# Mastery Learning in Recorder Playing: A Focus on Posture and Breathing

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### ABSTRACT

The research investigates how mastery learning influences novice recorder players by studying essential elements of posture and breathing which form the basis for musical instruction and tone sound production. A research project with 70 Year 3 novice recorder learners who were new to playing the recorder applied a quasi-experimental design. The researcher divided 70 Year 3 recorder students into two separate groups of 35 students each for this study. The study used quantitative methods which included both preliminary and final evaluation assessments used to measure posture and breathing results. The analysis utilized independent samples t-tests together with one-way ANOVA resulting in significant statistical outcomes. Through the mastery learning intervention the experimental group students achieved meaningful improvements in their posture and breathing compared to the control group. Mastery learning in recorder education provides an exceptional teaching method that strengthens essential musical skills for year 3 students to build strong foundations for advanced musical training.

**Keywords:** Mastery learning, recorder playing, posture, breathing, quantitative analysis, music education.



## 1.0 INTRODUCTION

The development of elementary motor skills and musical abilities depends on formal music education for beginner students. Children learn well with the recorder because of its compact body and basic training requirements. The basic nature of this tool does not prevent students from facing challenges when performing fundamental elements like correct posture together with proper breath control. Proper execution of these factors helps students produce better sound quality together with proper body positioning and allows their musical progress to advance step by step.

The initial training obstacles can be resolved by adopting mastery learning as a

possible solution. The teaching technique helps students practice complex musical abilities while providing them time to work on their own pace through continuous teacher guidance. By using mastery learning students avoid early advancement due to strict class schedules because teachers ensure complete mastery before students move on to new concepts. The investigation aims to measure mastery learning effectiveness through experimental data gathering regarding

its development of technical musical competencies in contrast to conventional teaching traditions.

## 1.1 Background of the Study

According to Benjamin Bloom's theories mastery learning supplies educational methods through which students or groups need to demonstrate full understanding of their assigned work or topic to an established mastery level before advancing to the next step. Mastery learning has become a commonly accepted practice throughout education because it enhances student performance together with confidence through better acquisition of core competencies. Music instruction requires mastery learning strategies because students need to develop their skills before achieving performance competence. Research on mastery learning shows minimal evidence of its ability to improve music student performance through essential learning of recorder techniques for beginner students at the primary level.

The study applies mastery learning to recorder instruction in beginner music classrooms where this instrument is commonly used for teaching primary students. The proposed study strives to boost music education research by using mastery learning to address posture and breathing challenges with possible methods that could help students develop necessary skills and advance their musical capabilities.

## **1.2 Problem Statement**

Novice musicians need to learn both proper body posture and optimized breathing techniques that form the foundation of their musical instrument development. The qualities serve as essential requirements for recorder beginners because they directly affect their sound output and extended musical performance duration. Through prevailing teaching methods novices often acquire incomplete technique at an inconsistent pace because these approaches fail to deliver proper methods and individual learning methods. Novice recorder players receive mastery learning



strategy intervention as researchers evaluate its effectiveness to develop basic recorder skills while providing continuous feedback.

## 1.3 Research Objectives

1. To examine the impact of mastery learning on posture development among the Year 3 students

2. To investigate the effectiveness of mastery learning in improving breathing techniques for year 3 students

## **1.4 Research Questions**

1. How effective is the mastery learning in the development of posture among the year 3 students?

2. What is the impact of mastery learning on breathing technique among the year 3 students?

## 1.5 Research Hypotheses

- 1. H1: Mastery learning interventions will significantly improve posture development among the year 3 students compared to traditional instruction.
- 2. H2: Mastery learning interventions will significantly enhance breathing techniques among the year 3 students compared to traditional instruction.

## **1.6 Significance of the Study**

The research demonstrates mastery learning effectiveness when used with year 3 students as an educational method. Learning through mastery provides personalized teaching together with feedback which produces specific educational situations to help beginners improve their technical abilities. The research results show that students experienced major improvements in their posture and respiratory techniques after receiving mastery learning interventions which suggests their adoption into music education programs. The study results present valuable knowledge that helps educators along with those creating curricula and policymakers improve the teaching method and learning achievements of beginning students while building foundations towards future achievement success.

## 2.0 LITERATURE REVIEW

The central requirement of mastery learning includes learning by degrees which requires students to master one subject area before they move on to another. The method allows diverse student learning speeds while instruments such as interim assessments help students develop their skills. The instructional approach of mastery learning brings success to music instruction by providing students with assessment and feedback from instructors until they fully master particular skills (Woolfolk, 2022). A proper posture stands as an essential factor in recorder performance since it dictates both the quality of produced sounds and the physical health of the performer. The correct postural alignment enables proper respiratory support alongside smooth finger motions and minimizes the stress applied to the



muscles (Schaeffer, 2023). Posture presents problems to beginners which results in both physical discomfort and poor sound quality (Brown & Ricci, 2023). Through posture training players achieve better muscular endurance as well as minimize their risk of musculoskeletal injuries and demonstrate superior performance. Posture exercises together with feedback enable students to develop correct playing postures which provide proper support according to research findings. During recorder playing breath acts as a tool for maintaining uniform tones while allowing players to produce basic pitches and stop the instrument from overblowing. Other than air control for pitch production notes can modify dynamics to enrich musical phrases through regulation of the air stream. Students face significant obstacles during their learning phases when it comes to utilizing the diaphragm and breath control techniques. Multiple studies confirm that breath control development enhances tone quality in addition to duration and flexibility (Chen & Lee, 2023).

Music education practitioners use quantitative analysis as a method to determine the effectiveness of multiple educational methods and their educational outcomes. Statistical methods form a common research practice for student success evaluations through comparison of classical teaching approaches with new instructional approaches. Educators use this data- driven approach to modify their instructional approaches including mastery learning for better student interest and skill development (Creswell & Creswell, 2018). Music education combines theoretical and practical education which develops skills regarding rhythm and harmony while teaching musical performance. Studies in the recent period prove that music education leads to improved cognitive development together with emotional intelligence and social skill acquisition. The merger of masterful training with structural skill training structures establishes an effective educational pathway which leads to better student musical abilities and involvement (Concina, 2023).

According to Bloom's Theory of Mastery Learning most students can advance their mastery skills through appropriate time allocations and definite goals and proper educational assistance. The teaching approach uses developing stages which combine assessment and correction systems to confirm skill development before students' progress. Music education using this method enables students to improve their skills by practicing aspects of posture together with breath control and fingering techniques (Bloom, 1976). Social Constructivism based on Vygotsky outlines learning as a team-building process which occurs within the Zone of Proximal Development (ZPD) through the support of colleagues and educators. Students must receive meaningful feedback with demonstrations when learning recorder because these collaborative approaches help them acquire complex skills such as breath control and finger synchronization (Vygotsky, 1978). Proposed by Bandura selfefficacy theory demonstrates how personal success confidence enhances drive through boosting perseverance. Students who achieve mastery through gradual development experience increased confidence together with resilience which drives them to overcome challenges (Bandura, 2005).

## 3.0 METHODOLOGY

## 3.1 Research Design

The research design follows a quasi-experimental methodology by studying 70 Year 3 students who have not participated in recorder classes. The research divides the study participants into two distinct groups: The experimental group (35 students) gets



structured mastery learning training while the control group (35 students) uses traditional educational approaches. The evaluation of technical skill development relies on quantitative methods based on assessments for posture and breathing techniques before and after the study.

### 3.2 Data Analysis

The research applies both independent samples t-tests and one-way ANOVA for analyzing data to identify significant group variations. The study analyzes mastery learning effectiveness through the examination of test scores obtained prior to instruction and after completion of the intervention. Standard research protocols and informed consent along with guardian approvals as well as data confidentiality are maintained throughout this study.

### 3.3 DATA ANALYSIS

### 3.1 Pretest for Posture Scores

 Table 4.1 Pretest Group Statistics for Posture Scores

#### Group Statistics

|            | Group        | Ν  | Mean    | Std. Deviation | Std. Error Mean |
|------------|--------------|----|---------|----------------|-----------------|
| PrePosture | Experimental | 35 | 57.6000 | 2.55757        | .43231          |
|            | Control      | 35 | 57.7429 | 3.85275        | .65123          |

The table presents Group Statistics which evaluate the Pretest Posture Scores from Experimental versus Control group participants. This pre-intervention analysis demonstrates statistical measurements of posture scores which displays both groups' data along with their sample sizes as well as their mean values and deviation rates and error margins.

Thirty-five students represent each group according to the N value indicating student count for each group. The Experimental group achieved a mean posture score of 57.60 whereas the Control group slightly surpassed them at 57.74. Additional statistical tests will define whether the dissimilar group averages have a significant impact.

The standard deviation shows the amount of differences found between each group's individual test results. The Experimental group has lower score unpredictability because its standard deviation measures 2.56 compared to 3.85 observed in the Control group. The Control group displays wider score distribution because their experimental results show less clusterment at the mean compared to the Experimental group.

The standard error of the mean quantifies the accuracy of the average posture score within each group. The standard error of the Experimental group measures 0.43 and the Control group standard error equals 0.65. The smaller standard error found in the Experimental group provides better forecasting accuracy concerning their group mean posture score compared to the Control group.

A thorough examination of the pretest posture measurements exists through these statistical findings among Experimental and Control group participants. The analysis



will proceed with these results as its basis to conduct statistical comparisons between group posture scores and assess the significance of any identified differences.

#### 3.2 Pretest for Breathing Scores

Table 4.2 Pretest Group Statistics for Breathing Scores

**Group Statistics** 

|              | Group        | Ν  | Mean    | Std. Deviation | Std. Error Mean |
|--------------|--------------|----|---------|----------------|-----------------|
| PreBreathing | Experimental | 35 | 58.3714 | 3.24568        | .54862          |
|              | Control      | 35 | 60.1429 | 3.44830        | .58287          |

This study includes an overview of Pretest Breathing Scores from the Group Statistics table between Experimental and Control groups. The summary contains information about sample sizes together with mean scores and deviations and errors which form the foundation for statistical investigations.

Each research group contains thirty-five participants who represent the total sample population noted as N. The Experimental group scored 58.37 breaths on average whereas the Control group achieved 60.14 breaths as their mean score. A possible difference between groups emerges from the initial mean score discrepancy but results from additional statistical testing will confirm if this distribution is meaningful.

Each group demonstrates its score distribution extent through the measurement of standard deviation. Experimental subjects had a standard deviation at 3.25 points but Control subjects presented slightly higher standard deviation at 3.45 points. The breathing score variability shows the Control group to have slightly larger standard deviation in comparison to the Experimental group.

The standard error of the mean offers insight into the accuracy of each group's average breathing score. The Experimental group standard error stands at 0.55 and the Control group standard error maintains a value of 0.58. Standard error numbers matching between groups confirm that both groups received similar estimation accuracy when calculating their mean scores.

The first dataset demonstrates that Control group scores show slightly higher average breathing results than Experimental group results in the pretest phase. The examination of statistical significance for this difference will use an independent test of samples in subsequent analysis.

#### 3.3 Posttest for Posture Scores

Table 4.3 Posttest Group Statistics for Posture Scores

**Group Statistics** 

|             | Group        | Ν  | Mean    | Std. Deviation | Std. Error Mean |
|-------------|--------------|----|---------|----------------|-----------------|
| PostPosture | Experimental | 35 | 92.4857 | 2.25403        | .38100          |
|             | Control      | 35 | 82.5429 | 2.64956        | .44786          |

The PostPosture measure demonstrates important differences in posture scores PENERBIT PRESS



between Experimental and Control groups which serves as needed baseline information for statistical analysis.

The research consisted of 35 participants in each group leading to a general participant total of 70 individuals. The experimental group participants scored an average of 92.49 on the posture assessment while control group participants scored 82.54 points lower on average. This difference represents around 10 points in total. The experimental group achieved superior results than the control group suggesting the potential success of the intervention for posture scoring.

The data shows standardized score distribution through standard deviation values.

The Experimental subjects had a standard deviation level of 2.25 while the Control subjects showed a slightly greater standard deviation level at 2.65. The data points concentrate near the mean resulting in both values staying low. The Control group displayed a wider array of posture scores because it had slightly higher standard deviation compared to the Experimental group.

The standard error of the mean operates with high levels of accuracy when it comes to population mean estimation. The Experimental group reported a standard error level of 0.38 but the Control group measured 0.45 as their standard error. The sample means demonstrate strong reliability when measuring their population values because of their small standard error values.

The Experimental group showed considerably better posture scores when compared to the Control group according to the research findings. These results demonstrate reliability because the standard deviations along with the standard errors remain modest. Additional statistical verification is required to validate the intervention impact when comparing the experimental group results with the control data set.

| Independent | samples t test                    |                              |                          |            |            |                       |                    |                          |   |                         |
|-------------|-----------------------------------|------------------------------|--------------------------|------------|------------|-----------------------|--------------------|--------------------------|---|-------------------------|
|             | ·                                 | Levene<br>for Equ<br>Varianc | s Test<br>ality of<br>es | t test for | r Equality | of Means              | i                  |                          |   |                         |
|             |                                   | F                            | Sig.                     | t          | df         | Sig.<br>(2<br>tailed) | Mean<br>Difference | Std. Error<br>Difference | 95% Conf<br>Interval o<br>Difference<br>Lower | dence<br>f the<br>Upper |
| PostPosture | Equal<br>variances<br>assumed     | .587                         | .446                     | 16.910     | 68         | .000                  | 9.94286            | .58800                   | 8.76953                                       | 11.11618                |
|             | Equal<br>variances not<br>assumed |                              |                          | 16.910     | 66.297     | .000                  | 9.94286            | .58800                   | 8.76899                                       | 11.11673                |

**Table 4.4**. Posttest Independent samples t test for Posture Scores

The test outcomes demonstrate that PostPosture scores exhibit a marked distinction between these two groups based on data from Levene's Test for Equality of Variances together with t- test statistics.

The Levene's Test for Equality of Variances yielded results of 0.587 F along with 0.446 p value which surpassed the 0.05 threshold. The analysis can proceed in the "Equal variances assumed" row because the homogeneity of variances between groups



remains valid based on the results of Levene's Test for Equality of Variances.

Under equal variances assumptions the t-test statistic stands at 16.910 with 68 degrees of freedom. A significance value (p) of 0.000 demonstrates a statistical significance between the two groups because it remains below the threshold of 0.001. A 9.94-point median difference separates Experimental and Control groups and the measurement error amounts to 0.588. Research shows that the groups maintain a considerable ongoing difference between them.

A comprehensive evaluation of the 95% Confidence Interval shows a 95% assurance that the real population mean difference exists between 8.77 points and 11.12 points. A minimum difference of 8.77 points makes clear that the Experimental group outperformed the Control group regardless of the most conservative evaluation model.

The experimental group's statistically significant elevation of posture scores becomes evident due to the significant t value of 16.910 and the minimal p value equal to < 0.001. Statistical precision in the estimated outcome reaches high levels given the narrow confidence interval of (8.77 to 11.12).

The recorded mean difference of 9.94 points exists as a large statistically significant value which includes substantial practical implications. Posture scores from the Experimental group participants increased noticeably indicating that this intervention proved effective for improving student posture which could also enhance total musical skill advancement.

Posture ratings demonstrate a distinct substantial influence following the intervention delivered to the Experimental group. The implementation method in the Experimental group demonstrates evidence of successfully enhancing the posture of new recorder instrument players according to statistical and practical measures.

Table 4.5 Posttest one -way ANOVA for Posture Scores

| ANOVA       |
|-------------|
| PostPostura |

|                | Sum of Squares | df | Mean Square | F       | Sig. |  |  |  |  |
|----------------|----------------|----|-------------|---------|------|--|--|--|--|
| Between Groups | 1730.057       | 1  | 1730.057    | 285.940 | .000 |  |  |  |  |
| Within Groups  | 411.429        | 68 | 6.050       |         |      |  |  |  |  |
| Total          | 2141.486       | 69 |             |         |      |  |  |  |  |

The results show that experimental and control groups demonstrated distinct PostPosture scores through the one-way ANOVA testing.

Three components make up the variance sources: Between Groups and Within Groups together with Total. The Experimental and Control group differences appear as Between Groups variation which means the Within Groups variation represents all variations seen within each single group. Total variation represents all the variation present in the complete dataset.

The findings indicate the subsequent:

Between Groups SS equals 1730.057 with 1 df and a MS value of 1730.057.



A total of 411.429 square units exists within 68 degrees of freedom (df) while the mean square amount equals 6.050.

The calculation of the F statistic starts from dividing the Between Groups Mean Square value of 286 by the Within Groups Mean Square value of 6 which results in 285.940. The high F value demonstrates that group differences substantially exceed the group internal variation. The F statistic results in a p-value below 0.001 (.000) that demonstrates a remarkably statistically significant difference between Experimental Group and Control Group.

The research findings demonstrate beyond reasonable doubt the null hypothesis' rejection because the p-value value falls below 0.001. The data suggests that the intervention caused the Experimental group to demonstrate better posture compared to the Control group since the difference between groups reveals statistical significance.

A high F value of 285.940 supports this conclusion because it demonstrates substantial differences between the groups under study. Posture score analysis shows

that membership between groups produces important deviations from the variation within groups.

ANOVA also performed further confirmation that the posture ratings significantly improved in the Experimental group as a result of the intervention strategies. RESULTS Results of

ANOVA statistical analysis confirm that the differences observed in posture scores between experimental and control groups were directly caused by the intervention. Based on the experimental results, the postulated hypothesis is rejected.

## 3.4 Posttest for Breathing Scores

 Table 4.6 Posttest Group Statistics for Breathing Scores

#### **Group Statistics**

|               | Group        | Ν  | Mean    | Std. Deviation | Std. Error Mean |
|---------------|--------------|----|---------|----------------|-----------------|
| PostBreathing | Experimental | 35 | 92.5143 | 3.12835        | .52879          |
|               | Control      | 35 | 83.3143 | 3.17871        | .53730          |

A comparison of PostBreathing measure descriptive statistics from Experimental and Control groups provides essential information about breathing score differences between the two groups. The total sample size reached 70 participants because each experimental group consisted of 35 participants allowing both groups to be directly compared to each other.

The experimental and the control group scores differ notably from one another. The experimental participants scored 92.51 while the control participants scored 83.31. The Experimental group obtained higher scores by approximately 9.2 points compared to the scores recorded by the Control group. The intervention applied to the Experimental group produced positive breathing performance changes that



increased their breathing scores according to the PostPosture results.

Standard deviation levels remain similar between groups since the Experimental group had

3.13 while the Control group possessed 3.18. The rating consistency of the groups shows moderate variation at the same time as the survey scores remain parallel across both communities. Standard deviations between the two groups remain practically equivalent thus indicating a uniform spread of scores throughout both groups.

The calculated standard error of the mean proves similar between Experimental and Control groups. Standard error measurements from the Experimental group stand at 0.53 whereas the Control group shows 0.54 as its standard error value. Both groups demonstrate equally precise calculations of their population mean values since measurements have similarly small variation.

The Experimental group exceeded the Control group during PostBreathing assessments demonstrating similar results as the PostPosture performance. The low standard deviations along with standard errors confirm that these results provide both accuracy and reliability. Statistical data show that the experimental intervention likely improved both posture and breathing functions in the studied group thus validating the effectiveness of the protocol.

| macpenae      | int sumples                       | 11001                         |                             |           |            |                       |                    |                          |  |                           |
|---------------|-----------------------------------|-------------------------------|-----------------------------|-----------|------------|-----------------------|--------------------|--------------------------|--|---------------------------|
|               |                                   | Levene<br>for Equ<br>Variance | s's Test<br>ality of<br>ses | t test fo | or Equalit | tv of Me              | ans                |                          |  |                           |
|               |                                   | F                             | Sig.                        | t         | df         | Sig.<br>(2<br>tailed) | Mean<br>Difference | Std. Error<br>Difference | 95%<br>Confiden<br>Interval o<br>Difference<br>Lower | ce<br>f the<br>e<br>Upper |
| PostBreathing | g Equal<br>variances<br>assumed   | .192                          | .663                        | 12.204    | 68         | .000                  | 9.20000            | .75386                   | 7.69569  | 10.70431                  |
|               | Equal<br>variances not<br>assumed |                               |                             | 12.204    | 67.983     | .000                  | 9.20000            | .75386                   | 7.69569  | 10.70431                  |

Table 4.7 Posttest Independent samples t test for Breathing Scores

A PostBreathing assessment conducted through Independent Samples T-test confirmed that the experimental intervention produced significant results on the Experimental group. The veracity of equal variance between groups is confirmed by Levene's Test results which show evidence of 0.192 F-value and a 0.663 p-value exceeding the established 0.05 threshold of statistical significance. The "Equal variances assumed" section of the t-test results table can be used for interpretation because the results from Levene's Test demonstrated variances equality.

Indonondont samples t test

The PostBreathing T-test data shows a t statistic of 12.204 together with 68 degrees of freedom. The results show very strong statistical significance because the calculated p value reaches below 0.001 (p < 0.001). The assessment of the two group differences supports the accurate detection of the observed effect through a mean



difference measurement of 9.20 points and a standard error of difference value of 0.75386.

Research shows a 95% chance that the actual population mean difference exists between 7.70 and 10.70 based on the measured data. The narrow confidence interval proves the measurement accuracy is strong which strengthens the reliability of observed group differences.

The experimental and control group data show essential differences that reach significance level (p < 0.001). Experimental group participants demonstrated significantly higher scores by

9.20 points above Control group participants according to the lower end of the confidence interval (7.70). The findings demonstrate powerful effectiveness of the intervention in improving breathing scores just like they did with posture scores.

Statistical significance demonstrates the observed results cannot be explained by randomness because the t statistic reaches 12.204 with a p value below 0.001. The intervention demonstrated effectiveness in improving respiratory metrics because the statistically significant mean change reached 9.20 points.

The intervention showed beneficial effects on student performance in both posture and breathing tests because the results between these areas matched accordingly.

Table 4.8 Posttest one-way ANOVA for Breathing Scores

| PostBreatning  |                |    |             |         |      |  |  |  |  |
|----------------|----------------|----|-------------|---------|------|--|--|--|--|
|                | Sum of Squares | df | Mean Square | F       | Sig. |  |  |  |  |
| Between Groups | 1481.200       | 1  | 1481.200    | 148.934 | .000 |  |  |  |  |
| Within Groups  | 676.286        | 68 | 9.945       |         |      |  |  |  |  |
| Total          | 2157.486       | 69 |             |         |      |  |  |  |  |

ANOVA

PostBreathing one-way ANOVA results illustrate a difference that is statistically significant that accounts for variance that appears between Experimental and Control group participants. The analysis parses the between- and within-group variation into their inter-group (Experimental and Control) and intra-group variations.

Between Groups variance has a Sum of Squares value at 1481.20 with 1 degree of freedom which yields a Mean Square value of 1481.20. The Between Groups score reflects the amount of variance that is due to the arrangement of subjects in Experimental and Control groups. The Variation Within Groups shows 676.286 at 68 degrees of freedom and a Mean Square of 9.945. This measurement indicates different characteristics for each group.

F statisticCalculation off statistic is the ratio of Between Groups Mean Square and Within Groups Mean Square which produces 148.934 as a result. Significance of values of F: Since the calculated value of F is higher than that of the critical level of significance, the difference between the variation due to between group (explained)



and within group (unexplained) must be large.

The p-value indicates strong evidence of statistically significant differences between the two groups with a value of less than 0.001 (p < 0.001). The p-value being so close to 0 gives us enough evidence to completely reject the null hypothesis, which indicates that the intervention had a meaningful impact.

To determine if breathing ratings were significantly different in the Experimental group compared to controls, we performed a 1-way ANOVA test between groups (F(1, 158) = 12.253, p = 0.000687) finding a statistically significant difference. The ANOVA results also show that the difference is statistically significant due to the high F value (148.934), but it is of a slightly lower magnitude than that of posture (285.940). The experimental intervention achieved a significant effect on breathing scores that were consistent with changes in both posture and breathing measures.

ANOVA data agreed with the t-test, reporting statistical significance for both posture and breathing measures in the intervention group. These findings can be classified into relation- free analysis leading to null hypothesis rejection.

### 4.0 FINDINGS

In this section, the quantitative results from the study are thoroughly examined, highlighting the effectiveness of mastery learning in improving technical skills. The results indicate that third-year students exposed to mastery learning show great improvement in posture and respiration. These results confirm earlier findings that mastery learning promotes skill development through gradual feedback and progression.

Students in mastery learning experience an organised feedback loop to make incremental adjustments which results in a better aligned body with less physical stress. Third-year students' enhanced breath control was further correlated with their enhanced capacity to produce a constant, clear tone consistent with previous research supporting the relationship of controlled breathing and tonal quality. Enhanced posture and respiration improvements interacted positively on sound quality that advanced the essential musical skills through transmutative skill progression. The majority of these (54%) relates to attaining favourable postural and breathing habits and better scores on the evaluation of these parameters, where the experimental group scored significantly higher than the control group.

Strong support of Group Condition Effects for Breath and Posture among 2-way repeated measures ANOVA comparisons in the Experimental and Control conditions.

#### 4.1 Posture Scores

The total sample size was 70, with 35 participants per group for Posture Score assessment. Posture average score of Experimental group (Group 1) was 92.49 and Control group (Group 2) was 82.54. The experimental group scored around 10 points greater than the control group on the scale for posture, suggesting a positive effect of the intervention.

In the experimental group, the value of the standard deviation was 2.25 points and the



standard deviation of the control group was 2.65 points, which means that the obtained scores have a slightly higher variability in the control group. The T test produced a t statistic of 16.910 with 68 degrees of freedom and p value < 0.001, indicating a statistically significant difference between the two groups. The mean difference was 9.94 points (95% confidence interval 8.77 to 11.12), reflecting a high degree of precision in this assessment.

These results were further substantiated with ANOVA testing showing a significant F-value of 285.940 and a p-value < 0.001 revealing a strong, statistically significant difference between groups. This means that the intervention significantly improved the posture scores and also the narrow confidence intervals support the reliability of this result. Therefore, we can reject the null hypothesis.

## 4.2 Breathing Scores

A total of 70 participants were recruited for the Breathing Scores with 35 in the Experimental group and 35 in the Control group. The Experimental group had a mean score of 92.51; the Control group had a score of 83.31 — a mean difference of 9.2 points. In agreement with the posture ratings, the Experimental group outperformed the Control group for respiratory measurements, further substantiating the effectiveness of the intervention.

Standard deviations for the groups were comparable (Experimental = 3.13; Control = 3.18). These values indicate moderate variability in ratings, but the reproducibility was no more consistent between the two groups. Results: The T-test calculated produced a t statistic of 12.204, 68 degrees of freedom and p < 0.001, implying a statistically significant difference between groups. The confidence interval also corroborated the validity of the estimate, as the mean difference was found to be 9.20, with a confidence interval at 95% between 7.70 and 10.70.

The outputs of ANOVA conducted on Breathing Scores yielded a F value of 148.934 and a p value<0.001, thus validating the statistical significance of intra-group variation. In spite of the fact that the effect size for breathing was slightly lower than that for posture (F = 285.940), this intervention still had a statistically significant, and meaningful, impact on breathing scores. This means that the null hypothesis can be rejected.

## 5.0 CONCLUSION

This study's results highlight the considerable benefits of mastery learning for year 3 students when mastering recorder playing in particular for developing key technical skills such as posture and breathing. This study employed a pretest-posttest quasi-experimental design, finding that Foundations students in year 3 participating in mastery learning interventions outperformed those in standard instruction conditions in foundational skills. The success serves as testament to the usefulness of a systematic, feedback-based approach to skill improvement, which is critical to maintain sound quality and ultimately work on developing Musicianship as a whole.

The outcomes suggest that they should view mastery learning as a worthwhile improvement to music education curricula among novice students. For music educators wishing to innovate teaching practices, mastery learning must be part of



the plan to develop competent, confident young musicians so they can be prepared to acquire complex skills in the future. This study recommends an increased use of mastery learning in early music education as a means of encouraging students' technical and musical growth.

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