionnaires and phone calls to reach out to the 58 respondents of the study. The researchers found out that: Majority of the rice sellers considered themselves as greatly affected by COVID 19 Pandemic. Their diverse explanations were due to (a) the scheduling or selecting of those allowed to travel to the market, and (b) limiting kilos per person to serve the full town. Most of them stated that their sales decline by 50 percent at the time of COVID. Their financial issues were on collection rental payments and on wages of staff. Almost all of the rice retailers believe that their firm will survive even in these hard times. Regarding government aid, the majority of them indicated that they are not supported by the government while the remaining respondents claimed that they received help from the government and that the aid was given through the Pantawid Pamilyang Pilipino Program (4Ps).

Keywords— Challenges, COVID 19 Pandemic, Effect, NFA rice, rice retailers.

I. INTRODUCTION

COVID-19 has a significant impact on rice, which is one of the agricultural crops most affected. It has a major impact on labor, according to Balie (2020) [1], the International Rice Research Institute's (IRRI) Acting Director of Research and Agri-Food Policy. As a result, the product shortage is also due to a lack of manpower in some rice enterprises, and with only a few people to work, the next issue is rising labor expenses. Logistics is the second most important factor after labor. Rice dealers have found it difficult to deliver their products to different regions since the government imposed severe limits from one region to another. Problems with labor and logistics eventually lead to capital flow or liquidity shortages in the agricultural sector. This necessitates that the government addresses these issues as soon as possible in order to avoid

This article can be downloaded from here: www.ijaems.com

negative implications for planting and agricultural management.

Small farmers or vulnerable individuals should be financially assisted, according to a study by [2] titled, Effect of COVID-19 Pandemic on the Food Supply Chain, and governments should allow the mobility of workers and agri-food items. The government must consider measures for improving working conditions while safeguarding employee health and safety. To prevent the virus from spreading, the government must also examine the severity of the situation from province to province. Meanwhile, in the Philippines, all government agencies began to design a variety of policy decisions and preventive measures to secure the food supply and logistics in order to preserve its people from starvation. This simply goes to prove that the COVID-19 health catastrophe has various ties to the global

and local food systems. Despite the pandemic, Finance Secretary Carlos G. Dominguez III's advice of five urgent steps boosted domestic spending and re-energized the economy. The Build, Build, Build initiative encourages the creation of products with "strong and inelastic demand," particularly food production and logistics, as well as support for the entire food production value chain, including the establishment of food markets to facilitate distribution [3].

COVID-19 creates severe supply-chain disruption in terms of food demand and consumption, according to Palo, Rosetes, and Carion (2020) [4] in their study "COVID-19 and food systems in the Philippines." The researchers looked at four important food product chains in this assessment article: rice, pork, cabbage, and Lakatan banana. Focusing on rice, the Philippines' main food staple, the Department of Agriculture warned in March 2020 that there is a risk of severe rice shortages in the second half of 2020, which might be triggered by a slowdown in rice shipment from other adjacent countries. The Bayanihan to Heal as One Act (RA 11469) permitted local government entities to use their Calamity Funds to buy fresh rice directly from farmers at the start of COVID-19 (in some cases, at a higher price than would be found at the market). Large quantities of rice were also purchased from cooperatives and other farming organizations by national organizations for distribution as part of relief packages in areas where rice production was non-existent (NCR and other highly urbanized areas). From March to June 2020, these assistance packages of 2–5 kg of rice per home were provided with varying regularity.

As COVID 19 continues to wreak havoc in the Philippines, customers are less concerned about how the food on their tables is produced and more concerned about food safety. The government argued that the staff of various enterprises must be able to develop a food system that strictly follows COVID-19 health guidelines. It is past time for the general population to recognize the importance of agriculture. Consumers are becoming more aware of the complex relationship between what they eat and the quantity and quality of farm production, which could be used to encourage more government programs and budget allocation, as well as private agricultural initiatives such as farm-based small-and-medium enterprises. As a result, there is a pressing need to promote a widespread, sustainable, and responsible consumption pattern that sends strong signals to agricultural products that support and adhere to cleaner production, environmental

conservation, and social inclusion [5]. Most farmers and assemblers indicate lowered sales and sales prices in a status report titled "Rapid assessment of the effect of COVID-19 on food supply chains in the Philippines" (January 2021) [6]. Direct internet selling to households is an exception to this trend, which appears to have provided chances for formal businesses. Retailers at wet markets and service facilities report drastically lower sales after an initial round of panic-induced shopping. In the modern retail category, however, the quarantines had a divergent effect, benefiting the top supermarkets. In Metro Manila, retail prices displayed a distinct pattern of initial volatility in the weeks leading up to and following the ECQ, followed by many weeks of more steady prices. The purpose of this study was to examine the impact of the COVID 19 epidemic on selected rice retailers in Nueva Ecija, as well as the issues that arose during the lockdown and up to the present, and the proposed remedies to these issues.

II. METHODOLOGY

This study utilized the basic descriptive research design [7] as cited in [8]. It described the rice retailers' challenges experienced with the effect brought by COVID 19 pandemic to their rice retailing business. The respondents of the study were asked to answer the guided survey questionnaire. They were also invited for a phone call interview. The respondents were determined using the purposive sampling technique. Only 58 rice retailers participated in the survey. Considering the quarantine protocols highly reinforced by the different municipalities of Nueva Ecija, the researchers were not able to invite respondents for every municipality in Nueva Ecija. As a result, the researchers have chosen seven nearby municipalities to ensure safety. Frequency, percentages, tables, and graphs were used to compute and present the data of this research.

III. RESULTS AND DISCUSSION

1. Effect of COVID 19 Pandemic to Rice Retailers

The respondents were asked to describe the effects of the COVID 19 Pandemic on their rice retailing business. They were given options such as *greatly affected*, *moderately affected*, *slightly affected*, and *not affected at all*. The figure below shows the results of their response to this question.

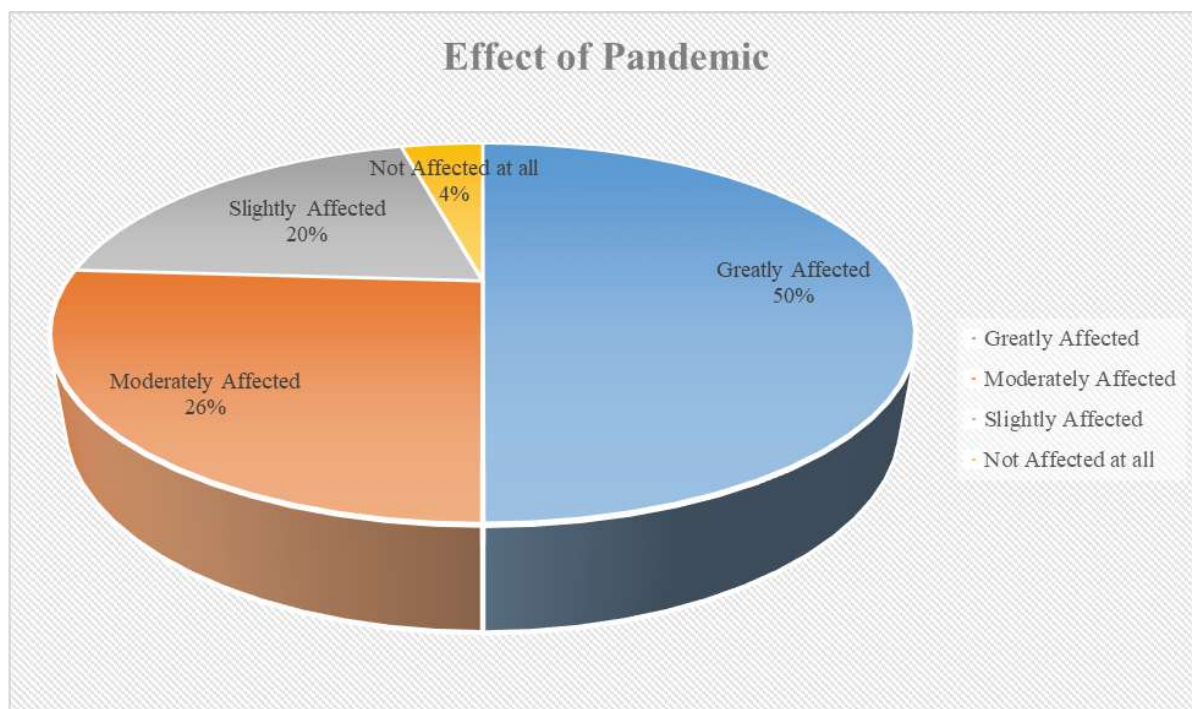


Fig.1: Effect of COVID 19 Pandemic Among the Rice Retailers

The pie graph reveals that 50% of the rice retailers consider themselves greatly affected by COVID 19 Pandemic. Their different reasons were because of: (a) the scheduling or selecting of persons allowed to go to the market (b) limited kilos per person to serve the whole municipality. In addition, 26% believe that they were moderately affected while 20% were slightly affected. Only 4% of the respondents said that their businesses were not at all affected by the pandemic.

2. Sales of Rice During Pandemic

When the respondents were asked regarding their sale situation during a pandemic, 67% honestly answered that their sales decrease during the time of COVID 19 while 33% said that they in fact increase with their sales even in the presence of the said pandemic.



Fig.2: Sale Situation of Rice During Pandemic

Those who answered yes, have stated that there was a 26 to 50% decrease in their sales when COVID 19 was non-existent. This implies that the respondents reduce their sales by almost half of their profit compared with last year.

3. Sales of Sack of Rice Before and During Pandemic

Another area of concern was asked from the respondents; *What is the average volume of sacks you sold per day before and during the pandemic?* More than half of the respondents said that the average volume of their sales during the pandemic is 1-5 sacks but before the pandemic it was 1-10 sacks of rice.

Table 1. Sales of Sack of Rice per Day before and during the Pandemic

| Percentage (Respondents) | Before the Pandemic (Sale of Sack of Rice per Day) | During the Pandemic (Sale of Sack of Rice per Day) |
|--------------------------|---|---|
| 60% | 1-10 | 1-5 |
| 18% | 11-20 | 6-10 |
| 8% | 21-30 | 11-15 |
| 14% | 31and above | 16-20 |

As regards the maximum sale of the sack of rice per day during the pandemic, the respondents stated that they only sell a maximum of 20 sacks per day when compared to the time before the pandemic which is 31 or more sacks of rice.

4. Financial Problems During Pandemic

Another realistic question asked from the respondents; *What is the most significant financial problem your business is facing during the pandemic?* 25.86% admitted problems on the collection, 24.14% on rental fees, 22.41% no problems encountered, 12.07% on wages of workers, 8.62% on earning loss, and 6.90% on loan payments.

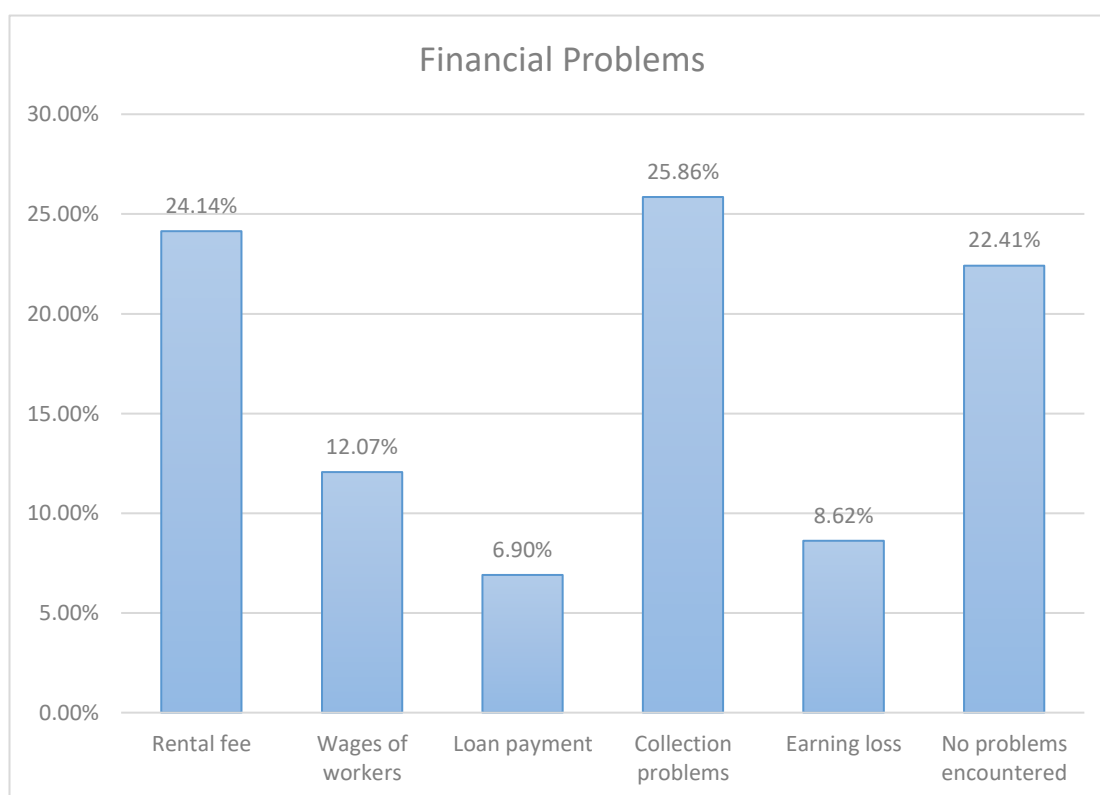


Fig.3: Financial Problems During Pandemic

The researchers also posted an existential question; *Do you think your business can survive if this pandemic will continue?* 94.82% among the rice retailers steadfastly answered yes while 5.18% said No, their business will not survive these challenging times. Regarding government assistance, the researchers asked the respondents; *Was there any assistance given to you by the government?* 98.28% answered No, they are not supported by the government while 1.72% of the respondents answered Yes, they are receiving support from the government and that the assistance was given through the 4P's Government Program.

5. Possible Solutions/ Interventions to Address the Problems

When the respondents were asked what are the possible solutions to the challenges [9] that they are currently experiencing, the following strong points were highlighted: The government must assist rice retailers in lowering the price of rice purchased from rice millers and traders. Because of excessive rice importation from the private sector, the government should assist in increasing the number of local rice on the market, particularly during pandemics. Increased government assistance in relation to rice market prices. Local rice prices should be reduced with the support of each municipality's Local Government Units to make it more accessible for customers, especially during this epidemic.

IV. CONCLUSIONS AND RECOMMENDATIONS

The majority of the rice retailers consider themselves greatly affected by COVID 19 Pandemic [10]. Their different reasons were due to: (a) the scheduling or selecting of persons allowed to go to the market; and (b) limited kilos per person to serve the whole municipality. Most of them answered that their sales decrease by 50% during the time of COVID. Their financial challenges were on collection rental fees and on wages of workers. Almost all of them believe that their business will survive these challenging times. Regarding government assistance, the majority of them stated that they are not supported by the government while other respondents mentioned that they are receiving support from the government and that the assistance was given through the 4P's Government Program. Possible solutions to the problems that the rice retailers are currently experiencing are the following: The rice retailers need the help of the government to decrease the price of rice coming from the rice millers/ traders. The government should help increase the number of local Rice in the market especially during a pandemic because of too much importation of rice from the private sectors.

Enhanced Government support with regards to the market price of rice. The price of local rice should be lessened through the help of the Local Government Units of each municipality to become affordable for the consumers especially during this time of the pandemic.

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Financial Literacy and Spending Habits of Bachelor of Science in Accounting Information System (BSAIS) Students

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Received: 09 Apr 2021; Received in revised form: 16 May 2021; Accepted: 04 Jun 2021; Available online: 16 Jun 2021

Abstract— This research described the financial literacy and spending habits of Bachelor of Science in Accounting Information System (BSAIS) students. Total enumeration sampling was utilized in choosing the 116 respondents from PHINMA Araullo University at Barangay Bitas, Cabanatuan City, Nueva Ecija, Philippines during the Academic Year 2020-2021. The respondents answered questionnaires adopted and modified by the researchers. The researchers divided the questionnaire into two parts. The first part pertains to the financial literacy of the respondents and the second part is about their spending habits as to academic, food, and personal needs. The questionnaire was a 4-point Likert Scale. The data gathered were tallied and analyzed using weighted mean, and set into tables for interpretation and analysis. Results revealed that the respondents have good financial literacy. Likewise, they were good spender of their money as to their food, personal and academic needs.

Keywords— Accounting information system, financial literacy, food, money, spending habits.

I. INTRODUCTION

Financial literacy plays a major role in the lives of people, particularly the youth [1], [2], towards effective money management decisions. "Taking into consideration the fact that young individuals are a significant factor for the development of national economy, substantial improvement of young people's financial literacy is essential. Young people with a high level of financial literacy would be those who could give a greater contribution to the state economy, so it is important to research the level of financial literacy among young people" [2]. Some of the factors involved in the financial literacy of the youth are their saving and spending habits [3], [4], [5] which greatly affect their current and future lives. Because financial literacy is not fully emphasized in the Philippine education system, the researchers decide to study the financial literacy and spending habits of students under the Bachelor of Science in Accounting Information System of Phinma Araullo University. The study determined the current status of the students in terms of personal finance and how the students can improve their

knowledge and skills toward proper management of their finances. This study addressed matters that point to why, where, and how students under the course of "Bachelor of Science in Accounting Information System (BSAIS)" of PHINMA Araullo University manage their spending habits. Likewise, it aimed to find out how beneficial it is for a college student, specifically to BSAIS students, to understand the manner and importance of their financial literacy and spending habits so that they can have the ability to determine how and where their money goes. This study can also help them avoid committing more money management mistakes and be more confident in managing their finances. Thus, this study finds meaning and substance [6].

II. METHODOLOGY

The researchers used the quantitative-descriptive research design. According to [7] as cited in [8], "descriptive research is concerned with conditions, practices, structures, differences or relationships that exist, opinions

held, processes that are going on or trends that are evidently useful in presenting facts concerning the nature and the status of everything". This study's respondents were all the 116 third-year BSAIS (Bachelor of Science in Accounting Information System) students who were enrolled at PHINMA Araullo University at Barangay Bitas, Cabanatuan City, Nueva Ecija, Philippines during the Academic Year 2020-2021. The researchers conducted the study at PHINMA Araullo University, Main campus, Cabanatuan City, Nueva Ecija, to know the saving behavior and spending habits of third-year BSAIS Students. The researcher used questionnaires as a primary instrument for gathering information from the desired respondents. The study used a questionnaire adopted from

a past research study entitled, "Determinants of Saving Behavior among the University Students in Malaysia" Thung, et al. 2012[9] and "Spending Behavior of Management Students of University of Saint Louis Tuguegarao, Cagayan Abawag, et al., 2019[10]." The researchers divided the questionnaire into two parts. The first part pertains to the financial literacy of the respondents and the second part is about their spending habits as to academic, food, and personal needs. The questionnaire was a 4-point Likert Scale used to get the answers from the respondents. The data gathered were tallied and analyzed using weighted mean, and set into tables for interpretation and analysis.

III. RESULTS AND DISCUSSION

1. Financial Literacy of the BSAIS Students

Table 1. Financial Literacy of the Respondents

| Financial Literacy (n=116) | WM | VI | QD |
|--|-------------|----------|----------|
| 1. I understand how to invest my money. | 3.39 | SA | E |
| 2. I understand how to manage my borrowed money when there's something I want to buy. | 3.52 | SA | E |
| 3. I have a clear idea of my financial needs during retirement. | 3.11 | A | G |
| 4. I have the ability to maintain financial records for my income and expenditure. | 3.05 | A | G |
| 5. I have no difficulty in managing my money. | 2.79 | A | G |
| 6. I understand financial instruments (e.g., stock, bonds, T-bill, futures contract, option, etc.) | 2.99 | A | G |
| 7. I can prepare my weekly/monthly budget. | 3.26 | SA | E |
| Overall Weighted Mean | 3.16 | A | G |

Legend: WM= Weighted Mean, VI- Verbal Interpretation, QD- Qualitative Description

3.25-4.00 Strongly Agree (SA)- Excellent (E)

2.50-3.24 Agree (A)- Good (G)

1.75-2.49 Disagree (D)- Poor (P)

1.00-1.74 Strongly Disagree (SD) - Very Poor (VP)

Table 1 shows the weighted mean and verbal interpretation of the Financial Literacy of the respondents. Respondents stated that: "I understand how to invest my money" (WM=3.39), "I understand how to manage my borrowed money when there's something I want to buy" (WM=3.52), "I have a clear idea of my financial needs during retirement" (WM=3.11), "I have the ability to maintain financial records for my income and expenditure" (WM=3.05), "I have no difficulty in managing my money"

(WM=2.79), "I understand financial instruments" (e.g., stock, bonds, T-bill, futures contract, option, etc.) (WM=2.99), "I can prepare my weekly/monthly budget" (WM=3.26). The overall weighted mean obtained was 3.16 with a verbal interpretation of "Agree", meaning that the respondents have good Financial Literacy. This finding shows that the respondent's literacy in handling their money will guide them towards good management of their money [1].

2. Spending Habits of the BSAIS Students

Table 2. Spending Habits of the Respondents

| Academic Purpose (n=116) | WM | VI | QD |
|---|-------------|-----------|------------|
| 1. I compare prices before I buy school supplies. | 3.55 | SA | ESH |
| 2. I prefer to buy school supplies from popular book stores such as National Bookstore, Pandayan Bookshop, Expression, etc. | 2.95 | A | GSH |
| 3. I spend a large percentage of my money on review materials such as photocopies / printed handouts. | 2.66 | A | GSH |
| 4. I spend my money on computer shops when doing my school requirements. | 2.26 | D | PSH |
| 5. I spend money on mobile data load, prepaid wifi load, and etc. | 3.03 | A | GSH |
| Overall Weighted Mean | 2.89 | A | GSH |
| Food | WM | VI | QD |
| 6. I compare prices before I spend money on food. | 3.21 | A | GSH |
| 7. I prefer eating meals in our house, boarding house, or apartment. | 3.41 | SA | ESH |
| 8. I often try food that is new and affordable. | 3.16 | A | GSH |
| Overall Weighted Mean | 3.26 | SA | ESH |
| Personal Needs | WM | VI | QD |
| 9. I compare prices before I buy clothes, shoes, and cosmetics. | 3.50 | SA | ESH |
| 10. I usually buy pre-loved items for clothes, shoes, and bags. | 3.16 | A | GSH |
| 11. I prefer buying generic clothes, shoes, and bags because it is cheaper than branded ones. | 3.27 | SA | ESH |
| 12. I spend a portion of my allowance for the rent of my apartment/ boarding house. | 2.10 | D | PSH |
| 13. I wait for clothes, bags, shoes, and cosmetics to be on sale before buying. | 3.34 | SA | ESH |
| Overall Weighted Mean | 3.08 | A | GSH |
| Grand Weighted Mean | 3.08 | A | GSH |

Legend: WM= Weighted Mean, VI-Verbal Interpretation, QD- Qualitative Description

3.25-4.00 Strongly Agree (SA)- Excellent Spending Habits (ESH)

2.50-3.24 Agree (A)- Good Spending Habits (GSH)

1.75-2.49 Disagree (D)- Poor Spending Habits (PSH)

1.00-1.74 Strongly Disagree(SD) - Very Poor Spending Habits (VPSH)

Table 2 shows the weighted mean and verbal interpretation of spending habits in terms of Academic Purposes. Respondents stated that: “I compare prices before I buy school supplies” (WM=3.55), “I prefer to buy school supplies from popular book stores such as National Bookstore, Pandayan Bookshop, Expression, etc.” (WM=2.95), “I spend a large percentage of my money on review materials such as photocopies / printed handouts” (WM=2.66), “I spend my money on computer shops when

doing my school requirements” (WM=2.26), “I spend money on mobile data load, prepaid wifi load, and etc.” (WM=3.03). The overall weighted mean obtained was 2.89 with a verbal interpretation of “Agree”, meaning that the respondents have good spending habits in terms of academic purposes.

As to their spending habits in terms of food, the respondents stated that: “I compare prices before I spend money on food” (WM=3.21), “I prefer eating meals in our

house, boarding house or apartment" (WM=3.41), "I often try food that is new and affordable" (WM=3.16). They have excellent spending habits. The overall weighted mean obtained was 3.26 with a verbal interpretation of "Strongly Agree", meaning that the respondents have excellent spending habits in terms of Food.

In their spending habits in terms of personal needs, the respondents stated that: "I compare prices before I buy clothes, shoes, and cosmetics" (WM= 3.50), "I usually buy pre-loved items for clothes, shoes, and bags" (WM=3.16), "I prefer buying generic clothes, shoes and bags because it is cheaper than branded ones" (WM=3.27), "I spend a portion of my allowance for the rent of my apartment/boarding house" (WM= 2.10) and "I wait for clothes, bags, shoes, and cosmetics to be on sale before buying" (WM=3.34). The overall weighted mean obtained was 3.08 with a verbal interpretation of "Agree" meaning that respondents have good spending habits in terms of personal needs.

Overall, in their spending habits as to their academic purpose, food, and personal needs, the BSAIS students were a good spender.

IV. CONCLUSIONS AND RECOMMENDATION

The 116 third-year BSAIS (Bachelor of Science in Accounting Information System) students who were enrolled at PHINMA Araullo University at Barangay Bitas, Cabanatuan City, and who are living in Nueva Ecija, Philippines [11], [12] during the Academic Year 2020-2021 have good financial literacy. Likewise, they are good spender of their money. However, there were items in the statements that the respondents need to improve such as "I have no difficulty in managing my money". Thus, in order to get rid of the difficulty in managing their money, the students should understand their current financial situation so they can have a strong motivation to continue managing their allowance. Second, students should be taught to create a financial plan including setting long-term and short-term goals like following the budget, then prioritize their goal, and third, stick to a budget they set to help them decide on how to save their money easily. As to the spending habits, the statements "I spend my money on computer shops when doing my school requirements", "I often try food that is new and affordable" and "I spend a portion of my allowance for the rental of my apartment/boarding house" has the lowest mean and therefore, need to address. The management of PHINMA Araullo University should provide access to computer laboratories for all of their students so their students will not need to go to the computer shop to accomplish their school requirements. Students should spend money on foods that

are affordable and avoid spending on new items because it will affect their money management. Lastly, students who are living far away from the school should rent an apartment that has low cost but gives them comfort to study.

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Effect of Republic Act 10963 “Tax reform for Acceleration and inclusion (Train) Law” on the collection Performance in Income Tax of one Revenue District in Nueva Ecija

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Received: 05 May 2021; Received in revised form: 03 Jun 2021; Accepted: 16 Jun 2021; Available online: 23 Jun 2021

Abstract— *The study was conducted in one of Nueva Ecija's Revenue District Offices. Thirty (30) revenue officers assigned to the assessment, client assistance, collection, and compliance sections, as well as twenty (20) taxpaying citizens, participated in the study. The researchers found out that the effects of the TRAIN LAW on the collection performance in Income Tax for the taxable year 2018 and 2019 of the said revenue district office gradually improved on its full implementation by the year 2019, despite the decrease in collections from the personal income taxes of purely compensation and purely business income earners but still the collections from mixed-income earners [1] increases in 2018 and there is a positive growth in tax revenues collected from personal income taxes in 2019.*

Keywords— *Collection, income tax, revenue, taxation, TRAIN Law.*

I. INTRODUCTION

"President Rodrigo Roa Duterte signed into law Republic Act No. 10963, otherwise known as the Tax Reform for Acceleration and Inclusion (TRAIN) Act, the first package of the Comprehensive Tax Reform Program (CTRP, on December 19, 2017, in Malacanang. The TRAIN will provide hefty income tax cuts for the majority of Filipino taxpayers while raising additional funds to help support the government's accelerated spending on its "Build, Build, Build" and social services programs" [2]. The TRAIN Act aims to produce revenue in order to realize the Duterte administration's 2022 and 2040 visions, which include eradicating extreme poverty, creating inclusive institutions that provide equal opportunities for all, and achieving higher income country status. It also aims to make the tax system more straightforward, equitable, and efficient [3].

After the implementation of the TRAIN law, several researchers have ventured on studying its effects or impact in different societies, communities, and groups of people. Boco et al (2019) found out that "the impact of TRAIN law to the poor are mostly the basic need such as food in

which it is needed to reduce their budget for them to survive since there are other things that needed to be paid such like utility bills and debts. Furthermore, it also affects the mental and well-being of a person such as anxiety, stress, and depression due to financial problems. It is therefore concluded that after the implementation of TRAIN the poor income class families become poorer" [4]. In a related study by [5], they found that revealed in terms of the affordability of necessary goods and services, social overhead capital and infrastructure, and the development of micro-enterprises, the effect or impact of the TRAIN Law on consumers was moderately evident, while in terms of the affordability of non-essential commodities and disposable income, the effect or impact was only slightly evident. It was found that, despite the fact that assessing the complete impact of TRAIN on various aspects of the economy is still premature because the program is still in its early stages of implementation, people still perceive an improvement in the delivery of public services and infrastructures. This study, although similar to those presented in terms of the impact and effect

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of the TRAIN law, it differs as to the locale and the respondents, and since it dealt on the collection performance in income tax of one Revenue District in Nueva Ecija, in the Philippines, which are dearth in the country.

II. METHODOLOGY

A descriptive research design was adopted in this study. 'Descriptive research systematically explains a scenario, problem, phenomena, service or program, attitude toward an issue, or simply, it gives knowledge about a subject,' according to [6], as referenced by the writers in [7] and [8]. This research looked into the tax collection and compliance of one of Nueva Ecija's district offices. The study's respondents were chosen on the basis of the following criteria [9]: they must be a revenue officer and a taxpayer within the district office's jurisdiction, have worked as a revenue officer for at least two years, and

have been a taxpayer for at least one year. Thirty (30) revenue officers assigned to the assessment, collection, client assistance, and compliance sector, as well as twenty (20) taxpaying citizens, were chosen as respondents. The information came from the respondents' responses to a questionnaire created by the researchers. The research was conducted from 2018 to 2019.

III. RESULTS AND DISCUSSION

Reported Collections of Income Taxes from Individuals

The Revenue District Office has its monthly tax collections from the individual taxpayers. Based on its generated report, tax collected is classified into pure compensation, pure business, mixed-income, withholding tax on wages, expanded creditable withholding tax, final tax, capital gains, and non-resident citizens. Table 1 shows the annual collection for the years 2016 and 2017 before TRAIN is implemented.

Table 1. Annual Collection of RDO 23-B from Individual Taxpayers for the years 2016 and 2017

| Type | 2016 | 2017 | Percentage Change |
|--|-------------------------|-------------------------|-------------------|
| a. Pure Compensation | 1,563,632.17 | 4,278,187.30 | 173.61% |
| b. Pure Business | 70,187,795.50 | 74,518,726.74 | 6.17% |
| c. Mixed Income/Income from profession | 85,473.71 | 2,770,394.39 | 3141.22% |
| d. Withholding Tax on Compensation | 786,259,134.06 | 964,353,703.63 | 22.65% |
| e. Expanded Creditable Withholding Tax | 92,787,861.58 | 172,021,720.90 | 85.39% |
| f. Final tax | 1,435,359.54 | 5,632,949.68 | 292.44% |
| g. Capital Gains | 97,437,497.81 | 115,043,080.34 | 18.07% |
| h. Non-resident Citizens | - | 24,000.00 | |
| Total Collections | 1,049,756,754.37 | 1,338,642,762.98 | 27.52% |

The table depicted that the RDO's collection performance in 2017 improved by 27.52% as compared to 2016. This was because of the priority programs of BIR (enhancement of voluntary compliance among taxpayers, Run After Tax Evaders (RATE) and "Oplan Kandado) and continuous

comprehensive awareness campaign to the public regarding the importance of paying taxes and that they can help by asking receipts or invoices from the establishments they dealt with. Table 2 shows the annual collection of RDO when the RA 10963 was implemented.

Table 2. Annual Collection of RDO 23-B from Individual Taxpayers for the years 2018 and 2019

| Type | 2018 | 2019 |
|--|-----------------------|-------------------------|
| Personal Income Taxes: | | |
| a. Pure Compensation | 2,779,069.11 | 3,728,138.74 |
| b. Pure Business | 56,979,325.44 | 156,922,742.08 |
| c. Mixed Income | 13,201,188.21 | 38,198,536.84 |
| Other Income Taxes: | | |
| d. Withholding Tax on Compensation | 459,675,724.71 | 500,517,341.42 |
| e. Expanded Creditable Withholding Tax | 98,261,340.49 | 599,233,430.61 |
| f. Final tax | 4,399,147.50 | 24,371,391.07 |
| g. Capital Gains | 123,015,191.95 | 65,564,718.28 |
| h. Non-resident Citizens | 22,200.00 | 60,340.58 |
| Total Collections | 758,333,187.41 | 1,388,596,639.62 |

Changes in the Collection of Income Taxes after Implementation of TRAIN Law

The goal of TRAIN is to increase the tax revenues of the government to finance infrastructure projects, education,

and health services. From Tables 1 and 2, the percentage change can be determined to compare with the normal change before TRAIN is implemented.

Table 3. Percentage Change in 2017 and 2018 – Annual Collection from Individual Taxpayers

| Type | Increase (Decrease) | Percentage Change |
|--|-------------------------|-------------------|
| Personal Income Taxes: | | |
| a. Pure Compensation | (1,499,118.19) | (35.04%) |
| b. Pure Business | (17,539,401.30) | (23.54%) |
| c. Mixed Income/Income from profession | 10,430,793.82 | 376.51% |
| Other Income Taxes: | | |
| d. Withholding Tax on Compensation | (504,677,978.92) | (52.33%) |
| e. Expanded Creditable Withholding Tax | (73,760,380.41) | (42.88%) |
| f. Final tax | (1,233,802.18) | (21.90%) |
| g. Capital Gains | (7,972,111.61) | 6.93% |
| h. Non-resident Citizens | (1,800.00) | (7.50%) |
| Total Collections | (580,309,575.57) | (43.35%) |

As shown in Table 3, the total collections decreased by 43.35%. Only the collections from mixed-income and capital gains increase. The collections from the personal income taxes (pure compensation and pure business) decrease while the collections from mixed-income earners increases. Based on analysis and interviews of the employees, the number one cause of the decline is the increase of the threshold to P 250,000 before an individual taxpayer is subject to graduated tax rates. Most of these taxpayers are under RDO and are low middle-income

earners who were previously taxed on their earnings before January 1, 2018. The increased collection from mixed-income earners can be attributed to the availability of the option to use a flat rate of 8% on gross income. Other contributing factors were: (1) the agency is not yet prepared with the regulations, rulings, and guidelines due to immediate implementation of the law in January 2018 after it was signed in December 2017 by President Duterte; (2) the tax returns were published late; (3) there was inadequate dissemination of information to the taxpayers;

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and (4) there was no proper and suitable training both to the BIR employees and the taxpayers. These factors resulted in confusion in both parties and improper implementation of the Act in 2018. In the second year of TRAIN's effectiveness, it can be observed in Table 4 that there was an enormous increase in the collections. An amount equivalent to ₱ 630,263,452.21 or 83.11% was the

computed effect of the change. The collection growth in 2019 is twice higher than the normal increase of 27.52% (Table 1) before the law was implemented. Having these figures, it can be inferred that TRAIN's objective to increase collections of tax revenues of the government is achieved by BIR RDO 23-B South Nueva Ecija.

Table 4. Percentage Change in 2018- and 2019- Annual Collection from Individual Taxpayers

| Type | Increase (Decrease) | Percentage Change |
|--|-----------------------|-------------------|
| Personal Income Taxes: | | |
| a. Pure Compensation | 949,069.63 | 34.15% |
| b. Pure Business | 99,943,416.64 | 175.40% |
| c. Mixed-Income/Income from the profession | 24,997,348.63 | 189.36% |
| Other Income Taxes: | | |
| d. Withholding Tax on Compensation | 40,841,616.71 | 8.88% |
| e. Expanded Creditable Withholding Tax | 500,972,090.12 | 509.84% |
| f. Final tax | 19,972,243.57 | 454.00% |
| g. Capital Gains | (57,450,473.67) | (46.70%) |
| h. Non-resident Citizens | 38,140.58 | 171.80% |
| Total Collections | 630,263,452.21 | 83.11% |

From the viewpoint of the tax collectors, the increase was due to the efficient and effective dissemination of information to the taxpayers. Relative memorandums and advisories were issued to facilitate ease of application of TRAIN. There were trainings conducted for the BIR employees. Also, the agency held consultation meetings with the accountants of business establishments and tax practitioners to address the issues encountered in 2018 and the procedures that are confusing and difficult to comply.

The analysis further revealed in Table 5 that the withholding tax on wages on employees declines almost 50% in 2018 and 2019. This is a manifestation that individual taxpayers received higher net pay or higher share in business profit especially those that are below the middle-income earner's bracket. Another objective of the TRAIN is attained.

Table 5. Effect on Withholding Tax on Compensation

| | Annual Collection BEFORE TRAIN is implemented | | Annual Collection AFTER TRAIN is implemented | | Net Increase (Decrease) |
|-------------|---|----------------|--|----------------|-------------------------|
| | 2016 | 2017 | 2018 | 2019 | |
| Collections | 786,259,134.06 | 964,353,703.63 | 459,675,724.71 | 500,517,341.42 | (45.15%) |

The decrease in withholding taxes in compensation comes with the increase in the collection of other withholding taxes at the source. Table 6 shows the change in the average annual collection after the TRAIN took effect. The examination of monthly collections in 2019 discovered

that the increase happened to start the month of April when the Revised BIR Form No. 1701 (Annual Income Tax Return for Individuals, Estates, and Trusts) issued on March 18, 2019, is due for filing and payment.

Table 6. Effect on Other Withholding Tax at Source

| | Average Annual Collection BEFORE TRAIN is implemented | Average Annual Collection AFTER TRAIN is implemented | Net Increase (Decrease) |
|--|--|---|------------------------------------|
| Creditable Withholding Tax | 112,903,169.01 | 274,174,706.74 | 142.84% |
| Creditable Withholding Tax on Real Property Other than Capital Asset | 19,501,622.24 | 74,572,678.81 | 282.39% |
| Final Taxes | 3,534,154.61 | 14,385,269.29 | 307.04% |
| Total | 135,938,945.86 | 363,132,654.84 | 167.13% |

The revised BIR form is issued to be used by the individuals (including those with mixed-income), estates, and trusts in filing the annual income tax return and paying the income tax due starting the year 2018 that is due on or before April 15, 2019. This issuance is in consonance to RR 11-2018 [Amending Certain Provisions of Revenue Regulations No. 2-98, as Amended, to Implement Further Amendments Introduced by Republic Act No. 10963, Otherwise Known as the "Tax Reform for Acceleration and Inclusion (TRAIN)" Law, Relative to Withholding of Income Tax] as implemented by RMO 26-2018 (Prescribing the Guidelines in Monitoring, Identification, Inclusion and Deletion of Top Withholding Agents Pursuant to the Pertinent Provisions of Revenue Regulations No. 11-2018) issued in 2018. The said RR is effective November 1, 2018, but the implementation was delayed until revised BIR Form 1701 was published.

IV. CONCLUSIONS AND RECOMMENDATIONS

In light of the above findings, the following conclusions and recommendations were drawn: **1.** The collection performance of the Revenue District declined in 2018 and gradually improved in 2019 after the full implementation of RA 10963 or TRAIN Law. **2.** The collections from the personal income taxes of purely compensation and purely business income earners decrease while the collections

from mixed-income earners increase in 2018. There is a positive growth in tax revenues collected from personal income taxes in 2019. **3.** The collection of other withholding taxes at source increased in 2018 and 2019 due to RR 11-2018 as implemented by RMO 26-2018. **4.** To continue its comprehensive awareness campaign to the taxpayers and support the agency's priority programs on the enhancement of voluntary compliance among taxpayers, Run After Tax Evaders (RATE) and "Oplan Kandado. **5.** To increase tax collection the district office should increase the consultation meetings with its stakeholders for a prompt response on the issues and concerns. This will enhance the effectiveness and efficiency of tax administration and collection. The elements and recommendations are all significant and important for the district office's effective collection and performance when the TRAIN Law is implemented. However, these are impossible to adopt at the same time because the agency was fully equipped at the Act's enactment to handle all of the agency's internal contributing variables. Management may have the same goals in mind to improve the agency's performance, but they are unable to do it owing to circumstances beyond their control. The most significant proposal that has to be implemented in order to maintain employee professionalization is that a continual program for training employees in the right application of tax laws, as well as the development and enhancement of their professional

competence, be implemented. Lastly, “research on the same discipline with more respondents should be conducted to be able to make accurate decisions given much available data or information [10] to further validate the findings of this study”.

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The Role of External Auditing in Reducing Creative Accounting Practices

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Received: 16 May 2021; Received in revised form: 09 Jun 2021; Accepted: 18 Jun 2021; Available online: 23 Jun 2021

Abstract— Concerning the auditor's independence, the ongoing debate in the literature is about how to balance the obligations and requirements faced by the auditor in the course of his audit duties with the related provision in place that authorizes additional non-audit services to be provided to the audited clients. Facing the audit profession today, ethical violations that have reduced the audit results in the aftermath of recent financial scandals, where it has already been proven that the world's leading auditing firms were involved in the financial corruption scandals, are the primary challenges auditors will face. The current study aimed to examine external auditing as a determining factor in influencing creative cost accounting. For this reason, the researchers used three different dimensions of external auditing to enable the study to measure creative cost accounting, first type of external auditing was general standard, second type of external auditing was fieldwork standard, third type of external auditing was reporting standard. The study consists of three independent variables (general standard, fieldwork standard, and reporting standard) and creative cost accounting as dependent variable. The present research applied quantitative research method via adapting questionnaire from academic sources. A random sampling technique was used, where all participants had equal chances of being selected for the sample. The researchers distributed 130 questionnaires, only 125 questionnaires were received and from 125 questionnaires only 117 questionnaires were completed properly. The findings showed that general standard has significant positive influence on creative cost accounting at 5% level. The results show that fieldwork standard has significant positive influence on creative cost accounting at 5% level. The results show that reporting standard has significant positive influence on creative cost accounting at 5% level. Moreover, all beta value is higher than .001. All models have very high adjusted R² (.711, .671, .736, .644, and .723 respectively) indicating the ability of the models explaining the variation of creative cost accounting due to variation of independent variables is very high. The F-value shows that the explanatory variables are jointly statistically significant in the model and the Durbin-Watson (DW) statistics reveals that there is autocorrelation in the models.

Keywords— *Auditing, External Auditing, Fieldwork, Reporting Auditing, General Standard of Auditing.*

I. INTRODUCTION

Market trust and investors' trust in Capital Markets have, as a result of the multiple scandals that have happened over the past two decades, been weakened. This idea, as it pertains to the traditional model, applies to non-listed firms. In this model, the statutory committee has three to five genuine members, as well as two standby members. In order to be successful, they must uphold their obligations with professionalism and the level of care required for the specific nature of their job. Focusing on the real firm size and structure, they must get the work done. When a corporation is required to have both a majority of the statutory board and external auditors (Sorguli, et al. 2021), the corporation's by-laws must stipulate that at least one must be chosen from the minority as well as one must be elected from the majority. There is increasing acknowledgement in the public audit profession that the increased use of big data, as well as the introduction of advanced analytics by audit clients, has created new opportunities and problems (Gardi, 2021). It is generally accepted that a paper is significant if it describes one component of analytics, which usually belongs in one phase of the external audit model as proposed by Cushing and Loebbecke (1986), and this article discusses internal auditing and auditing on the auditing (Hamza, et al. 2021). In the public business audit scenario, analytics might be a key focus of the report, or it might be a secondary focus, or it may be part of another process or aim. The use of analytics is not a key emphasis for papers in which case only papers in which analytics are critical to the method are chosen (Ahmed, et al. 2021).

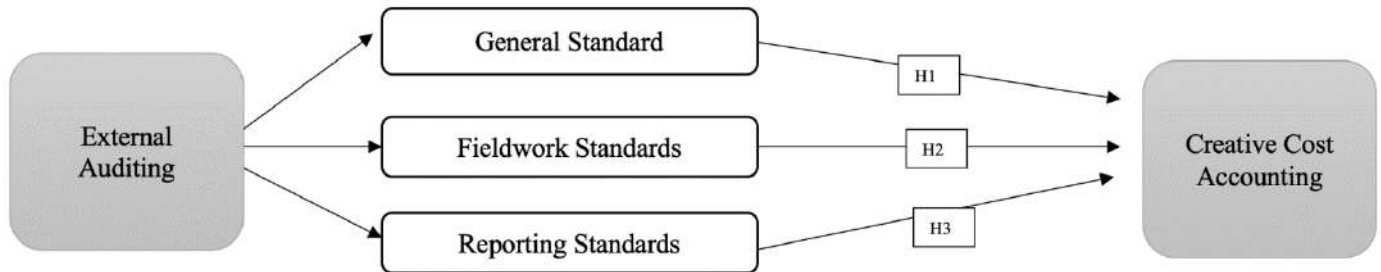
A detailed study on which specific topics emphasize in external audit practices can be found in this literature, which includes reports on Financial Statement Fraud (Ismael, et al. 2021), Going Concern Opinion (Gardi, 2021), and Fair Value Measurement (Ismael, et al. 2021). To safeguard transactions, policies to keep transaction data up to date are critical. If controls are not put in place, a business may not be able to offer necessary and suitable evidence for cost-efficient audits (Ismael, et al. 2021). Historically, the health system had a more influential role in healing due to the clinical decisions of attending physicians, who impose the largest demands on the health system. Each patient is allotted a specific amount of resources, based on how much their prognosis has improved. The healing process is substantially affected by such paramedical services as nursing and other nursing services. It is clinical and nursing judgments that activate the administrative and financial systems (Sorguli & Al-Kake, 2020). There are many

external constraints that the health care provider faces, who is accountable for making clinical judgments and for the implications of these decisions. As a result, he may overutilize (or undertreat) services, especially if his value system requires him to do so. Due to the critical role that good records management plays in the auditing and risk management processes in both the public and commercial sectors, this is not something to be taken lightly (Damit, et al. 2019).

The crucially important feature of continuous auditing is that it lowers the lag between operations management and providing assurance. For many years prior, information which was significantly more specific and time-sensitive than the auditor, who is only introduced in the audit results at the end of the year, was easily accessible to management. Audit businesses do the vast majority of their billing by the number of hours worked, and they are not particularly motivated to develop an audit model that is less labor-intensive and more technology-intensive. External auditing as a technique of assessing the quality of financial statements concerns finding a balance between the interests of current and potential information consumers, who will determine the financial statements of a certain organization (Ali, et al. 2021). Thus, quality in external auditing is a notion. The quality of the parties conducting the audit reports increases the certainty of those being audited, and also illustrates the necessity for external auditing. External auditing has recently been brought to the attention of various corporations, which is a testament to its value. Government institutions in both established and emerging economies are increasing concerned with governance reform, with academics and policy makers becoming equally influential actors in that arena. This article analyzes the effect of the audit committee on the quality of the external auditing, as well as the effectiveness of the board of supervisors. As a result of the recently completed research, it can be deduced that by surveying, the developed hypothesis, which states that the audit committee, as a subcommittee of the supervisory board, has a direct impact on both external auditing efficiency, and the supervisory board, is currently being tested. Efficiency of external auditing, and the supervisory board impact on that, is examined before taking into account the audit committee's role. Additionally, induction and deduction methods, as well as analysis and synthesis methods, are used to examine the supervisory board's role and the audit committee's impact on corporate governance. Additionally, other aspects of external auditing, including theoretical relevance and

methodological frameworks, are also being investigated (Hameed & Anwar, 2018).

Research model



Research Hypotheses:

H1: General standard as an external auditing dimension has positive and significant impact on reducing manipulation in creative cost accounting practices.

H2: Fieldwork standard as an external auditing dimension has positive and significant impact on reducing manipulation in creative cost accounting practices.

H3: Reporting standard as an external auditing dimension has positive and significant impact on reducing manipulation in creative cost accounting practices.

II. LITERATURE REVIEW

External auditing

To bring this to life, take the case used in the authors' personal experience in which a telecommunications business was obliged to lay off a huge number of its managers, many of whom are responsible for authorization of transactions. In order to satisfy segregation of duty controls, these responsibilities are routinely assigned to various managers, but the redundancies caused these responsibilities to be distributed among numerous managers, so the absence of designated signees led to the need for work-arounds without adequate documentation. To help make up for the gap, the internal auditors had to work with limited controls for some time (Sabir, et al. 2021). Process mining may have been utilized in this circumstance to establish what the new arrangements were following the layoffs by finding out how transactions are actually now being authorized and processed (Sorguli, et al. 2020). There is also the possibility that this might have been used in advance of the event to establish which managers were most crucial in the permission procedure and to properly prioritize the redundancy. The goal in both ex ante and ex

post is to find out how authorizations are being actually executed against only depending on the theoretical External auditing process which has often deviated from since inception in order to take into account new procedures, staff, and suppliers (Abdullah, et al. 2017).

It is evident from the analysis of these four studies that audit risk, internal control, and proof are all considered key components of an auditing class. Although these three themes were among the top five in some surveys, they were not included in other surveys and were instead in the rankings of issues including widely accepted auditing standards, auditors' professional duty, and legal liability. While there have been no significant findings made about the criticality of auditing subjects in earlier research, one flaw in this area of study is that the concepts behind audit topics were not well defined (Ali, et al. 2021). With such different terminologies being used to talk about the subjects, it is hard to make a comparison between past research to understand how and why changes and trends in auditing education have taken place. However, in order to get to that point, it will require more than just technology implementation. One of the problems with this is that audits would be required to examine the company's procedures to find out if they are vulnerable to process mapping and reengineering. To know how to give confidence in the business world today, one must know about the constant changes that organizations make to how they do their business. What is currently the most crucial discovery emerging from the last two decades is the unveiling of how a corporation actually functions (Aziz, et al. 2021). The theoretical work on agency and moral hazard is largely concerned with the use of information (Ali & Anwar, 2021). However, information is not produced by mechanical processes; it is produced by rational economic actors operating in an external reporting context. In the audit, the

auditor has a motive to disclose the truth (fairness of the financial statements). But, the success of the auditors in securing an audit opinion is also the goals of the principal and the agent, both of which require careful consideration. Several different models for performance evaluation systems are investigated by (Saleh et al. 2021) in the accounting environment. The decision theory models of auditing given by (Ali, et al. 2021) are demonstrated in the audit. Despite these models considering an input from the manager, which can impact the system states, these models are not designed to accommodate this manager influence. Our goal in this research is to include auditing difficulties in our overall evaluation of the moral hazard dilemma, specifically in regard to the incentive schedule for the manager from the principal's point of view (Abdullah & Anwar, 2021).

To fulfill this role, the external auditor needs to understand what internal controls are relevant to the audit and have an objective in mind in order to decide on audit techniques that are appropriate in these circumstances. This is crucial to understand because external auditors do not have the goal of giving their own opinion on the effectiveness of the entity's internal controls. In other words, the goal of the internal auditor is to evaluate the effectiveness of the internal controls, while external auditors will look to the work of internal auditors when assessing controls. The close relationship between internal and external auditing is expected to enable the internal audit enhance its job and improve the work of external auditors, reduce duplication, and reach maximum risk coverage. Additionally, it will aid the governing body in obtaining a thorough understanding of the controls and associated risks of the organization (Anwar, 2017). Instead of researching cross-sectional disparities in the cost of capital, we use restatements of accounting information to demonstrate a connection between accounting information and the cost of capital. In addition to internal pressure, external factors are increasing that will encourage or force companies to record and disclose various forms of environmental expenses. The cost of interest is all internal to the company; that is, all substantial expenses to the decision of how much of the firm's capital resources ought to be devoted to certain environmental projects. The audit serves as an attestation to the correctness of financial statements or circumstances, as the major objective of a review is to evaluate and provide an opinion on the result and condition of affairs of a company, as much as its financial operations and records may reveal. This statement of opinion confirms the reliability of the attached financial statement, allowing the user to take that information at face value (the financial statement). Since an independent expert has vouched for its

veracity, the user is allowed to do so (Anwar & Qadir, 2017).

Creative cost accounting

CCA is a method of manipulation of accounting statistics carried out by accountants, who utilize their knowledge of accounting regulations to alter the figures provided in a business's financial reports. CCA is made up of accepted accounting methods that obey regulations and rules, but go against the rules and regulations that they are trying to accomplish. The above statement explains how CCA exploits loopholes in accounting standards to inaccurately depict the company's financial situation (Anwar & Climis, 2017). At the point where three approaches to modern management come together, we have seen a whole new kind of theory and practice emerge in the area of management accounting, planning, and economic analysis. Controlling system is a synthesis of elements of accounting, analysis, monitoring, planning, and implementation. It incorporates all the elements of accounting, analysis, monitoring, and planning, along with implementation. This is done in order to enable the company to consistently create a diverse range of approaches in carrying out operational and strategic management of company goals and results. Though lacking ethics, data manipulation is an art of fraudulent arts, and it might be tough to audit destinations, both external and internal auditors, or even the auditing destination that is tied to the government, which might be tough to uncover because of that.

Used to as we are to seeing things in a certain way, most people see accounting as a social science that intersects with the surrounding society, and accountants as experts who apply the delegation theory, delegating management tasks to managers who act on behalf of shareholders and get a percentage of their companies' profits. This is the primary worry for these managers since they are more concerned with making as much money as possible to increase the value of their investments (Abdullah, 2015). This has helped pave the way for the introduction of new accounting systems that profit from the ability of accounting standards to easily be manipulated to identify revenues and profitability. There are various approaches which are known as creative accounting (Tassadaq & Malik, 2015). CCA is a euphemism for a type of accounting practice that might follow the letter of the rules of CCA, but that deviates from the spirit of those rules with questionable accounting ethics, specifically through unethical practices such as manipulating results in favor of the preparers or the firm that employed the accountant. The principles and concepts expounded in these books contain a great deal of complexity and the employment of unique ways of describing income, assets, or obligations, and a campaign to steer readers

towards the conclusions preferred by the writers. These phrases are also used to describe "innovative" or "aggressive" firms. One of the most prevalent synonyms is "cooking the books". When done creatively, legitimate accounting practices often comes with even larger-scale financial fraud, such as securities fraud. Lines between the two practices get blurred. Accounting techniques that promote creativity have been known since ancient times and are seen all throughout the world in a wide variety ways.

CCA is a strategy which is utilized to either develop or interpret accounting policies in a deceptive way with the purpose of misusing the accounting procedures and standards that are being established by the accounting authorities. This kind of practice is used in order to help the business avoid having to report the numbers in full. We can see this as exploiting the gaps in our accounting system and our audit system after the accounts have been finalized. CCC also goes under several other names, including "income smoothing," "earnings management," "earnings smoothing," and "financial and accounting." For conservative accounting systems, a tendency for 'income smoothing' (where assets are placed to offset a history of yearly losses) is sometimes accentuated because of the high amount of provisions that build. Another bias that occurs is called "big bath" accounting, which is the practice of a business with a loss in a particular year attempting to maximum the reported loss in that year so that it will seem as a smaller loss in the following years. It is critical to have understanding of financial concepts in the corporate world. While CCA is a type of accounting technique that is neither regarded unlawful nor outside the ordinary, it describes ways in which certain accounting techniques are used. Meant by creative accounting is the means of certain companies to the utilization of the gaps within the available methods and substitutions in order to improve the company's image before the beneficiaries even if that was on the account of reality. Both internal stakeholders and external stakeholders have an essential influence in the decisions that are made with respect to a company's financial statements. Assessing the performance of the company through financial reports is an objective measure

of the corporation's performance. The primary principle of innovative accounting is to uncover what are called loopholes in the law and accounting rules in order to show the firm in a more positive light. On the one hand, income smoothing could be a positive influence on trade business. On the other hand, when done in a beneficial way, income smoothing can aid trade business operations, albeit it should be employed to achieve the ultimate purpose of the company. Cross-boundary simplicity is powerful. In many cases, however, organizations harness such power by extending themselves beyond simple concepts, which leads to disastrous results. One thing is for certain: Creative accounting is almost always detrimental to a corporate accounting reporting.

III. METHODOLOGY

The current study aimed to examine external auditing as a determining factor in influencing creative cost accounting. For this reason, the researchers used three different dimensions of external auditing to enable the study to measure creative cost accounting, first type of external auditing was general standard, second type of external auditing was fieldwork standard, third type of external auditing was reporting standard. The study consists of three independent variables (general standard, fieldwork standard, and reporting standard) and creative cost accounting as dependent variable. The present research applied quantitative research method via adapting questionnaire from academic sources. The questionnaire was divided into two sections, the first section consisted of demographic questions; starting with respondent's age and respondents' gender. The second part of questionnaire consisted of 10 questions of general standard, 8 questions of fieldwork, 9 questions of reporting standard, and 10 questions of cost creative accounting. A random sampling technique was used, where all participants had equal chances of being selected for the sample. The researchers distributed 130 questionnaires, only 125 questionnaires were received and from 125 questionnaires only 117 questionnaires were completed properly.

IV. ANALYSIS AND RESULTS

Table 1: KMO and Bartlett Sphericity Test of Self-rating Items

| No | Factors | N of items | Sample | KMO | Bartlett test | |
|----|--------------------|------------|--------|------|---------------|------|
| | | | | | Chi-Square | Sig |
| 1 | General Standard | 10 | 117 | .802 | 3019.4 | .000 |
| 2 | Fieldwork Standard | 8 | 117 | | | |
| 3 | Reporting Standard | 9 | 117 | | | |

| | | | | | | |
|---|--------------------------|----|-----|--|--|--|
| 4 | Cost creative accounting | 10 | 117 | | | |
|---|--------------------------|----|-----|--|--|--|

As we can see in table (1), the result of KMO is .802 which is higher than .001 this indicates that the sample size used for the current study was more than adequate. Furthermore, the result of Chi-Square is 3019.4 with the significant level .000.

Table 2: Reliability analysis

| Reliability Statistics | | | |
|------------------------|--------|------------------|------------|
| Factor | Sample | Cronbach's Alpha | N of Items |
| General Standard | 117 | .739 | 10 |
| Fieldwork Standard | 117 | .766 | 8 |
| Reporting Standard | 117 | .791 | 9 |
| General Standard | 117 | .772 | 10 |

As seen in table (2), the reliability analysis for 37 items used to measure the influence of external auditing (general standard, fieldwork standard, reporting standard) on reducing manipulation in creative cost accounting. The above 37 questions were distributed as follow; 10 items for general standard, 8 items for fieldwork standard, 9 items for reporting standard, and 10 items for cost creative accounting. The researchers applied reliability analysis to find out the reliability for each factor, the findings revealed as follow: as for general standard was found the Alpha to be .739 for 10 questions which indicated that all 10 questions

used to measure general standard were reliable for the current study, as for fieldwork standard was found the Alpha to be .766 for 8 questions which indicated that all 8 questions used to measure fieldwork standard were reliable for the current study, as for reporting standard was found the Alpha to be .791 for 9 questions which indicated that all 8 questions used to measure reporting standard were reliable for the current study, and as for cost creative accounting was found the Alpha to be .772 for 10 questions which indicated that all 8 questions used to measure cost creative accounting were reliable for the current study.

Table 2: Correlation Analysis

| Correlations | | | | | |
|--|---------------------|---------|-----------|-----------|--------------------------|
| | | General | Fieldwork | Reporting | Creative cost accounting |
| General standard | Pearson Correlation | 1 | | | |
| | Sig. (2-tailed) | | | | |
| | N | 117 | | | |
| Fieldwork standard | Pearson Correlation | .551** | 1 | | |
| | Sig. (2-tailed) | .002 | | | |
| | N | 117 | 117 | | |
| Reporting standard | Pearson Correlation | .549** | .559** | 1 | |
| | Sig. (2-tailed) | .000 | .000 | | |
| | N | 117 | 117 | 117 | |
| Creative cost accounting | Pearson Correlation | .692** | .703** | .671** | 1 |
| | Sig. (2-tailed) | .000 | .001 | .000 | |
| | N | 117 | 117 | 117 | 117 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | | |

As it can be seen in table (2), the correlation analysis between external auditing (general standard, fieldwork standard, and reporting standard) and creative cost accounting. The finding revealed that the value of Pearson correlation ($r = .692^{**}$, $p < 0.01$), between general standard and creative cost accounting this indicated that there is positive and strong correlation between general standard and creative cost accounting, the value of Pearson

correlation ($r = .703^{**}$, $p < 0.01$), between fieldwork standard and creative cost accounting this indicated that there is positive and strong correlation between fieldwork standard and creative cost accounting, and the value of Pearson correlation ($r = .671^{**}$, $p < 0.01$), between reporting standard and creative cost accounting this indicated that there is positive and strong correlation between reporting standard and creative cost accounting.

Table 2. Multiple Regression Analysis

| Models | Fixed Effects Model | | | |
|------------------------------------|---------------------|-------------|---------|---------|
| | | | | |
| | | Coefficient | T-ratio | P-value |
| | | | | |
| Model 1 (H1) General Standard | Const | 7.211 | 1.332 | .0002 |
| | Beta | 6.92 | | .001 |
| | Size | | .7252 | .003 |
| | Adj R ² | | .711 | |
| | F-Value | | 19.585 | |
| | Durbin-Watson | | 1.3959 | |
| | | | | |
| Model 2 (H2) Fieldwork Standard | Const | 3.881 | 1.022 | .0004 |
| | Beta | .622 | | .0002 |
| | Size | | .3912 | .000 |
| | Adj R ² | | .671 | |
| | F-Value | | 16.552 | |
| | Durbin-Watson | | 2.114 | |
| | | | | |
| Model 3 (H3) Reporting Standard | Const | 4.552 | 1.114 | .0002 |
| | Beta | .721 | | .0001 |
| | Size | | .6331 | .0002 |
| | Adj R ² | | .736 | |
| | F-Value | | 12.522 | |
| | Durbin-Watson | | 1.022 | |

* significant at 0.10, ** significant at 0.05 and *** significant at 0.01 level.

The results show that general standard has significant positive influence on creative cost accounting at 5% level. The results show that fieldwork standard has significant positive influence on creative cost accounting at 5% level. The results show that reporting standard has significant positive influence on creative cost accounting at 5% level. Moreover, all beta value is higher than .001. All models

have very high adjusted R² (.711, .671, .736, .644, and .723 respectively) indicating the ability of the models explaining the variation of creative cost accounting due to variation of independent variables is very high. The F-value shows that the explanatory variables are jointly statistically significant in the model and the Durbin-Watson (DW) statistics reveals that there is autocorrelation in the models.

V. CONCLUSION

The extra scrutiny on the use of external auditing as a measure for financial regulation has drawn significant attention of late. A gap has emerged among academics and policymakers that operate in both developed and emerging economies, who are concerned with boosting the efficacy of their governance mechanisms. This paper discusses continuous audit, shows how it has evolved, and describes the current state of the art. It also compares ongoing audit to traditional audit. The most significant change with regards to the conceptualization of audit is that the audit process has now become part of a different body called the Comprehensive Change and Assurance Program. Together with other forms of assurance, the new framework will enable third-party attestation and offer guidance on monitoring transactions, processes, and controls in the future. Auditing regulation has helped spur the development of CCAP while at the same time limiting the effectiveness of that method. Although these environmental constraints present a possibility for the species' expansion in other countries and settings, it appears to be in decline in its native range. While the impact of CCAP is yet nascent in Brazil, it shows considerable promise for the growth of CCAP. To be honest, it is fair to say that CCAP has far more to do with business practices than with anything related to technological advancements or methodology improvements. Though little progress has been made to date, there is a lot of potential to radically transform the way auditing is carried out as well as the function of the auditor in the operation of the firm and the relationship of the auditor with the firm. A radical alteration in the existing regulations and the legal framework governing auditing would entail sweeping changes in both the regulatory and judicial environments. Audit confidence level is connected to the ability of auditors and external audit firms to adhere to quality control criteria.

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Global financial markets: Factors influencing the global financial markets

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Received: 12 May 2021; Received in revised form: 11 Jun 2021; Accepted: 16 Jun 2021; Available online: 23 Jun 2021

Abstract— *The worldwide recession began in earnest with a series of acute financial crises in key developed nations that occurred simultaneously with the freezing of financial markets around the world and the steep decline in global trade. The current research focused on assessing the impact of (Global economy, Business growth and development, and Inflation) on global financial markets. The present thesis was analyzed using a questionnaire. Sample design is the technique or process that the researcher is able to accept in selecting objects for the survey is referred to as sample design. The research sample was chosen using a random sampling method and carried out in various businesses located in Kurdistan region of Iraq. A total of 280 questionnaires were issued, but only 228 participants completed them correctly. In order to examine the aspect of factors (Global economy, Business development and growth, and Inflation) to measure the influence on sustained competitive advantage in small and medium businesses in Kurdistan region of Iraq. Participants were asked to rate the value of each object on a five-point scale ranging from unimportant to highly important. The findings revealed that the implications of the first hypothesis: Global economy strongly predicts global financial markets (Beta is weight 0.801, p.001), implying that Global economy would have a clear beneficial relationship with global financial markets based on these findings, the implications of the second hypothesis: Business development and growth strongly predicts global financial markets (Beta is weight 0.719, p.001), implying that business development and growth would have a clear beneficial relationship with global financial markets based on these findings, and finally the implications of the third hypothesis: inflation strongly predicts global financial markets (Beta is weight 0.689, p.001), implying that Inflation would have a clear beneficial relationship with global financial markets based on these findings.*

Keywords— *Global Financial Markets, Inflation, Business Development and Growth, Global economy.*

I. INTRODUCTION

The current monetary system is full of perverse incentives that cause key personnel in virtually all important financial institutions including commercial and investment banks, hedge and private equity funds, insurance companies (Gulzar, et al. 2019), and mutual and pension funds to take unnecessary risk when the financial markets are doing well. The worldwide recession began in earnest with a series of acute financial crises in key developed nations that occurred simultaneously with the freezing of financial markets around the world and the steep decline in global trade. In the years that have followed, the global economy has witnessed dramatic examples of emerging market country capital flows' (Zhang, et al. 2020). So complicated that they are intrinsically opaque, modern financial goods have evolved to the point where such complicated goods have several deficiencies and are unfit for all but the wealthiest of investors. It is not possible to properly price, it is not offered on marketplaces, and it is not liquid. Riotously across numerous asset classes and financial markets, this phenomenon quickly proliferated (Elsayed, et al. 2020). There were numerous subprime mortgage delinquencies in the years leading up to the financial crisis due to rising interest rates and declining house prices (Long, et al. 2021). This created uncertainty regarding the value of various structured credit products which had these securities as a portion of their underlying portfolios. The end result was that hedge funds that held asset-backed securities and other structured products were forced to set aside additional capital, since market volatility caused increasing margin requirements (Popkova & Parakhina, 2018). There was a brief period during which financial spillovers to other nations transformed into problems in the real sector, wherein economies whose economic growth is largely dependent on diminishing demand and available trade financing saw their domestic industrial production and GDP growth plummet (Gardi, 2021). A wide range of international issues is raised by SWFs (Tskhadadze & Chernorizova, 2018), which are becoming increasingly important. While governments may be fearful of exposing their country to outside influences, such investments may be held back by the political and economic ramifications as well. It's apparent that the pandemic has had severe economic repercussions. Over the short term, many countries' economic operations are severely restricted by stringent quarantine rules being adopted by several countries. It's possible that long-term economic impacts from this pandemic will result through widespread unemployment and business failures. In other areas, such as tourism and aviation, it is obvious that difficulties are ahead. The financial markets of the world are interconnected. They play a crucial role in global integration (Sehgal, et al. 2019);

in some senses, they are more centrally involved than actual trade in real goods (Ismael, et al. 2021). This ties up with the interconnectedness of the financial markets; occurrences in one market can have a direct impact on another in the space of seconds. The stance that global investors have toward a country's debt. With respect to monetary policy, it's the responsibility of the country's central bank to make all of the final decisions (Dias, et al. 2019). Also, it's more important for the countries near the financial centre to follow national guidelines rather than the region's (Gardi, 2021). The underdeveloped, but useful, qualities of naive inflation targeting monetary rules only come into play when the monetary policy responds to external disturbances while the market is still distorted. However, it does not entail that any self-oriented monetary policy is ineffectual (Sorguli, et al. 2021). Alternatively, if this reduction was determined solely by the favorable market conditions in global capital markets, swift and unexpected changes in these conditions such as an abrupt increase in international investors' risk aversion – could put the supposedly more creditworthy entity at significant risk (Saleh et al. 2021). Many studies have found that financial crises are almost often followed by currency exchange in other countries, and financial markets are typically more closely tied together at these times. But even though the crisis has appeared in varied forms, it has been able to touch the value systems of most countries around the world (Sorguli, et al. 2020). In the same time frame, because of the explosive growth of derivative financial markets and the increase in telecommunications and electronic trading, there was a considerable deregulation of financial markets. While it is possible for nations to hold strong influence in international bodies based solely on economic weight, it is more dependable for a nation to have an effective research and policy analysis system at the government, think tank, academic, and industrial levels. The use of the network method means that Asians should develop financial markets on a modular basis (Damit, et al. 2019), ensuring that the failure of one module would not prevent the system from functioning (Sabir, et al. 2021). The underlying issue of all financial crises is the breakdown of markets and governance. This global financial crisis is just another example of how things can go wrong (Hamza, et al. 2021). Famous example: For emerging markets, where government regulation often influences financial markets and often results in governmental ownership, the crisis could be traced to governance blunders by the corporation. The global financial crisis intensified, and this contributed to a situation in which more financial institutions in different parts of the world failed, along with worsening economic conditions worldwide (Hameed & Anwar, 2018). That is why some governments moved to be more active in

the market to help rescue their banks and other sectors of their economies. The number of research attempting to figure out the reasons of the subprime mortgage credit difficulties and the subsequent financial instability that precipitated the most recent global financial crisis is significant. However, as a result of the lack of an integrated global framework, there are many times when national regulatory regulations are challenged by market participants who seek to get around them through new financial developments. (Gardi, 2021)

II. LITERATURE REVIEW

Global financial markets

It has been noted that global financial markets are governed by the top economies because they are in possession of a great amount of resources that can be utilized for financing other country's projects and endeavors. These prominent countries realize the strength of their leverage by having these massive economic systems and they've used them to exert political influence on other countries on numerous occasions (Abdullah, et al. 2017).

Global economy

The global economy or the world economy is the economy of all humans throughout the world, and this is the global economic system, which includes all economic activities which are conducted both within and between nations, including production, consumption, economic management, work in general, exchange of financial values, and the exchange of goods and services. The growth of global capitalism notably in the post-war era, during which it expanded beyond international borders with little limitations imposed by national governments. There is now fierce debate regarding the global economy. Critics have said that, according to them, the economic theory of free markets (Abdullah & Anwar, 2021), the advantages of free trade, and the proliferation of free trade zones have resulted in the loss of well-paid jobs in rich countries while producing sweatshops in poor countries. It is a common claim among supporters of the free movement of money that it helps promote investment in underdeveloped nations and create jobs in them. To maintain a balanced economy, every nation has to work together, and the nations are in a cooperative relationship. To put it simply, it is one gigantic entity. While globalization has contributed to the growth of commerce and industry, it has also created the trade and industry worldwide. This other way of saying that countries' economies are interwoven might be stated as follows (Ali, et al. 2021): "The way in which countries' economies have developed to operate as one system." When we look at the whole economy, it is all the economies of the world which we are considering together as one economic system. To sum it up, it is one enormous entity (Aziz, et al. 2021).

Another way to say it is that globalization has contributed to the emergence of a worldwide trading and industrial system. When it is put that way, it can be seen that countries' economies have developed to operate as one system. The global economy is the trade of goods and services that are linked into a single worldwide market. To simplify things, this may be defined as "It is almost a world where nations do not exist. Instead, the inhabitants and organizations in this geographic globe are there to perform research and development and perform sales (Hamza, et al. 2021).

Research Hypothesis (1): Global economy will have a significant influence on global financial markets.

Business growth and development

Business development is about the duties and processes of identifying, developing, and implementing growth prospects both within and across firms. Business, trade, and organizational theory are only one part of a larger range of topics of study called business studies. The improvement of an enterprise's success level is referred to as a process (Anwar & Climis, 2017). The only way for businesses to increase revenue and/or grow is to increase the top line and/or the revenue of the business. This can be done by growing the revenue of the business by increasing sales or selling more products, or by increasing the bottom line and/or profitability of the operation by decreasing costs. No doubt about it: The most critical techniques to use in your company for both short- and long-term growth are to apply for new business (Anwar & Qadir, 2017), as well as cultivate existing clients. This post is a part of a series that shows how having a firm grasp of different development and business growth techniques boosts corporate competitiveness. Corporation development, or creating value for an organization or business, can be described in its most basic form as an activity in which two or more parties are involved. This includes coming up with fresh ideas, suggestions for projects, and activities aimed at increasing profits. Rather than focusing on only the financial return, the purpose of business development is to help companies and customers in making informed business decisions that raise the value of their respective enterprises and customers. Business growth develops naturally in a constant cycle of adaptation and development as long as there are suitable conditions. This shows that companies can increase in some measurements, but not others. For instance, if profits from existing clients buying more causes revenue to expand (Anwar, 2017), it will do so even if the number of customers doesn't change. Not only can one metric go up while another goes down, but it is even conceivable for a measure to expand while another one declines; in this case, sales growth will result in a fall in product price, causing a business's overall revenue to decrease. All businesses,

regardless of their scale-up strategy, need to rely on business growth financing. Finding the correct business growth capital for your firm involves skill and industry knowledge (Ali, et al. 2021). There is no such thing as a cookie-cutter approach, as each firm is different. You must make correct choices in order for growth to proceed. An ill-advised choice will almost certainly lead to trouble. A better option is to create your structure from the ground up to minimise risk rather than fit your capital demand to an existing structure. business growth is mostly dependent on available resources, and generally necessitates a substantial up-front investment. Investing is always a good idea, whether it's acquiring a business or making an investment. In order to avoid excessive losses, one should be conservative when estimating future returns (Carlsson-Szlezak, et al. 2020).

Research Hypothesis (2): Business growth and development will have a significant influence on global financial markets.

Inflation

In accounting, general level of prices rise in the general price level of an economy over a period of time. When the general price level rises, each unit of currency will purchase fewer products and services. Inflation is a long-term increase in the general price level of an economy over a period of time. When the general price level rises, each unit of currency can buy fewer products and services; as a result, inflation indicates a decrease in the purchasing power of each unit of money - a loss of real value in the medium of exchange and unit of account within the economy (Anwar & Climis, 2017). Contrary to inflation, which is a rise in the overall price level of goods and services, deflation is a continuous fall in the price level (Anwar & Qadir, 2017). For the most part, the inflation rate is measured as an annualized percentage change in a general price index, such as the consumer price index, and is sometimes referred to as inflation. As unpleasant as it can be to think about the value of your cash losing purchasing power, economists see a modest amount of inflation as a sign of a healthy economy (Ahmed, et al. 2021). A moderate inflation rate encourages you to spend or invest your money today, rather with the benefits of having the money spent or invested and the associated joys and benefits of it. Inflation is an increase in the costs of all goods and services that most people purchase

on a daily or regular basis, such as food, clothing, housing, recreation, transportation, and personal care products. Inflation tracks the average price change in a group of items, both those in stock and those that enter the market, through time (Abdullah, et al. 2017).

Research Hypothesis (3): Inflation will have a significant influence on global financial markets.

III. METHOD

In order to interpret the present analysis, a quantitative approach was used. The current research focused on assessing the impact of factors (Global economy, Business development and growth, and Inflation) to measure the influence on sustained competitive advantage in small and medium businesses in Kurdistan region of Iraq. The present thesis was analyzed using a questionnaire. Sample design is the technique or process that the researcher is able to accept in selecting objects for the survey is referred to as sample design. The research sample was chosen using a random sampling method and carried out in various locations in Kurdistan region of Iraq. A total of 280 questionnaires were issued, but only 228 participants completed them correctly. In order to examine the aspect of factors (Global economy, Business development and growth, and Inflation) to measure the influence on sustained competitive advantage in small and medium businesses in Kurdistan region of Iraq. Participants were asked to rate the value of each object on a five-point scale ranging from unimportant to highly important.

Findings

The current research focused on assessing the impact of factors (Global economy, Business development and growth, and Inflation) to measure the influence on sustained competitive advantage in small and medium businesses in Kurdistan region of Iraq. In order to measure factors as Intangible resources for global financial markets, the researchers set three independent variables, these variables are (Global economy, Business development and growth, and Inflation) on the other hand global financial markets. The researchers applied simple regression analysis to measure the influence of each independent variable separately on global financial markets as small and medium enterprises in Kurdistan region of Iraq.

Table.1: KMO and Bartlett Sphericity Test of Self-rating Items

| No | Factors | N of items | Sample | KMO | Bartlett test | |
|----|---------------------------------|------------|--------|-----|---------------|------|
| | | | | | Chi-Square | Sig |
| 1 | Global economy | 12 | 228 | | 5127.2 | .000 |
| 2 | Business development and growth | 10 | 228 | | | |

| | | | | | | |
|---|--------------------------|----|-----|------|--|--|
| 3 | Inflation | 11 | 228 | .899 | | |
| 4 | Global financial markets | 11 | 228 | | | |

As we can see in table (1), the outcome of KMO is .899 which is higher than .001 this indicates that the sample size used for the current study was more than adequate. Furthermore, the result of Chi-Square is 5127.2 with the significant level .000.

Table 2: Factor Analysis

| No | Components | N of Items | N | Eigenvalue | Rotation Sums of Squared Loadings | |
|----|---------------------------------|------------|-----|------------|-----------------------------------|------------|
| | | | | | % of Variance | Cumulative |
| 1 | Global economy | 12 | 228 | 3.211 | 21.157 | 19.784 |
| 2 | Business development and growth | 10 | 228 | 4.025 | 20.521 | 32.521 |
| 3 | Inflation | 11 | 228 | 1.258 | 12.528 | 39.632 |
| 4 | Global financial markets | 11 | 228 | 2.74 | 12.251 | 41.012 |

Table (2) demonstrates three independent variables (Global economy, Business development and growth, and Inflation) and a dependent variable (Global financial markets). As for Global economy as first factor, which had twelve item explained 21.157% of the total variance. As for Business development and growth as second factor,

which had ten items explained 20.521% of the total variance. As for Inflation as third factor, which had eleven items explained 12.528% of the total variance. And finally, as for Global financial markets as dependent variable, which had eleven items explained 12.251% of the total variance.

Table 3: Reliability analysis

| Reliability Statistics | | |
|---------------------------------|------------------|------------|
| Factor | Cronbach's Alpha | N of Items |
| Global economy | .798 | 12 |
| Business development and growth | .732 | 10 |
| Inflation | .749 | 11 |
| Global financial markets | .803 | 11 |

As seen in table (3), the reliability analysis for 44 items used to measure the influence factors (Global economy, Business development and growth, and Inflation) to measure the influence on sustained competitive advantage in small and medium businesses in Kurdistan region of Iraq. The above 44 questions were distributed as follow; 12 items for Global economy, 10 items for Business development and growth, 11 items for Global economy, and 11 items for Global financial markets. The researchers applied reliability analysis to find out the reliability for each factors, the findings revealed as follow: as for Global economy was found the Alpha to be .798 for 12 questions which indicated that all 12 questions used to measure Global economy were

reliable for the current study, as for Business development and growth was found the Alpha to be .732 for 10 questions which indicated that all 10 questions used to measure Business development and growth were reliable for the current study, as for Global economy was found the Alpha to be .749 for 11 questions which indicated that all 11 questions used to measure Global economy were reliable for the current study, and finally as for Global financial markets as dependent variable was found the Alpha to be .803 for 11 questions which indicated that all 11 questions used to measure Global financial markets as dependent variable were reliable for the current study.

First Research Hypothesis

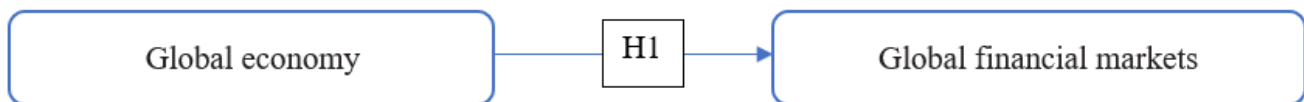


Table 4: Correlation analysis between Global economy and global financial markets

| Correlations | | | |
|--|---------------------|--------------------------|----------------|
| Variables | Pearson Correlation | Global financial markets | Global economy |
| Global financial markets | Pearson Correlation | 1 | .776** |
| | Sig. (2-tailed) | | .000 |
| | N | 228 | 228 |
| Global economy | Pearson Correlation | .776** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 228 | 228 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

As it can be seen in table (4), the correlation analysis between global economy as a intangible resource to measure its influence on global financial markets in small and medium businesses in Kurdistan region of Iraq. The finding revealed that the value of Pearson correlation ($r = .776^{**}$, $p < 0.01$), this indicated that there is positive and strong correlation between global economy and global financial markets.

Table 5-Model Summary of Global economy

| Model Summary | | | | |
|---|-------------------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .768 ^a | .721 | .711 | .20711 |
| a. Predictors: (Constant), Global economy | | | | |

Regression analysis is the study of interactions between variables. $Y = f(x_1, x_2, \dots, x_c)$ The aim of regression analysis is to determine how Y can affect and alter X. The Global economy approach is treated as an independent variable in this section, while global financial markets is treated as a dependant variable. The volatility of a comparative advantage will be used to calculate its total difference. The variations are determined by calculating the sum of the squares of the expected competitive advantage values by the

overall mean divided by the number of participants. After dividing the variance by the overall variance of comparative benefit, the researcher discovered the sum or percentage of total differences or variances that are compensated for using regression analysis. The number can range from 0 to 1 and is defined by R Square. The value of R square = .721 as seen in Table (5), indicating that 77 percent of total variation has been clarified.

Table 6-ANOVA of Global economy

| ANOVA | | | | | |
|---|------------|----------------|-----|-------------|-------------------|
| Model | | Sum of Squares | df | Mean Square | Sig. |
| 1 | Regression | 144.682 | 1 | 143.239 | .000 ^b |
| | Residual | 44.3825 | 785 | .045 | |
| | Total | 189.0645 | 786 | | |
| a. Dependent Variable: Global financial markets | | | | | |

b. Predictors: (Constant), Global economy

Table (6) shows that the F value for Global economy as an independent variable =223.228, indicating that there is a significant relationship between Global economy and global financial markets ($223.228 > 1$).

Table 7-Coefficients Analysis Global economy and global financial markets

| Coefficients | | | | | | |
|---|----------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .297 | .051 | | 3.521 | .000 |
| | Global economy | .791 | .017 | .801 | 52.125 | .000 |
| a. Dependent Variable: Global financial markets | | | | | | |

Table (7) shows the implications of the first hypothesis: Global economy strongly predicts global financial markets (Beta is weight 0.801, $p < .001$), implying that Global economy would have a clear beneficial relationship with global financial markets based on these findings.

Second Research Hypothesis

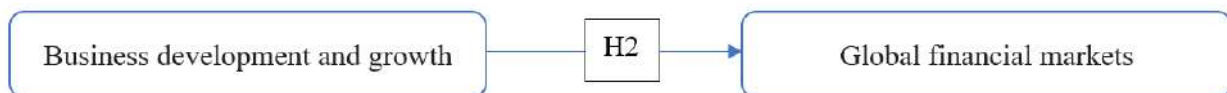


Table 8: Correlation analysis between Business development and growth and global financial markets

| Correlations | | | |
|--|---------------------|--------------------------|---------------------------------|
| Variables | Pearson Correlation | Global financial markets | Business development and growth |
| Global financial markets | Pearson Correlation | 1 | .698** |
| | Sig. (2-tailed) | | .000 |
| | N | 228 | 228 |
| Business development and growth | Pearson Correlation | .698** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 228 | 228 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

As it can be seen in table (8), the correlation analysis between business development and growth as a intangible resource to measure its influence on global financial markets in small and medium businesses in Kurdistan

region of Iraq. The finding revealed that the value of Pearson correlation ($r = .698^{**}$, $p < 0.01$), this indicated that there is positive and strong correlation between business development and growth and global financial markets.

Table 9-Model Summary of Business development and growth

| Model Summary | | | | |
|--|------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .671 | .632 | .618 | .18625 |
| a. Predictors: (Constant), Business development and growth | | | | |

Regression analysis is the study of interactions between variables. $Y=f(x_1, x_2, \dots, x_c)$ The aim of regression analysis is to determine how Y can affect and alter X. The business development and growth approach is treated as an independent variable in this section, while global financial markets is treated as a dependent variable. The volatility of a comparative advantage will be used to calculate its total difference. The variations are determined by calculating the sum of the squares of the expected competitive advantage

values by the overall mean divided by the number of participants. After dividing the variance by the overall variance of comparative benefit, the researcher discovered the sum or percentage of total differences or variances that are compensated for using regression analysis. The number can range from 0 to 1 and is defined by R Square. The value of R square = .632 as seen in Table (9), indicating that 66 percent of total variation has been clarified.

Table 9-ANOVA of Business development and growth

| ANOVA | | | | | | |
|--|------------|----------------|-----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 131.078 | 1 | 129.649 | 293.198 | .000 ^b |
| | Residual | 38.219 | 469 | .038 | | |
| | Total | 169.297 | 470 | | | |
| a. Dependent Variable: Global financial markets | | | | | | |
| b. Predictors: (Constant), Business development and growth | | | | | | |

Table (10) shows that the F value for business development and growth as an independent variable =293.198, indicating that there is a significant relationship between business development and growth and global financial markets ($293.198 > 1$).

Table 11-Coefficients Analysis Business development and growth and global financial markets

| Coefficients | | | | | | |
|---|---------------------------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .331 | .049 | | 5.129 | .000 |
| | Business development and growth | .703 | .028 | .719 | 51.638 | .000 |
| a. Dependent Variable: Global financial markets | | | | | | |

Table (11) shows the implications of the second hypothesis: Business development and growth strongly predicts global financial markets (Beta is weight 0.719, $p.001$), implying that business development and growth would have a clear beneficial relationship with global financial markets based on these findings.

Third Research Hypothesis

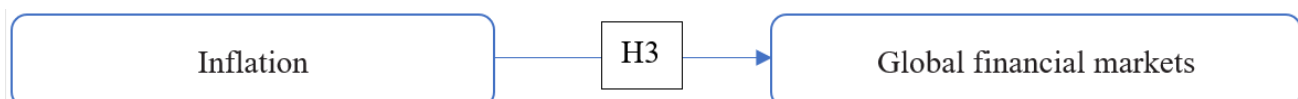


Table 12: Correlation analysis between Inflation and global financial markets

| Correlations | | | |
|--|---------------------|--------------------------|-----------|
| Variables | Pearson Correlation | Global financial markets | Inflation |
| Global financial markets | Pearson Correlation | 1 | .747** |
| | Sig. (2-tailed) | | .000 |
| | N | 228 | 228 |
| Inflation | Pearson Correlation | .747** | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 228 | 228 |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | |

As it can be seen in table (12), the correlation analysis between inflation as a intangible resource to measure its influence on global financial markets in small and medium businesses in Kurdistan region of Iraq. The finding revealed

that the value of Pearson correlation ($r = .747^{**}$, $p < 0.01$), this indicated that there is positive and strong correlation between inflation and global financial markets.

Table 13-Model Summary of Business development and growth

| Model Summary | | | | |
|--------------------------------------|------|----------|-------------------|----------------------------|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
| 1 | .751 | .698 | .618 | .20154 |
| a. Predictors: (Constant), Inflation | | | | |

Regression analysis is the study of interactions between variables. $Y = f(x_1, x_2, \dots, x_c)$ The aim of regression analysis is to determine how Y can affect and alter X. The inflation approach is treated as an independent variable in this section, while global financial markets is treated as a dependent variable. The volatility of a comparative advantage will be used to calculate its total difference. The variations are determined by calculating the sum of the squares of the expected competitive advantage values by the

overall mean divided by the number of participants. After dividing the variance by the overall variance of comparative benefit, the researcher discovered the sum or percentage of total differences or variances that are compensated for using regression analysis. The number can range from 0 to 1 and is defined by R Square. The value of R square = .698 as seen in Table (13), indicating that 69 percent of total variation has been clarified.

Table 14-ANOVA of Inflation

| ANOVA | | | | | | |
|---|------------|----------------|-----|-------------|---------|-------------------|
| Model | | Sum of Squares | df | Mean Square | F | Sig. |
| 1 | Regression | 118.211 | 1 | 112.001 | 118.206 | .000 ^b |
| | Residual | 21.682 | 722 | .033 | | |
| | Total | 139.893 | 723 | | | |
| a. Dependent Variable: Global financial markets | | | | | | |
| b. Predictors: (Constant), Inflation | | | | | | |

Table (14) shows that the F value for inflation as an independent variable = 118.206, indicating that there is a significant relationship between inflation and global financial markets ($118.206 > 1$).

Table 15-Coefficients Analysis Inflation and global financial markets

| Coefficients | | | | | | |
|---|------------|-----------------------------|------------|---------------------------|--------|------|
| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .212 | .029 | | 3.541 | .000 |
| | Inflation | .671 | .018 | .689 | 32.784 | .000 |
| a. Dependent Variable: Global financial markets | | | | | | |

Table (15) shows the implications of the third hypothesis: inflation strongly predicts global financial markets (Beta is weight 0.689, p.001), implying that Inflation would have a clear beneficial relationship with global financial markets based on these findings.

IV. CONCLUSION

The world economy, also known as the world economic activity, is the economy of all humans worldwide, and it is the global economic system, which includes all economic activities conducted both within and between nations, such as production, consumption, economic management, work in general, the exchange of financial values, and the exchange of goods and services. The expansion of global capitalism, particularly in the postwar period, when it spread across international borders with little constraints imposed by national governments. The global economy is currently the subject of heated debate. According to critics, free market economic theory, the benefits of free trade, and the spread of free trade zones have resulted in the loss of well-paid jobs in rich countries while producing sweatshops in impoverished countries. It is a popular assertion made by proponents of free money movement that it encourages investment and job creation in developing countries. Every nation must collaborate to maintain a balanced economy, and the nations are in a cooperative relationship. To put it simply, it is a massive entity. While globalization has aided the growth of commerce and industry, it has also produced new trade and industry on a global scale. Another way to explain that countries' economies are intertwined is: "the method in which countries' economies have developed to work as one system." When we look at the global economy, we are seeing all of the world's economies as a single economic system. To summarize, it is a massive entity. Another way to put it is that globalization has aided in the development of a global commerce and industrial system. When presented this way, it is clear that countries' economies have evolved to function as a single system. The global economy is the exchange of commodities and services on a single global market. To put it simply, "it is nearly a world where states do not exist." Instead, the residents and enterprises in this geographical world are there to conduct research and development as well as sales.

It has been observed that the top economies rule global financial markets since they have a large quantity of resources that can be used to fund other countries' projects and undertakings. These powerful countries recognize the power of their huge economic systems and have utilized them to exert political influence on other countries on multiple occasions. Business development entails the tasks and processes of discovering, developing, and executing growth opportunities both within and across organizations. Business, commerce, and organizational theory are simply a subset of the greater field of study known as business studies. A process is the improvement of an enterprise's success level. The only way for a business to increase revenue and/or grow is to improve its top line and/or revenue. This can be accomplished by increasing the business's revenue by increasing sales or selling more products, or by boosting the operation's bottom line and/or profitability by cutting costs. There is no doubt about it: Applying for new business and cultivating existing clients are the two most important tactics to use in your company for both short- and long-term success. This post is part of a series that demonstrates how understanding various development and business growth approaches improves corporate competitiveness. In its most basic form, corporation development, or creating value for an organization or business, can be defined as an activity involving two or more partners. This includes coming up with new ideas, project suggestions, and profit-boosting activities. Instead of focusing solely on financial returns, the goal of business development is to assist organizations and consumers in making informed business decisions that increase the value of their respective enterprises and customers. As long as the conditions are favorable, business growth occurs naturally in a continuous cycle of adaptation and development. This demonstrates that businesses can improve in certain areas but not others. For example, if profits from existing customers purchasing more cause

revenue to grow, revenue will grow even if the number of consumers does not change. Not only can one metric rise while another falls, but it is also possible for one metric to rise while another falls; in this scenario, sales increase will result in a drop in product price, causing a company's overall revenue to fall. Regardless of their scale-up approach, all businesses require business expansion financing. Finding the right business expansion finance for your company necessitates talent and industry knowledge. There is no such thing as a cookie-cutter strategy because each company is unique. In order for progress to occur, you must make the right decisions. An ill-advised decision will almost likely result in trouble. To reduce risk, it is preferable to design your structure from the bottom up rather than adapting your capital demand to an existing structure. Business growth is mostly determined by available resources and, in most cases, needs a significant initial investment. Whether it's acquiring a business or making an investment, investing is always a good decision. To minimize excessive losses, future returns should be estimated conservatively. In accounting, the general level of prices rises in an economy's general price level over time. When the general price level rises, each unit of money buys less goods and services. Inflation is a long-term increase in an economy's overall price level over time. When the general price level rises, each unit of currency can buy fewer goods and services; hence, inflation signifies a drop in the purchasing power of each unit of money - a loss of real value in the economy's medium of exchange and unit of account. In contrast to inflation, which is defined as an increase in the overall price level of goods and services, deflation is defined as a continuous decrease in the price level. The inflation rate is typically assessed as an annualized percentage change in a general price index, such as the consumer price index, and is sometimes referred to as inflation. As uncomfortable as it is to consider your money's purchasing power eroding, economists perceive a small amount of inflation as a sign of a healthy economy. A modest inflation rate encourages you to spend or invest your money now, rather than later, because of the rewards of having the money spent or invested, as well as the accompanying joys and benefits. Inflation is defined as an increase in the prices of all goods and services that the majority of people buy on a daily or regular basis, such as food, clothing, housing, recreation, transportation, and personal care products. Inflation measures the average price change over time of a collection of items, both those in stock and those that enter the market. The findings revealed that the implications of the first hypothesis: Global economy strongly predicts global financial markets (Beta is weight 0.801, p.001), implying that Global economy would have a clear beneficial relationship with global financial markets

based on these findings, the implications of the second hypothesis: Business development and growth strongly predicts global financial markets (Beta is weight 0.719, p.001), implying that business development and growth would have a clear beneficial relationship with global financial markets based on these findings, and finally the implications of the third hypothesis: inflation strongly predicts global financial markets (Beta is weight 0.689, p.001), implying that Inflation would have a clear beneficial relationship with global financial markets based on these findings.

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The Impact of Oil Price on Economic Development of Kurdistan Region of Iraq for Time Period (1997–2019)

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Received: 03 May 2021; Received in revised form: 06 Jun 2021; Accepted: 12 Jun 2021; Available online: 23 Jun 2021

Abstract— Kurdistan region of Iraq signifies a great case study to investigate the impact of oil price, for the reason that most of its producing reliance on exporting crude oil KRG is one of the main oil exporting regions. Usually, the national revenue relies on crude oil revenue in KRG comprises a great percentage of Kurdistan region of Iraqi government's budget and also KRG's economy can be impact by would economic during economic difficulties. Consequently, growing oil crude oil price can influence on economic development in Kurdistan region of Iraq. Therefore, it is important to utilize other resource instead of oil income as a different approach to increase region's income. The key objective of this article is to investigate the impacts of oil price and oil production value on economic development. Annual growth rate, compound growth rate and correlation coefficient can be utilized to estimate of the data. The findings revealed that an economic development is one of the most significant sources of economic transformation since it reproduces the society's capability to rise productive volume and ideal investment and likewise sustainability obligation comprises an expanded economy on the face of shocks, dynamically implements technology and head accumulation human money, competitively can increase comparative advantages compared to the other. Consequently, it operates within steady, balanced economic strategies and economic growth and there was positively statistically significance between oil price and GDP, oil production value and GDP.

Keywords— Oil Price, Economic Development, Oil Demand, Oil Supply, KRG.

I. INTRODUCTION

The expanding of the unrefined petroleum cost as of late was truly taken in consider. Anyway oil was viewed as an auxiliary source, it turned into a critical asset in the social orders later. In the most recent decade, the Middle east nations are shakiness in monetary turn of events, nonetheless, of late, nations understood the expanding the oil items and boosting of its cost improved the oil nation makers. Afterward, the vast majority of the Middle east nations experienced the falling of oil cost and financial development including Kurdistan locale of Iraq Kurdistan area of Iraq has been considered as one of those nations that has instable relations with monetary development and financial turn of events. In spite of these, it had an adequate financial development in the previous decades (Mo, et al 2019). The essentialness of this article is uncovering the effect of raw petroleum cost on financial development and

social occasion information was utilized to look at that sway Kurdistan area of Iraq as a rule is the spot of viable aspect of the exploration. It consolidated these stray pieces, predefining oil cost and parceling oil objections and stacking and exhausting oil barrels. At the end of the WWII and in the wake of disintegrating of European economy, these associations expected command over some wide smooth zone in the Middle East. There were some valuable inspirations to make this basic for them including the closeness of the zone to Europe and oil exhausting. Seven controlling framework associations were built up; five of the American and the other two were British and Dutch. They were known as the seven sisters and they devoured the oil market and predefined the expense of oil as they required (Nyangarika, et al 2019). The oil cost has created since the business disclosure of the oil market It was toward the start of disclosure that was resolved at the oil wells. Under a

"syndication of a couple," the oil market won. It was then decided in the ports where the oil business was found and extended in numerous nations. This is because of the imposing business model of a couple of oil market organizations that tried to augment their benefits, and afterward form into a serious value subject to request and flexibly factors. This is the section of a few oil creating nations to the oil market (Chen, et al 2020). The idea of monetary development contrasts as indicated by the various scholars and the masters and the circumstances experienced by the nations or people groups. More consideration was paid to the financial development of the industrialized nations, which rose with the mechanical unrest in Europe. Monetary development implies the unconstrained financial extension, which doesn't need change in the monetary structure of the general public and it is estimated by monetary units, for example, public salary, however after the finish of World War II, the world was isolated into created and in reverse nations (Gazdar, et al 2019).

II. STATEMENT OF THE PROBLEM

Kurdistan area of Iraq is one of the significant oil trading nations. By and large, the public pay relies upon unrefined petroleum. Oil income in Kurdistan region of Iraq covers an extraordinary percent of Kurdistan area of Iraqi government's economic plan. Accordingly, Kurdistan district of Iraqi economy could be impact by would monetary during economic issues. In this manner, expanding oil raw petroleum cost can impact on economic development in Kurdistan region of Iraq. So it is vital to utilize other asset rather than oil income as another methodology to increase public income. Past monetary scientists don't address this issue in their investigation, hence, the specialist have picked this subject so as to discover the connection between raw petroleum cost and economic development.

III. SIGNIFICANCE OF THE STUDY

The ongoing stun of oil price on the planet is brought a dubious discussion among strategy producers and scholastics. Accordingly, it is influenced on worldwide creation, and economic development. Kurdistan region of Iraq speaks to a decent contextual investigation to analyze the impact of oil price, in light of the fact that the vast majority of its procuring reliance on trading raw petroleum. In this way, the huge of the examination is to contributing hypothetical sides and zeroing in on oil prices and monetary development in order to comprehend the significant of oil price and the effect any adjustment in oil price on

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sending out oil nations, for example, Kurdistan region of Iraq. Consequently, the discoveries of this examination are advantageous to the administration, economic strategy producers, the private part and scholastics.

IV. RESEARCH OBJECTIVES

The followings are the main research objectives:

Research Objective 1: To recognize the influence elements of crude oil price on economic development in Kurdistan region of Iraq.

Research Objective 2: To find the relationship between crude oil price and economic development in Kurdistan region of Iraq.

Research Objective 3: To recognize the influence of change oil price on economic development in Kurdistan region of Iraq.

Research Questions

The followings are the main research questions:

Research Question 1: What is the effect of crude oil price on economic growth in Kirkuk?

Research Question 2: What is the scale and direction of crude oil price on economic development?

Research Question 3: What is oil price and economic development?

Literature Review

Jarrett, et al (2019), recognized changes of oil costs affect the veritable GDP on all G7 economies. In any case, there is a drawn out unprejudiced nature of the oil influence in specific nations while the oil influence is imperative of the remainder of the G7 economies. Similarly they show that unmistakable administrative approaches have assisted with decreasing the effect of oil costs in the business zone.

Lee & Lee, (2019) endeavored to take a gander at the effect from oil cost and oil use changes on nuclear essentialness advancement on account of worldwide crude oil esteem climbs and oil smoothly decline. Moreover, Wen, et al (2019) zeroed in on the G7 nations in their assessment, Norway and the Euro-locale. The showed rising oil cost by and large essentially impact GDP improvement than that of oil regard fall with the last being quantifiably in extraordinary in all nations ap. In passing on nations such Norway, thing improvement answers intensely to an expansion in the oil cost changing and in Britain the thing progression is unexpectedly unfairly affected taking into account all the more sharp confirmed change standard appreciation.

Chen, et al (2020), in various nations exogenous oil agilely obstructions cause in any event a brief deny in genuine wages, and bringing down of the near to money against the dollar and an augmentation in transient credit costs. Despite theoretical similitudes, there is solid quantifiable guide that the restriction to exogenous oil deftly impedances changes across G7 nations.

The clarification behind Katircioglu, et al (2020) study was to assess the brisk impact of oil costs on macroeconomic focuses and confirming the public banks of the G7 have reacted to exogenous oil regard stuns. The outcome shows concerning the reaction of monetary arrangement, the public banks of a large portion of the nations responded to the oil regard surprise by making credit expenses and diminishing genuine cash changes at last, an imperative aspect of the impacts of the oil costs stumble to fulfillment in truly from the reaction of money related philosophy.

In another paper, Lin, (2020), analyzed the relationship between the strategy in the oil market and a business cycle for G7 nations. The paper fixed that models with exogenous oil factors by and large beat the looking at univariate assurance which bars oil from the examination. Likewise the capacity of oil shocks in slumps has brought down after some time and overhauls in essentialness limit and the methodology by financial masters are the once that chosen the impacts of oil dazes. The reverse way around the economies of the G7 countries can not impact oil financial circumstances.

Shahbaz, et al (2017), assess the impact of oil costs in a couple of European countries using data. As a matter of fact, rising oil costs lead to obstruct supreme financial development by more than dropping oil costs animated.

You, et al (2017), are examining the association between oil costs and external alters, especially the effects of oil solicitation and oil nimbly paralyzes on outside equalities of oil conveying and oil getting countries. Likewise, Nwanna & Eyedayi, (2016) among their assessment endeavored to realize how much oil esteem staggers sway improvement in different countries with the assistance of new trade. The assessment shows that oil value increases have an unadulterated and helpful result on the oil exporters GDP improvement despite the way that this positive direct effect is moderate by a negative however minimal meandering effect.

Jianwei, et al (2017), separated the co-joining association between overall financial movement and crude oil real expenses. The paper showed that oil costs are influence on a very basic level by changes in the Kilian financial record through since a long time back run balance situation and short-run impacts. The alteration pattern of crude oil costs due to a consistent change in the Kilian monetary record

takes a colossal time than that achieved by an unending change in the US dollar list. The examination of Aimer, (2016) shows that differing oil market content paralyzes have the critical effect in portraying the adjustments in protections trade returns. The volume of the effects of the fundamental shocks is small provoking an assumption that other control factors, for instance, exchange rates, advantage rates and purchaser intense spending have all the earmarks of being coherent determinants of protections trade returns.

V. THE CONCEPT OF THE PRICE OF OIL

The oil price is characterized as "the estimation of the substance or the oil based commodity communicated in real money" (Okere & Ndubuisi, 2017) during a particular timeframe and affected by a scope of financial, social, political and climatic components and so on. The oil cost has made since the business disclosure of the oil market. It was at the beginning of revelation that was settled at the oil wells. Under a "controlling framework of a couple," the oil market won. It was then chosen in the ports where the oil business was found and stretched out in various countries. This is a direct result of the partnership of two or three oil market associations that hoped to extend their advantages, and thereafter structure into a genuine worth subject to ask for and deftly factors. This is the entry of a couple of oil conveying countries to the oil market (Dudian, et al 2017). This improvement in cost or how to choose it shows that the expense of oil has a couple of sorts or terms that will be referred to according to the advancement of great importance of the ascent of such these animal categories, and the standard utilized in the evaluation of oil. Besides, the norm on which the oil item is surveyed, is the money related worth or the money picture of a barrel of raw petroleum surveyed in US dollars of 42 gallons passed on in the US monetary unit for instance \$ 100/barrel and that this cost is dependent upon unsurprising insecurities as a result of the chance of the market. International oil, which is portrayed by dynamism and instability, which has been reflected in oil expenses and make them temperamental costs and subject to predictable changes until the marvel of shakiness has become a zeroing in on wonder (Zhao, et al 2018).

The Concept of Economic Growth

The idea of economic development varies as per the various scholars and the authorities and the circumstances experienced by the nations or people groups. More consideration was paid to the monetary development of the industrialized nations, which rose with the modern insurgency in Europe (Li, et al 2017). Economic development implies the unconstrained monetary

extension, which doesn't need change in the economic development of the general public and it is estimated by monetary units, for example, public salary, however after the finish of WWII, the world was secluded into made and in invert countries. More thought is paid to progress than to advancement, which infers the proposed financial augmentation, which can simply happen with the intercession of the state, which requires the need to change the monetary turn of events (Al-Sasi, et al 2017).

VI. METHOD

The key goal of this article is to evaluate the effects of unrefined petroleum value, oil creation esteem on monetary development in Kurdistan area of Iraq. The information is yearly information which were uniting a period from 1997-2019. The perception were 21 which can be sufficient to utilize relationship coefficient and furthermore yearly development rate used to control the boosting or diminishing the year partner to prior year and compound development rate used to decide the pace of boosting or decreasing of the timeframe and furthermore near apply to direct the pace of boosting or lessening the year contrasting with the base year.

Research Design

The association between oil creation esteem, oil cost, and financial improvement are inspected in the plan of flow research in Kurdistan area of Iraq. Furthermore, the plan investigative examination could be made in this exploration as it sought after to decide the associations among components and the examination factors. The plan was more noteworthy as it encountered one kind of information were given information and data from the yearly information during 1997-2019.

Research Hypotheses

The followings are the main research hypotheses:

Research hypothesis 1: There is a positive and significant association between GDP and oil price.

Research hypothesis 2: There is no a positive and significant association between GDP and oil price.

Research hypothesis 3: There is no a positive and significant association between GDP and the value of oil production.

Research hypothesis 4: There is a positive and significant association between GDP and the value of oil production.

VII. RESULTS

The outcomes from this study demonstrated that financial advancement is one of the most critical wellsprings of monetary change since it duplicates the populace's capacity to help profitable volume and ideal speculation and furthermore manageability commitment involves an extended economy on the essence of stuns, powerfully embraces innovation and head amassing human cash, seriously can increase relative preferences contrasted with the different. Thus, It works inside steady, stable financial strategies and monetary turn of events and there were emphatically measurably centrality between oil cost and GDP, oil creation worth and GDP. This indicates that boosting a percentage of the value of oil production and oil price in Kurdistan, GDP upsurges also. According to (Rui, et al 2018) ,Oil price have a significant influence on the GDP through its influence and involvement to government incomes. Worldwide and locally, the oil prices is variations among the international considerations and it is occurring from worldwide actions In this point , if the oil price improved, it promotes oil exporting economic and harm oil importing economics.

Oil Price

The oil cost is a cash related worth or a monetary picture which is per barrel of crude oil in the US dollar and it is conveyed in genuine cash since it is associated with US dollar and can be introduced to oil cost in the oil market inside the thoughts of various things, for instance, (the cost achieved, the cost articulated, the obligation rate and the expense of sign) (Maji, et al 2017). Table (1) demonstrates the time of (1997 2019) were taken so as to show change of oil cost in those period saw numerous monetary turns of events, political and military reflected in the entire of the truth of the oil market then as oil cost tumbled from (16 75\$) in 1997 and it expanded by 0 202 in 1998 (20 23\$), the ascents proceeded in 1997 by 0 114 (18 81\$) at that point the cost of oil in 1998 diminished by 0 267 (12 21\$) Besides, after 1998, the cost of oil expanded when 1997 were as a base year The cost of oil expanded a ton in 2012 (109 33) Besides, the ascent of oil price proceeded until 2013 then it diminished because of numerous reasons:

- The ascend in oil price has contributed altogether to the consolation of nations.

The decrease in worldwide monetary development rates has prompted a decrease worldwide utilization of unrefined petroleum, just as political variables and others contributed somehow to the decrease in oil price.

- In general, the marvel of hypothesis which is presented to the oil business.

By auditing chronicled advancements in oil price it very well may be reasoned that Oil price have been dependent upon numerous changes because of elements that cover Economic, political, military and other.

Table 1- Oil Price

| Years | Oil price | 1997/ year |
|-------|-----------|------------|
| 1997 | 16 75 | - |
| 1998 | 20 23 | 0 202 |
| 1999 | 18 81 | 0 117 |
| 2000 | 12 21 | -0 269 |
| 2001 | 17 42 | 0 032 |
| 2002 | 27 4 | 0 631 |
| 2003 | 23 08 | 0 368 |
| 2004 | 24 34 | 0 441 |
| 2005 | 28 08 | 0 661 |
| 2006 | 36 02 | 1 133 |
| 2007 | 50 51 | 1 98 |
| 2008 | 60 58 | 2 621 |
| 2009 | 69 6 | 3 078 |
| 2010 | 93 98 | 4 47 |
| 2009 | 60 81 | 2 599 |
| 2010 | 77 31 | 3 581 |
| 2011 | 107 39 | 5 367 |
| 2012 | 109 33 | 5 487 |
| 2013 | 105 73 | 5 275 |
| 2014 | 96 27 | 4 707 |
| 2015 | 49 47 | 1 931 |
| 2016 | 40 61 | 1 408 |
| 2017 | 52 49 | 2 108 |

Table (2) exhibits the oil approached to (20 21) dollar and the yearly development rate were positive expanded by (20 29%) in 1997. In (1997, 1998), the oil cost were (18 79, 12 31) dollar individually and the yearly development rate were negative rising to (- 6 98%, - 34 81%) separately. In (1999, 2000), the oil cost were (17 39, 27 59) dollar separately and the yearly development rate were positive rising to (41 59%, 58 19%) individually also, the yearly development rate become negative outcome in

2001 however after 2001 the yearly development rate were positive rate until 2009. The yearly development rate were negative in 2009 which were (- 35 28%) at that point In (2010, 2011, 2012), the oil cost were (77 31, 107 39, 109 38) dollar individually and the yearly development rate were positive rising to (27 08%, 38 81%, 1 82%) separately. Finally, the yearly development rate were positive outcome in 2017 The yearly compound rate for the arrangement years were 0 05%.

Table 2- Annual compound growth and growth for oil production

| Years | Oil Price | Annual Growth Rate | Annual Compound Growth Rate |
|-------|-----------|--------------------|-----------------------------|
| 1997 | 16 86 | - | 0 05% |
| 1998 | 20 21 | 20 34% | |
| 1999 | 18 79 | -7 04% | |
| 2000 | 12 31 | -34 88% | |
| 2001 | 17 39 | 42 01% | |
| 2002 | 27 59 | 58 25% | |
| 2003 | 23 12 | -16 23% | |
| 2004 | 24 36 | 5 36% | |
| 2005 | 28 1 | 15 35% | |
| 2006 | 36 05 | 28 29% | |
| 2007 | 50 59 | 40 33% | |
| 2008 | 61 | 20 57% | |
| 2009 | 69 04 | 13 18% | |
| 2010 | 94 1 | 36 29% | |
| 2011 | 60 86 | -35 32% | |
| 2012 | 77 31 | 27 14% | |
| 2013 | 107 39 | 38 87% | |
| 2014 | 109 38 | 1 85% | |
| 2015 | 105 87 | -3 27% | |
| 2016 | 96 29 | -9 04% | |
| 2017 | 49 49 | -48 60% | |
| 2018 | 40 68 | -17 80% | |
| 2019 | 52 51 | 29 08% | |

Oil Production Value

Irrefutably, the primary oil fields were found in 1923 (Khana Oil) was for close by use and besides Kurdistan region of Iraq were the ensuing noteworthy oil creator after Iran which began business creation in 1912. Moreover, Kurdistan region of Iraq had a certified creation and huge sums in 1934 The oil creation had been growing to reach (3 7) million barrels for consistently in

1979 while the oil creation became (3 5) million barrels for every day in 1989 because of war and Kurdistan region of Iraq's assault of Kuwait in 1991, oil creation dropped to (278) thousand barrels for consistently. The condition continued until 1996 when the program of swapping oil for food happened. Moreover, the oil creation regard were found by copying the oil creation and oil cost Accordingly, the oil creation regard drew

nearer to (379) million dollar in 1995 which extended to (764) million dollar and it extended until 2000 (899) million dollar. It lapsed slowly from 2000-2003 yet, in 2003, the oil creation regard lessened distinctly considering war. From 2003 to 2009, the oil creation regard extended a lot considering the way that in this period the oil cost and oil creation extended. The best year for oil creation regard were 2012 (978) considering the way that the oil cost become most extraordinary worth diverging from various years by then oil cost become less and less from 2013 to 2016 and the oil creation regard become less and less from this period. At last, the oil creation regard extended a tiny bit at a time in 2017 (5987).

Compound Growth rate and annual Growth ready for Oil production

Table (3) shows that in (1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019), the oil creation were (392 838, 779 136, 4939 43, 7022 93, 13217 78, 20780 04, 16972 39, 14412 84, 5591 9, 20292 55, 25947 61, 33513 4, 41396 38, 63715 11, 42322 04, 53392 97, 84893 4, 97071 21, 92318 64, 88411 55, 54280 63, 49159 34, and 53630 24) separately and the yearly development rate were (98 33%, 533 96%, 42 18%, 88 19%, 57 21%, -13 82%, -15 08%, -61 20%, 262 89%, 27 86%, 29 15%, 23 52%, 53 91%, -33 57%, 26 15%, 58 99%, 14 34%, -4 89%, -4 23%, -38 60%, -9 43%, and 9 09%) individually which had positive yearly development rate.

Table 3- Growth rate and Compound growth rate/year for Oil Production

| Annual | Oil Production | Growth year/year | Compound Growth Rate/year |
|--------|----------------|------------------|---------------------------|
| 1997 | 392 838 | - | 0 20% |
| 1998 | 779 136 | 98 33% | |
| 1999 | 4939 43 | 533 96% | |
| 2000 | 7022 93 | 42 18% | |
| 2001 | 13217 78 | 88 19% | |
| 2002 | 20780 04 | 57 21% | |
| 2003 | 16972 39 | -13 82% | |
| 2004 | 14412 84 | -15 08% | |
| 2005 | 5591 9 | -61 20% | |
| 2006 | 20292 55 | 262 89% | |
| 2007 | 25947 61 | 27 86% | |
| 2008 | 33513 4 | 29 15% | |
| 2009 | 41396 38 | 23 52% | |
| 2010 | 63715 11 | 53 91% | |
| 2011 | 42322 04 | -33 57% | |
| 2012 | 53392 97 | 26 15% | |

| | | |
|------|----------|---------|
| 2013 | 84893 4 | 58 99% |
| 2014 | 97071 21 | 14 34% |
| 2015 | 92318 64 | -4 89% |
| 2016 | 88411 55 | -4 23% |
| 2017 | 54280 63 | -38 60% |
| 2018 | 49159 34 | -9 43% |
| 2019 | 53630 24 | 9 09% |

GDP

Table (4) shows that the Gross Domestic Product equaled to (3999 691) million dollar and the annual growth rate were positive increased by (63 84%) in 1996. In (1997), the Gross Domestic Product were (1027 443) dollar respectively and the annual growth rate were negative equaling to (-84 32%) respectively. In (2001, 2002, 2003), the Gross Domestic Product were (-18 94%, -080%, -36 69) dollar respectively and the annual growth rate were positive. In addition, The compound worth rate of Gross Domestic Production were 15%

Table 4- Growth rate and Compound growth rate/year for GDP

| Annual | GDP | Growth year/year | Compound Rate/year | Growth |
|--------|----------|------------------|--------------------|--------|
| 1997 | 3999 691 | - | 0 15% | |
| 1998 | 6553 351 | 63 84% | | |
| 1999 | 1027 443 | -84 32% | | |
| 2000 | 1058 458 | 3 01% | | |
| 2001 | 1745 897 | 64 94% | | |
| 2002 | 2603 095 | 49 09% | | |
| 2003 | 2110 039 | -18 94% | | |
| 2004 | 2093 007 | -0 80% | | |
| 2005 | 1325 015 | -36 69% | | |
| 2006 | 36627 9 | 266 25% | | |
| 2007 | 49954 89 | 36 38% | | |
| 2008 | 65140 29 | 30 40% | | |
| 2009 | 88840 05 | 36 38% | | |
| 2010 | 131613 7 | 48 14% | | |
| 2011 | 111660 9 | -15 16% | | |
| 2012 | 138516 7 | 24 05% | | |
| 2013 | 185749 7 | 34 09% | | |
| 2014 | 218001 | 17 36% | | |
| 2015 | 234648 4 | 7 63% | | |

| | | |
|------|----------|---------|
| 2016 | 214648 4 | -8 52% |
| 2017 | 179640 2 | -16 30% |
| 2018 | 171489 | -4 53% |
| 2019 | 172346 4 | 0 049% |

The comparison between the value of oil production and GDP

As we can see in table (5), the correlation among GDP and oil creation esteem which the green line is GDP and blue line is oil creation esteem from 1995 to 2003, the GDP expanded in 1996 contrasting with the aftereffect of GDP in 1995 then after 1996 the GDP

expanded or diminished gradually until 2003 however the oil creation expanded from 1995 to 2000 then it diminished until 2003 Moreover, after 2003 the GDP and oil item esteem were changed a similar which implies that when oil creation esteem expanded then the GDP expanded also and that when oil creation esteem diminished then the GDP diminished too

Table 5- Correlation Analysis

| | | GDP | Oil price | Oil Production Value |
|----------------------|---------------------|-------|-----------|----------------------|
| GDP | Pearson Correlation | 1 | 831** | 899** |
| | Sig (2-tailed) | | 000 | 000 |
| | N | 21 | 21 | 21 |
| Oil price | Pearson Correlation | 831** | 1 | 901** |
| | Sig (2-tailed) | 000 | | 000 |
| | N | 21 | 21 | 21 |
| Oil Production Value | Pearson Correlation | 899** | 901** | 1 |
| | Sig (2-tailed) | 000 | 000 | |
| | N | 21 | 21 | 21 |

** Correlation is significant at the 0.01 level (2-tailed)

The above table demonstrated that there were factually critical connection among GDP and Oil cost in light of the fact that the p-esteem were not exactly the basic alpha 0.05. Subsequently, the connection among GDP and Oil cost were firmly certain in light of the fact that the estimation of relationship coefficient equivalents to 0.831 which is more prominent than the estimation of connection coefficient (0.5) this implies if the oil cost builds, the GDP will increment also. Besides, there were measurably huge connection among GDP and Oil creation esteem on the grounds that the p-esteem were not exactly the basic alpha 0.05. Therefore, the connection among GDP and Oil creation esteem were unequivocally certain in light of the fact that the estimation

of relationship coefficient equivalents to 0.901 which is more noteworthy than the estimation of relationship coefficient (0.5) this implies if the oil creation esteem builds, the GDP will increment too.

VIII. CONCLUSION

Economic development is one of the most significant wellsprings of financial change since it mirrors the network's capacity to increment profitable limit and ideal venture and furthermore supportability necessity remembers a broadened economy for the substance of stuns, progressively embraces innovation and head collection human

cash, seriously can increase relative points of interest contrasted with the other. In this manner, it works inside steady, stable monetary arrangements and financial turn of events. Oil prices have been influenced by global emergencies, as oil is a key worldwide ware joining political, financial and international variables which is impact it. There were measurably huge connection among GDP and Oil cost on the grounds that the p-esteem was not exactly the regular alpha 0.05. Accordingly, the connection between genuine GDP and oil cost were firmly sure on the grounds that the estimation of relationship coefficient equivalents to 0.831 which is more noteworthy than the estimation of connection coefficient (0.5). This implies if the oil cost builds, the genuine GDP will increment too. Besides, there were measurably huge connections between genuine GDP and oil creation esteem in light of the fact that the p-esteem was not exactly the normal alpha 0.05. Therefore, the connection between genuine GDP and Oil creation esteem were unequivocally sure in light of the fact that the estimation of relationship coefficient equivalents to 0.901 which is more noteworthy than the estimation of relationship coefficient (0.5). This implies if the oil creation esteem builds, the genuine GDP will increment also.

IX. RECOMMENDATION

- Encourage banks move to the market in order to help methodology headings. Cash in giving credit and bank financing which requires by the case of authentic GDP and work should raise level of money related improvement which requires raising the money related significance of the country.
- The money related methodology makers should make the oil portion, the advancement train through the petrochemical adventures, notwithstanding misuse financial sparing to help other monetary part in this occasions oil value ascends on the planet markets.
- The government attempts to fortify participation and organization with OPEC to control gracefully of unrefined petroleum in the OPEC area with the of influencing worldwide raw petroleum costs.
- Take preferred position of fruitful encounters in all nations that have comparative assets so as to open

foundations or specific schools or focuses in this field.

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The Academic Performance and the Computer Programming Anxiety of BSIT Students: A Basis for Instructional Strategy Improvement

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Received: 09 May 2021; Received in revised form: 11 Jun 2021; Accepted: 20 Jun 2021; Available online: 30 Jun 2021

Abstract— *The 21st century has caused numerous significant impacts and advancements in the lives of people. Information Technology (IT) has contributed essential benefits in the different areas of the society. One of the vital skills in developing IT solutions is programming. For many, writing computer programs may be a very challenging task which may result in some levels of anxiety. This study aimed to describe and look at the relationship between the academic performance and the programming anxiety among Bachelor of Science in Information Technology (BSIT) students to provide a basis for instructional strategy improvement in the undergraduate level.*

Keywords— *Academic Performance, Computer Programming Anxiety, Instructional Strategy Improvement, Programming.*

I. INTRODUCTION

The 21st century has caused numerous significant impacts and advancements in the lives of people. Advancements have been seen in several aspects of civilization. These progressions call for a new set of relevant skills; thus, the term 21st century has become a buzzword. Twenty-first-century skills are abilities that learners in today's generation must develop and enhance to cope with the fast-changing world. These skills and abilities are essential for learners to succeed in their careers, especially in the Information Age. There are three categories of 21st-century skills: learning, literacy, and life skills [1]. Learning skills or the 4C's empowers the learners to adapt and improve in the modern working environment by educating them with relevant and significant mental processes such as critical thinking, creativity, collaboration, and communication.

On the other hand, literacy skills include information literacy, media literacy, and technology literacy. These literacy skills are relevant because they enable learners to discern and scrutinize published materials and identify the facts and truths behind them. Lastly, life skills cover the intangible elements of a learner's everyday life, including

flexibility, leadership, initiative, productivity, and social skills. These skills must be coupled with the learners' ability to use Information and Communication Technology (ICT) tools to thrive in the digital era.

Information and Communications Technology (ICT) has become one of the integral parts of everyday life. This is very evident in the other developments present around. This makes ICT one of the economic development pillars that help gain national competitiveness and advantage [2]. Information Technology is one of the disciplines related to ICT that contributes to understanding the area better. IT is the study of "systematic approaches to select, develop, apply, integrate, and administer secure computing technologies to enable users to accomplish their personal, organizational, and societal goals." [3]. The Information Technology discipline covers the following domains: programming, networking, human-computer interaction, databases, web systems, information assurance and security, and professionalism. These domains require the learners to utilize the essential 21st-century skills mentioned in order for them to succeed in the computing discipline.

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Programming is one of the essential domains of Information Technology. It is the process of writing code that instructs a computer on performing and what to perform. Programmers can write a set of procedures and commands that computers understand [4]. In the revised policies, standards, and guidelines for Bachelor of Science in Information Technology released by the Commission on Higher Education through CMO 25 Series of 2015, programming is one of the core courses. This indicates that computer programming is a very relevant course in the computing discipline that learners must genuinely understand, appreciate, and apply to succeed as an IT professional.

A study conducted for non-computer science students has shown that anxiety affects the students' capabilities to learn to program [5]. These programming anxieties contribute to the success of students in a programming course. Another study from Olipas and Luciano (2020) revealed that computer programming anxiety significantly impacts students' sex. Remarkably, the study revealed that female students tend to have higher programming anxiety than male students [6].

This study aims to assess the computer programming anxiety among first-year Bachelor of Science in Information Technology students in a state university and look at its relationship to their academic performance in a computer programming course. The researchers seek to draw new insights and conclusions about computer programming anxiety and students' academic performance, considering that they belong to the 21st-century type of learners. This study's results are also essential to improve the quality of instructional strategies employed by the teachers to advance further the students' academic performances in computer programming and other IT-related courses.

Statement of the Problem

1. What is the Academic Performance of the IT students in CC103 – Computer Programming 2 during the second semester of the Academic Year 2019-2020?
2. What is the computer programming anxiety level of IT students?
3. Is there a significant relationship between academic performance and computer programming anxiety?

II. METHODOLOGY

This study applied a quantitative research method in which the researchers performed a structured and organized manner of collecting and analyzing data gathered from different sources [7]. The researchers used a quantitative method to assess the computer programming anxiety of the

BSIT students using a survey instrument. Further, the academic performance was represented quantitatively in grades based on the computer programming course taken during the second semester of the Academic Year 2019-2020.

One of the research designs of a quantitative method includes a descriptive-correlational research design. Descriptive research design aims to precisely, methodologically, and systematically delineate a population, situation, or phenomenon [8]. By descriptively presenting information, new insights can be drawn. On the other hand, correlational research design measures the relationship of variables to how much extent they relate. It can be a positive, negative, or zero relationship. When conducting correlational research studies, it is essential to consider not controlling the variables subjected to a study [9].

This study was conducted in a state university in Nueva Ecija, Philippines. The researchers specifically administered it in the College of Information and Communications Technology.

In identifying samples for this study; the researchers employed a purposive sampling technique in which the respondents deliberately choose samples based on the following criteria: (1) Students must be a BSIT student; and (2) Students must be enrolled in CC103 – Computer Programming 2 during the second semester of AY 2019-2020. The respondents were composed of 348 BSIT students. 237 male (68%) and 111 female (32%). 162 or 47% of them took Technical-Vocational Track with specialization in ICT during their Senior High School education, 86 or 25% took Accountancy, Business and Management Track, 57 or 16% took the General Academic Strand, 22 or 6% took Humanities and Social Sciences Track, and 21 or 6% took Science, Technology, and Engineering Track.

In carrying out the study, the researchers reviewed existing literature and studies to gather relevant information. The literature and studies served as additional components for a strong foundation for the conduct of this study. The researchers also adapted the instrument used by Olipas and Luciano (2020) to measure the level of computer programming anxiety among IT students [6]. The researchers included additional variables such as academic performance in CC103 – Computer Programming 2 and the students' demographic profile to suit the study's needs. To ensure that the adapted instrument is valid and reliable, the researchers performed a reliability analysis as shown in Table 1.

Table 1: Reliability Analysis

| Cronbach's Alpha | N of Item |
|------------------|-----------|
| 0.854 | 10 |

Based on the reliability analysis, the computed value of Cronbach's Alpha is 0.854. This means that the adapted instrument has good internal consistency [10]. The study was conducted at the time of the pandemic. To gather data, the researchers utilized Google forms to reach the respondents. The researchers provided essential information needed in the Google survey form to understand the activity well. The researchers explained to the respondents that the data gathered were treated with utmost confidentiality and anonymity. After data gathering, the researchers treated the data and interpreted them using a rubric presented in Table 2.

Table 2: Rubric for Data Analysis on the Likelihood of Experiencing Computer Programming Anxiety

| Range | Verbal Interpretation | Verbal Description |
|-------------|-----------------------|--|
| 3.25 – 4.00 | Extremely Likely | This indicates that the likelihood of experiencing computer programming anxiety among students is very high. |
| 2.50 – 3.24 | Likely | This indicates that the likelihood of experiencing computer programming anxiety among students is high. |
| 1.75 – 2.49 | Unlikely | This indicates that the likelihood of experiencing computer programming anxiety among students is low. |
| 1.00 – 1.75 | Extremely Unlikely | This indicates that the likelihood of experiencing computer programming anxiety among students is very low. |

III. RESULTS AND DISCUSSION

The frequency distribution based on the academic performance of the IT students shows that 96.9% passed the course, 2.0% unofficially dropped, and 1.1% got an incomplete mark. Results revealed that most students have satisfactorily passed the course. Different factors affect the academic performance of the students. This includes intellectual level, personality, motivation, skills, interests, study habits, self-esteem, and the teacher-student relationship. Positive impacts of these factors may lead to satisfactory student performance. However, unsatisfactory academic performance is sometimes related to teaching methods [11]. The results provide an opportunity for future studies to look into the underlying factors that affect

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students' academic performance. Also, looking at the problems and challenges of the students that lead them to drop the course unofficially may be considered to provide a better understanding of how to craft intervention programs in the future.

The Academic Performance of BSIT Students

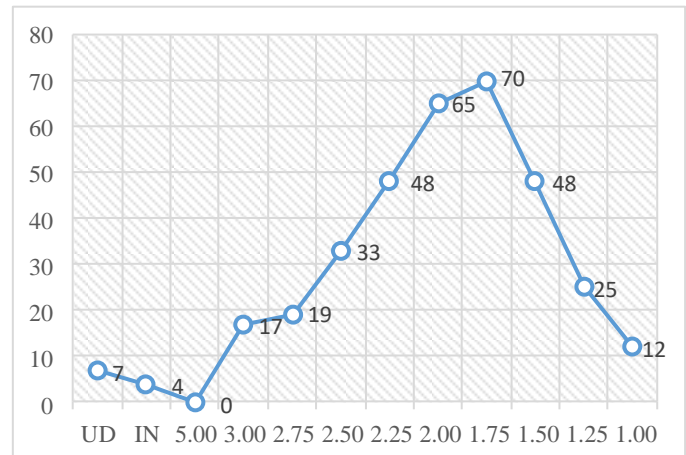


Fig.1: Frequency distribution of Academic Performance of BSIT Students

The Computer Programming Anxiety of IT Students

Table.3: The Likelihood of Experiencing Computer Programming Anxiety among BSIT Students

| Item | Mean | Verbal Description |
|--|------|--------------------|
| I feel uneasy about using programming language | 2.39 | Unlikely |
| Programming terminologies sound like confusing jargons to me | 2.45 | Unlikely |
| I have avoided programming because it is unfamiliar to me | 2.54 | Likely |
| I hesitate to perform programming activities or exercises because I fear of making mistakes I cannot correct | 2.41 | Unlikely |
| Programming subjects make me anxious | 2.52 | Likely |
| Working with programming activities or exercises make me very nervous | 2.39 | Unlikely |
| I do not feel threatened when others talk about programming to me | 2.48 | Unlikely |
| I feel aggressive and hostile when I think of trying to use programming | 2.48 | Unlikely |
| Programming make me feel | 2.50 | Likely |

| | | |
|--------------------------------|-------------|-----------------|
| uncomfortable | | |
| I get a sinking feeling when I | | |
| think of trying to use new | 2.46 | Unlikely |
| programming language | | |
| Over-all Grand Mean | 2.46 | Unlikely |

In Table 3, results show that IT students “unlikely” experience computer programming anxiety in general, as reflected in the overall grand mean of 2.46. However, most likely, students have avoided programming because it is unfamiliar to them (WM = 2.54), programming subjects make students feel anxious (WM = 2.52), and programming makes them feel uncomfortable (WM = 2.50). According to Connolly, Murphy, and Moore (2009), one decisive factor concerning the level of anxiety can be attributed to students’ perception of their entry-level computer experience and the ability to learn to program [12]. Thus, most likely, students can have difficulties learning programming courses, especially newcomers or first-year college students.

The Relationship between Academic Performance and Computer Programming Anxiety

Table 4: Relationship between Academic Performance and Computer Programming Anxiety

| Factors | | Computer Programming Anxiety | Interpretation |
|-----------------------------|-------------------------|------------------------------|--------------------------|
| Academic Performance | p-value | .0000 | Significant Relationship |
| | correlation coefficient | -0.232 | |
| | | | |

***Correlation is significant at 0.01 level (2-tailed)*

Table 4 shows the test on the relationship between Academic Performance and the Computer Programming Anxiety of the BSIT students. Results revealed that the academic performance has significant negative relationship to computer programming anxiety (p-value = .000, $r = 0.232$). This indicates that the higher the students' academic performance, the lower the likelihood of experiencing computer programming anxiety. Results further reveal that computer programming anxiety negatively affects the academic performance of the students. Moreover, based on the study conducted by Talib and Zia-ur-Rehman (2012), perceived stress was found to have a significant negative correlation with the academic performance of students. Course load, sleep problems, and social activities were the major sources of stress affecting the students' academic performance [13].

IV. CONCLUSION

This study aimed to identify the academic performance of

the IT students and its relationship to their computer programming anxiety to provide a basis for improving instructional strategy. Three hundred forty-eight IT students enrolled in CC103 – Computer Programming 2 participated in this study during the Academic Year 2019-2020. Results revealed that 68% of the respondents are male, and 32% are female. Forty-seven percent of them completed Technical-Vocational Track with a specialization in ICT during their senior high school years. The academic performance of the IT students revealed an excellent result based on the analysis, indicating that 96.9% of them have passed the course. In general, IT students had unlikely experienced computer programming anxiety based on the computer overall grand mean of 2.46. Results also revealed a negative correlation between their academic performance and computer programming anxiety. This means that the higher the academic performance rating achieved by the students, the lower their computer programming anxiety would be. These results open new opportunities and allowed educators to understand further the impact of programming anxiety on the students' academic performance.

V. RECOMMENDATIONS

Based on the findings and conclusions, the following recommendations are drawn:

1. To bridge the gap between the number of male and female enrolled in computing courses like IT, information dissemination on the role of women in computing maybe consider;
2. To further improve the quality of instruction, educators must take into consideration the engaging teaching-and-learning environment to lessen the programming anxiety among students while increasing the level of their participation to improve their academic performance;
3. Future studies involving a more significant number of samples may be considered to understand how the programming anxiety of students in every year level may differ considering the levels of programming courses they take.

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