

Appendix 1

RECEIVED 21 DEC 2011



Brian Shannan
Educational Audiologist
Sensory Support Service
Tower Block
Auchterderran Centre
Woodend Road
Cardenden
KY5 ONE

Education Service

Bryan Kirkaldy

Your Ref:
Our Ref: BK/EF/F17

19 December 2011


Dear Brian

**RESEARCH PROPOSAL: THE IMPACT OF CLASSROOM NOISE ON LEARNING,
AND THE EFFECTIVENESS OF SOUND FIELD DISTRIBUTION SYSTEMS**

Thank you for the research proposal which you submitted regarding the above, and for meeting with Ken Keighren, Jennifer King and Marion Reid to discuss it further. Ken and Jennifer have recommended approval of your proposal, which they consider to have potential implications for a wide range of children in our schools, and for building design practice.

I am pleased therefore to grant approval and look forward to learning of the outcome of this highly relevant and valuable research.

Yours sincerely


Bryan Kirkaldy
Head of Education (North)

cc Ken Keighren, Education Officer
Jennifer King, Depute Principal Psychologist
Marion Reid, Sensory Service Manager

Rothesay House, Rothesay Place, Glenrothes KY7 5PQ
Tel: 01592 583372



Gold Award

Appendix 2

Soundfield in Schools Research

Parental Information Sheet

Soundfield Research

A soundfield system is equipment that is designed to make listening easier in the classroom (see frequently asked questions sheet). Fife Council is presently installing these systems in their new primary and secondary schools. This research aims to investigate if the soundfield system helps to improve educational outcomes and speech results in the classroom.



Soundfield speaker and microphone.

Who is conducting the research?

Brian Shannan is carrying out the research and is employed by Fife Council as a DHT/Educational Audiologist working for the Sensory Support Service. I am completing the research at the University of Edinburgh. This research has been approved by Fife Council and Moray House Ethics Committee. This leaflet sets out what is involved in the research but I am more than happy to answer any questions and can be contacted in the following ways:

Brian Shannan
DHT/Educational Audiologist
Sensory Support Service
Fife Council: Education and Children's Services
3rd Floor Rothesay House
Rothesay Place
Glenrothes
KY7 5PQ

Email: brian.shannan@fife.gov.uk
Work Telephone: 01592 583376
Work Mobile: 07715038319

Appendix 2

Glenrothes
KY7 5PQ

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What does this mean for your child?

Your school has been selected to take part in this research. In August one of the primary 3 class will be fitted with a soundfield system for a whole year and the other primary class 3 classes will have one fitted the following year in primary 4. Therefore, if your child is in a class without a soundfield system this year they will be in a class next year with one.

In June 2015 your child, like all children in Fife, will complete the Achievement for Excellence assessment. They will also do this again at the end of primary 5 and 7. As part of this research we will ask that your child also completes the assessment in August 2014 as this will help us to measure if the soundfield has helped improve educational progress. We will compare the results in primary 1 to see if improvements have occurred.

To help us investigate if soundfield improves speech results in the classroom your child will be asked to take part in a whole class speech assessment using the interactive Smartboard and a classroom voting system (see frequently asked questions). The assessment will be undertaken with and without the soundfield and classroom noise. This activity will last around 30 minutes and will be completed in September, January and June.

In order to obtain an accurate picture of how effective the soundfield equipment is we need to collect information from as many students as possible, so hope that every pupil in P3 will be able to take part.

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study can do so by completing the Parental Consent Form. Furthermore, you can withdraw your child from the research at anytime during the year.

If you, or your child decides not to take part in the research or decide at a later date to withdraw from the research they would still remain in the same primary 4 class. Although he/she may be in a classroom with a soundfield he/she would not participate in any assessments if you, or your child decide not to take part in the research. Equally, if you or your child decides to withdraw at anytime then we would remove all their data and he/she would not take part in any future assessments. .

We also ask that you discuss this with your child and check that they are willing to take part. I will be meeting with all the primary 4 children in August to also seek their consent.

Please return this form (if you or your child wants to withdraw) to the school office.

Confidentiality

All information collected through the project will be treated confidentially. Only the school staff and myself will see pupil names. No names of individuals will be released to any other organisation, nor will they be identified in any reports or publications arising from the study.

Use of results

We intend that the main findings from this research will be fed back to participating schools and local authorities and will be published in the form of reports and academic journals. The findings will help us understand how effective soundfield is at raising attainment and speech levels in the classroom.

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Soundfield Research Frequently Asked Questions

What is a soundfield?

A soundfield consists of a speaker and microphone transmitter. The speaker is attached to the wall of the school and connects up to the Smartboard in the classroom. It also plays music and other audio sources.

The teacher wears a microphone and this allows his/her voice to be heard when the noise levels in the class get too high.



What assessments will be used in the research?

To help us know that the results we get are correct we will ask all the children to have a hearing assessment in August 2014. This will be completed in school by Brian Shannan Educational Audiologist.



All children in Fife sit the Assessment for Excellence assessments at the start and end of primary 1 as well as the end of primary 3, 5 and 7. We will ask that your child also completes the assessment in August 2014 and check primary 1 scores as this will help us measure if the soundfield has helped improve education levels.



We will measure how well speech is heard in the classroom with the soundfield using the interactive



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Smartboard in conjunction with a classroom voting system. The voting system is used in many Fife Schools and children regularly used interactive whiteboards. This is done as a whole class activity in September, January and June. The assessment takes 30 minutes and the scores are anonymous.

Where will the data be stored?

Your child already has a code for the Assessment for

Excellence which maintains anonymity. All assessments will maintain anonymity and the data will be stored on the Fife secure server. No names of individuals will be released to any other organisation, nor will they be identified in any reports or publications arising from the study.



If you have any further questions please contact me directly.

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3rd Floor Rothesay House
Rothesay Place
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If you need to seek independent information please contact

Dr John Ravenscroft,

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Parental Consent Form

Please only complete this form if you do not want your child to take part in the study. If we do not receive this form from you, we will assume that you are happy for your child to take part.

Parents/guardians:

I wish to **withdraw** my child and not for them to participate in the soundfield research

Signature _____ Date _____

Pupil's name: _____

Name of school: _____

Parent/guardian's name: _____

Brian Shannan
DHT/Educational Audiologist
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3rd Floor Rothesay House
Rothesay Place
Glenrothes
KY7 5PQ

If you need to seek independent information please contact

Dr John Ravenscroft,
University of Edinburgh
Moray House School of Education
Holyrood Road,
Edinburgh
EH8 8AQ:

Telephone Number: 0131 651 6181
Email: John.ravenscroft@ed.ac.uk

Appendix 2

RE: REQUEST FOR PERMISSION TO DO RESEARCH IN XXX SCHOOL

Research Title: The Impact of Dynamic Soundfield Distribution Systems on Academic Achievement and Speech Recognition scores in the Primary Classroom

I hereby wish to apply for permission to conduct research in XXX at XXX Primary School. This research has been approved by Fife Council and Moray House Ethics Committee. The Head of Education has also consented to this research.

This research is being undertaken at the University of Edinburgh and will involve Primary 3 students. One primary 3 classroom will be fitted with a soundfield system (intervention class) and one will have no system installed (control class) this year. To ensure that no student is disadvantaged the primary 3 students this year will receive a soundfield system fitted in their primary 4 year.

This research will involve the following:

1. Both the control and intervention classes will have their hearing assessed in the school at the start of the 2014/15 term.
2. All students in the control and intervention classes will sit the Achievement for Excellence assessments in August 2014 and June 2015. The Assessment for Excellence team In Fife Council has been working with the University of Durham to arrange this additional assessment and there will be no additional cost to the school. .
3. A group speech assessment using the interactive Smartboard in conjunction with a classroom pupil response system (voting system) will be completed in May or June. The assessment will be completed with and without the soundfield system and classroom noise. This activity will last around 30 minutes. The pupil response system will be provided as well as any training for staff.
4. The Data Logging system on the soundfield allows data to be collected on noise levels in the classroom. The Data Logging system records noise levels in 15-minute timeframes using two categories: noise above 65 dB (A) and noise below



Soundfield speaker and microphone.

Appendix 2

65 dB (A). It also provides information on how often the system has been used; what audio inputs have been active during the day and if a microphone has been muted for more than a 15-minute period. This will be collected every 30 days by Brian Shannan.

5. Repairs and training will be provided by Brian Shannan. The Sensory Support Service will supply the soundfields for this research project.
6. The Assessment for Excellence scores obtained when the Primary 3 cohort entered and finished primary 1 will be used to measure differences in attainment.
7. The information obtained will be treated with the strictest confidentiality and will be used solely for this research purposes only. No names of individuals will be released to any other organisation, nor will they be identified in any reports or publications arising from the study.
8. We intend that the main findings from this research will be fed back to participating schools and local authorities and will be published in the form of reports and academic journals. The findings will help us understand how effective soundfield is at raising attainment and speech levels in the classroom.

I understand that I can withdraw from this research at anytime without giving an explanation.

If you have any further questions please contact me directly.

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5. The Data Logging system on the soundfield allows data to be collected on noise levels in the classroom. The Data Logging system records noise levels in 15-minute timeframes using two categories: noise above 65 dB (A) and noise below 65 dB (A). It also provides information on how often the system has been used; what audio inputs have been active during the day and if a microphone has been muted for more than a 15-minute period. This will be collected every 30 days by Brian Shannan.
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9. We intend that the main findings from this research will be fed back to participating schools and local authorities and will be published in the form of reports and academic journals. The findings will help us understand how effective soundfield is at raising attainment and speech levels in the classroom.

I understand that I can withdraw from this research at anytime without giving an explanation.

If you have any further questions, please contact me directly.

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University of Edinburgh
Moray House School of Education
Holyrood Road,
Edinburgh
EH8 8AQ:

Telephone Number: 0131 651 6181
Email: John.ravenscroft@ed.ac.uk

Headteacher Consent Form

I hereby give consent to this research project happening in my school. I understand that the consent of the parent, child and teacher will also be sought.

I understand that I can withdraw from this research at anytime without giving an explanation.

Name of Headteacher _____

Name of school: _____

Signature _____ Date _____

Appendix 2

RE: REQUEST FOR PERMISSION TO DO RESEARCH IN XXX SCHOOL

Research Title: The Impact of Dynamic Soundfield Distribution Systems on Academic Achievement and Speech Recognition scores in the Primary Classroom

This research is being undertaken at the University of Edinburgh and will involve Primary students. This research has been approved by Fife Council and Moray House Ethics Committee.

One primary 3 classroom will be fitted with a soundfield system (intervention class) and one will have no system installed (control class) this year. To ensure that no student is disadvantaged the primary 3 students this year will receive a soundfield system fitted in their primary 4 year.



Soundfield speaker and microphone.

This research will involve the following:

1. The class teacher that is allocated the intervention group will require using a soundfield system in their classroom for the academic year 2014/15.
2. Both the control and intervention classes will have their hearing assessed in the school at the start of the 2014/15 term.
3. All students in the control and intervention classes will sit the Achievement for Excellence assessments in August 2014 and June 2015. The Assessment for Excellence team In Fife Council has been working with the University of Durham to arrange this additional assessment and there will be no additional cost to the school.
4. A group speech assessment using the interactive Smartboard in conjunction with a classroom pupil response system (voting system) will be completed in May or June. The assessment will be completed with and without the soundfield system and classroom noise. This activity will last around 30 minutes. The pupil response system will be provided as well as any training for staff.

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University of Edinburgh
Moray House School of Education
Holyrood Road,
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EH8 8AQ:

Telephone Number: 0131 651 6181
Email: John.ravenscroft@ed.ac.uk

Teacher Consent Form

I hereby give consent to this research project happening in my school. I understand that the consent of the parent, child and teacher will also be sought.

I understand that I can withdraw from this research at anytime without giving an explanation.

Name of Teacher _____

Name of school: _____

Signature _____ Date _____

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Consent Form

I agree to take part

Name _____

Signature _____

Date _____

I do not agree to take part

Name _____

Signature _____

Date _____

I understand I can change my mind at anytime. If I change my mind or say no to taking part I will be in the same class but I won't take part in the project. All the questions I have answered will be cleared

Soundfield Project

Consent Form

Consent is being asked if you agree to something.

This means saying **yes** or **no**



Who am I?

My name is Brian Shannan

I am a research student at the University of Edinburgh. A research student has a project and it is hoped that this will help them to answer some questions.

I also work for Fife Council as a Deputy Head Teacher and Educational Audiologist. An Educational Audiologist helps children to listen better.

Appendix 2

What is a Soundfield?

My project is on soundfields in primary classrooms.

A soundfield is a speaker that sits on the wall in your classroom. Your teacher has a microphone and this makes his/her voice louder

You might be in a class this year with a soundfield but if not then you will be next year.



Keeping your information safe

We will keep all your information safe.



When sharing this project we will not let anyone know your name.



To help us know if things are better we will look at the primary 1 results.



What Will I be asked to do?

1

In Primary 1 you sat with your teacher and answered questions. You will do this again at the end of primary 3.

I would also like for you to do this in August as well.



2

The class will use the Smartboard and soundfield to match the words you hear with the pictures you see.



You will choose the picture with your handset. We will play some noise at the same time.

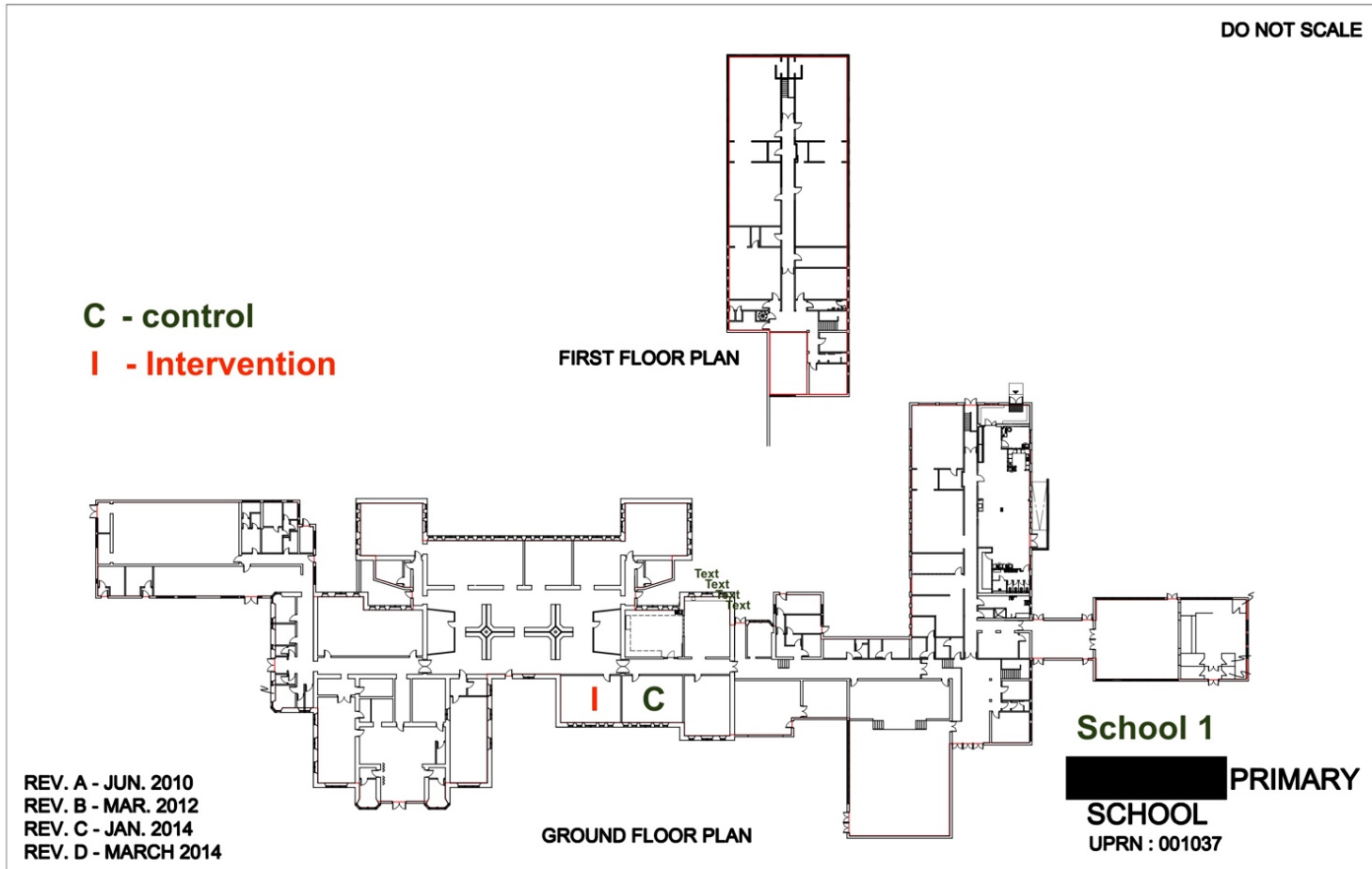


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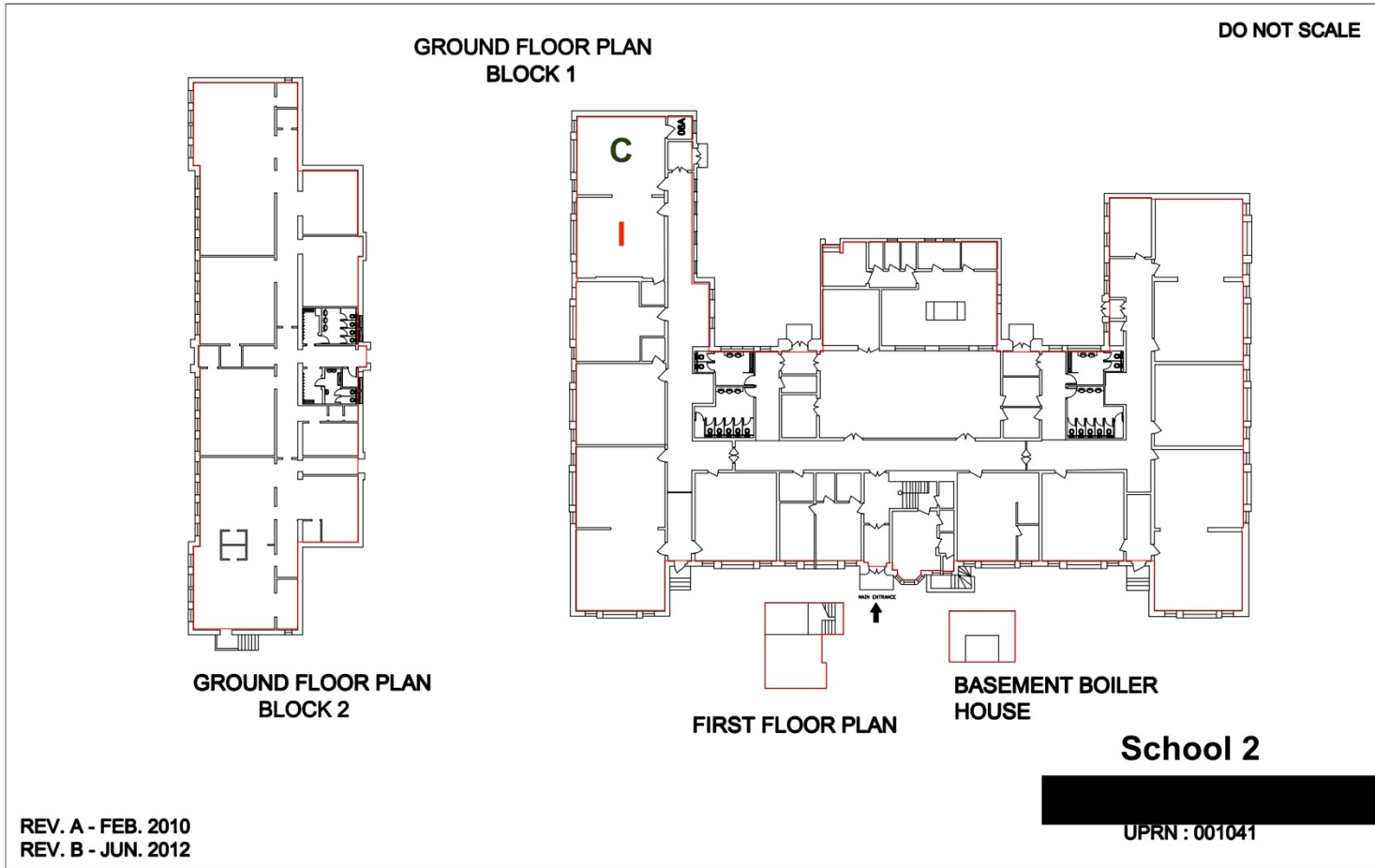
We will check that you can hear sounds well. You will wear headphones and press a button. We will do this in August



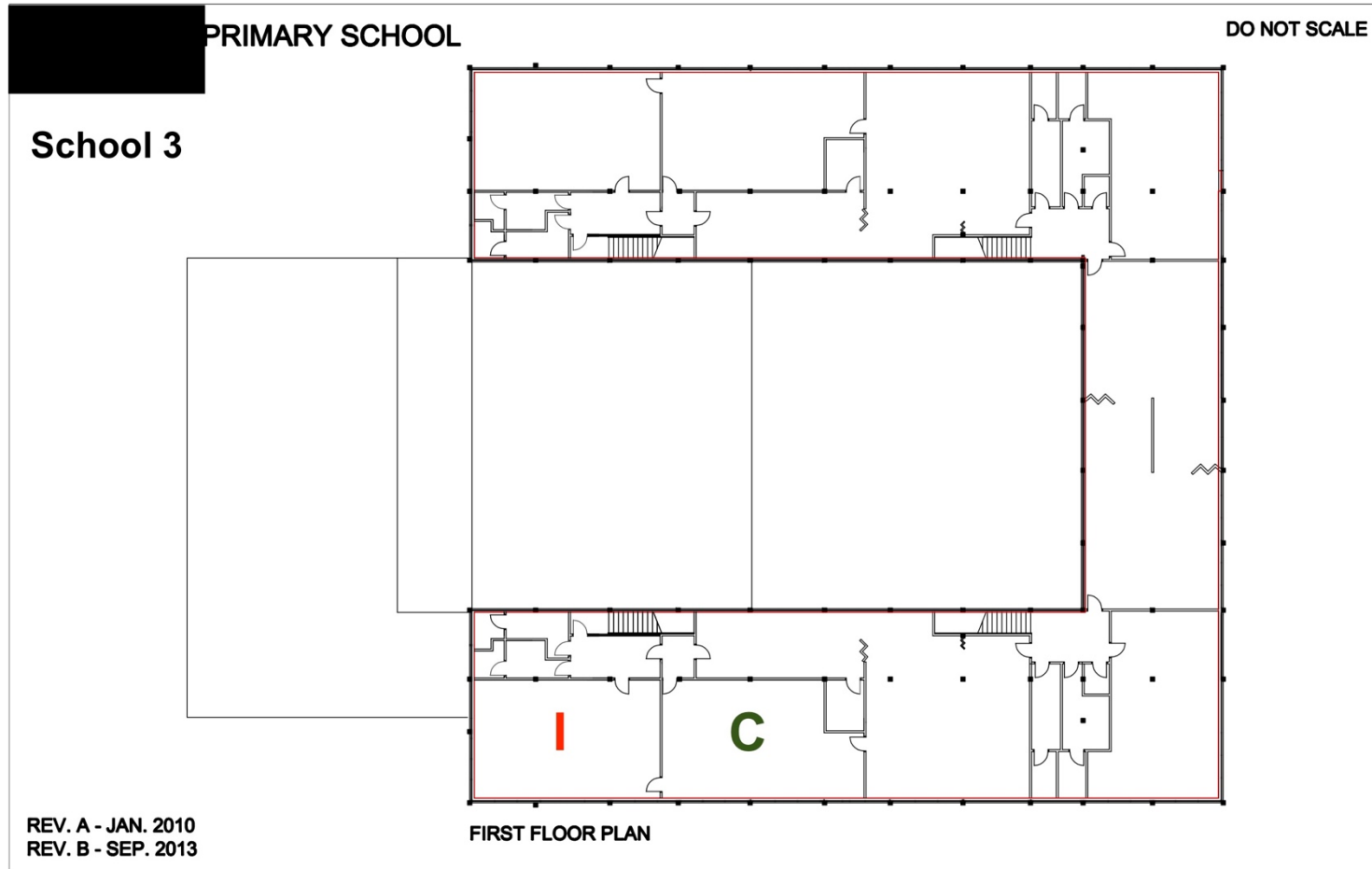
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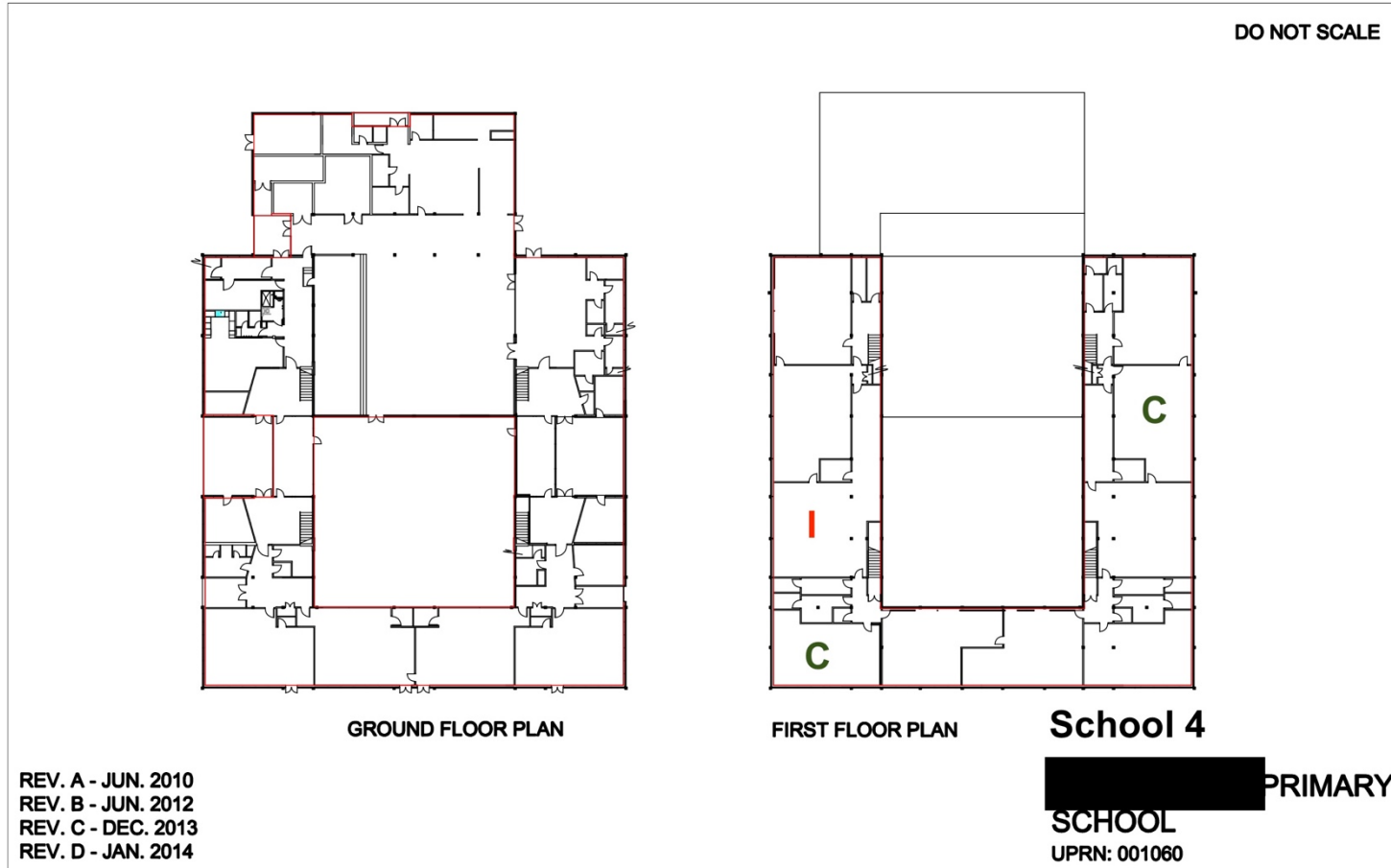
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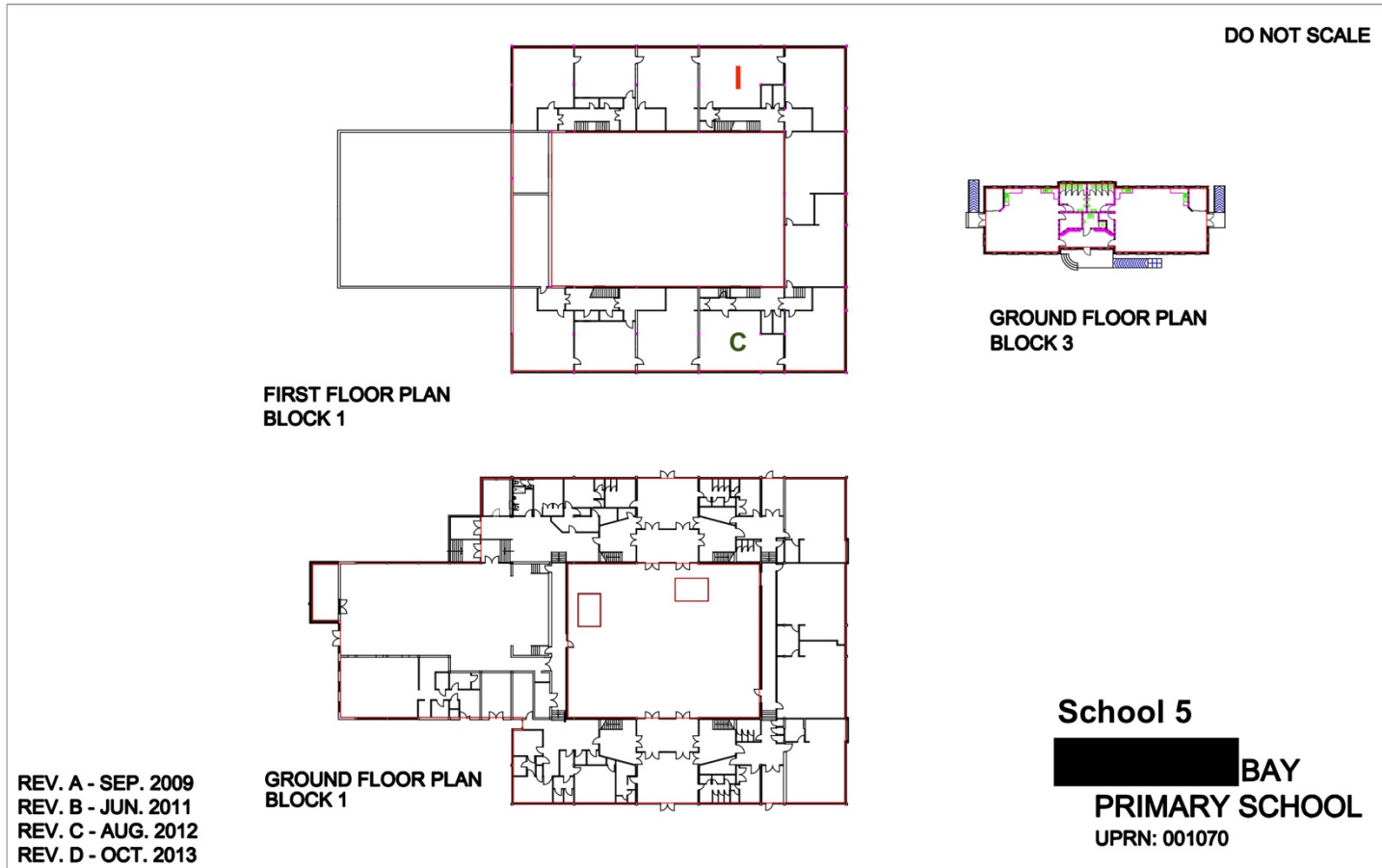
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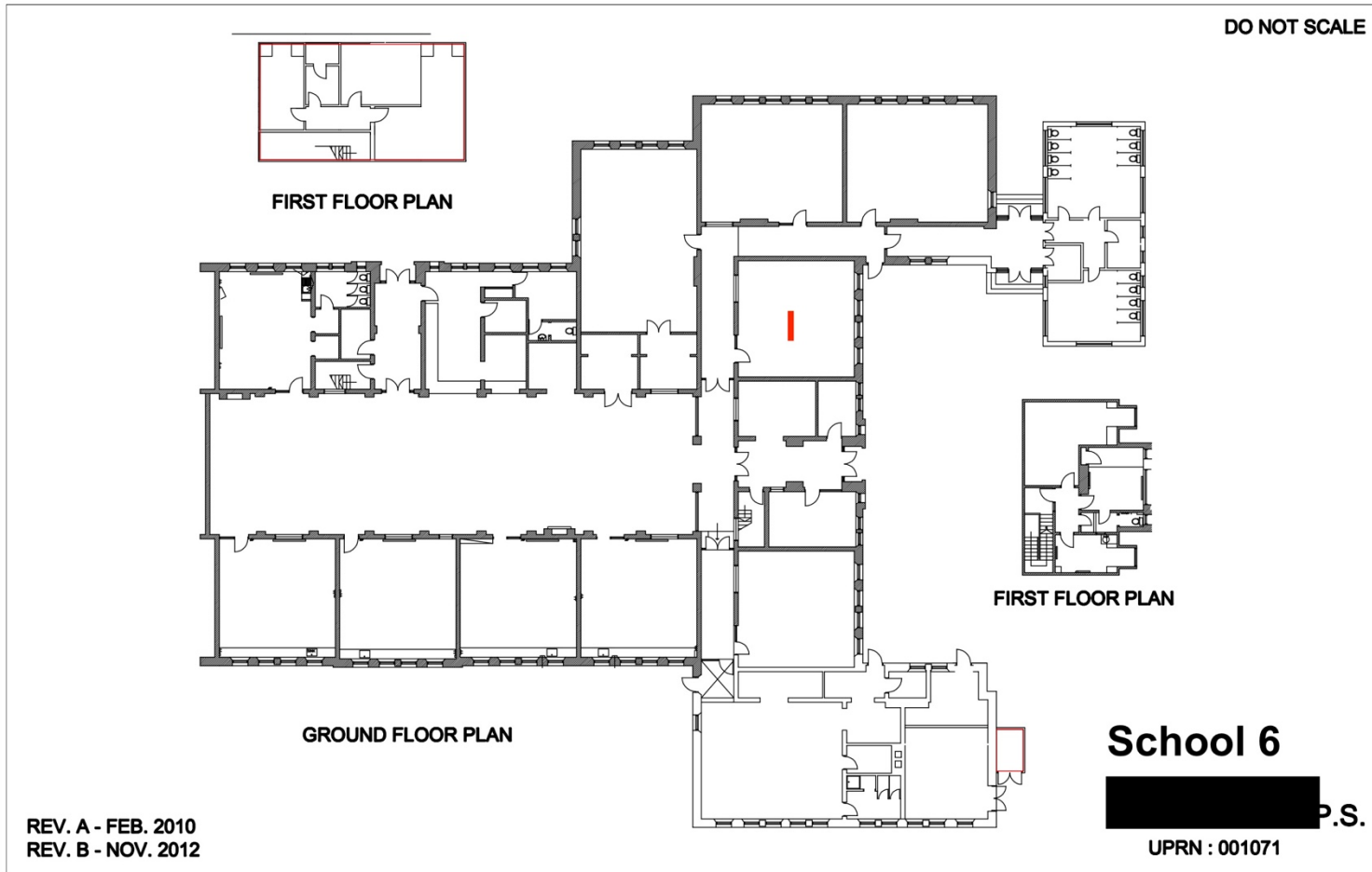
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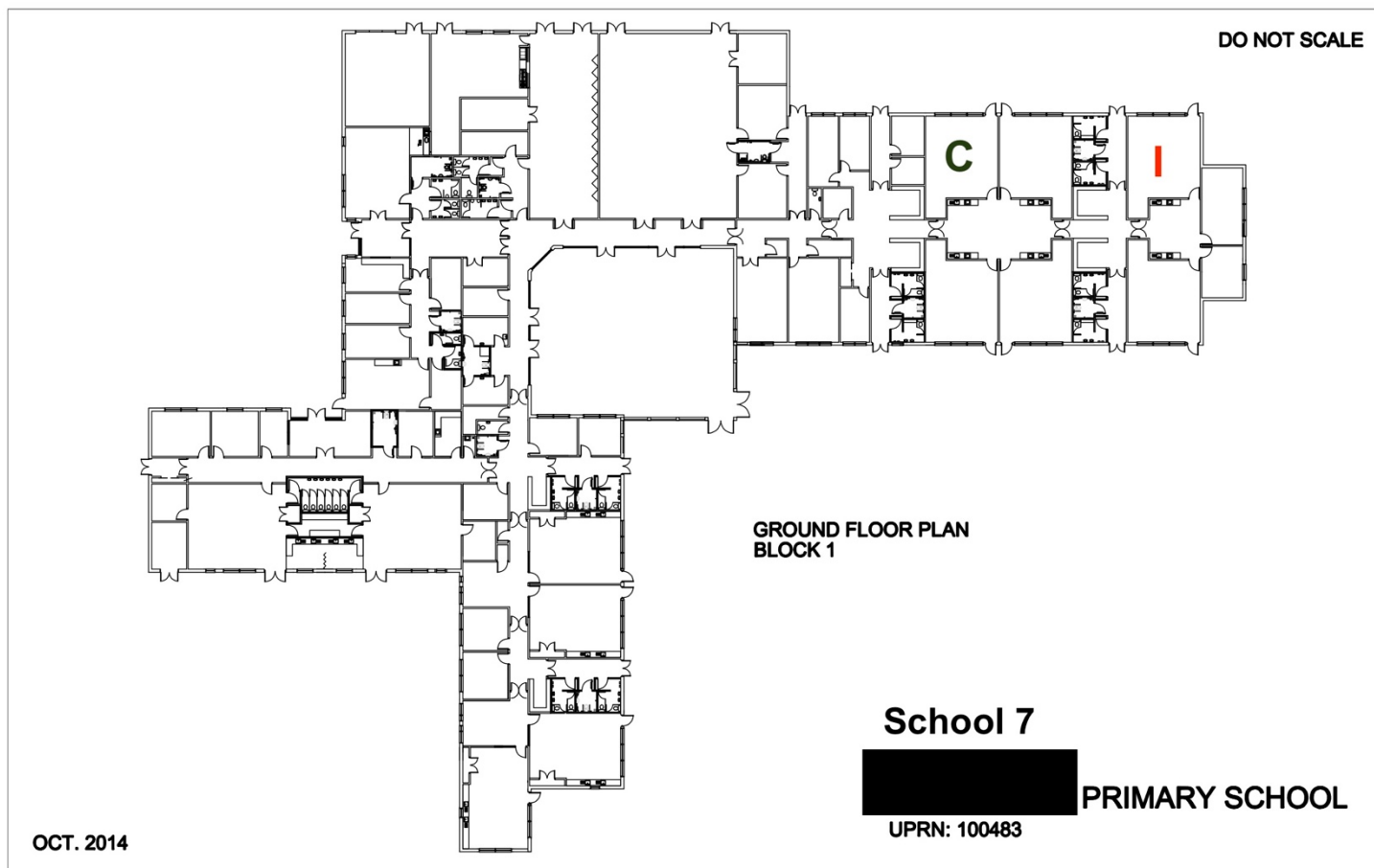
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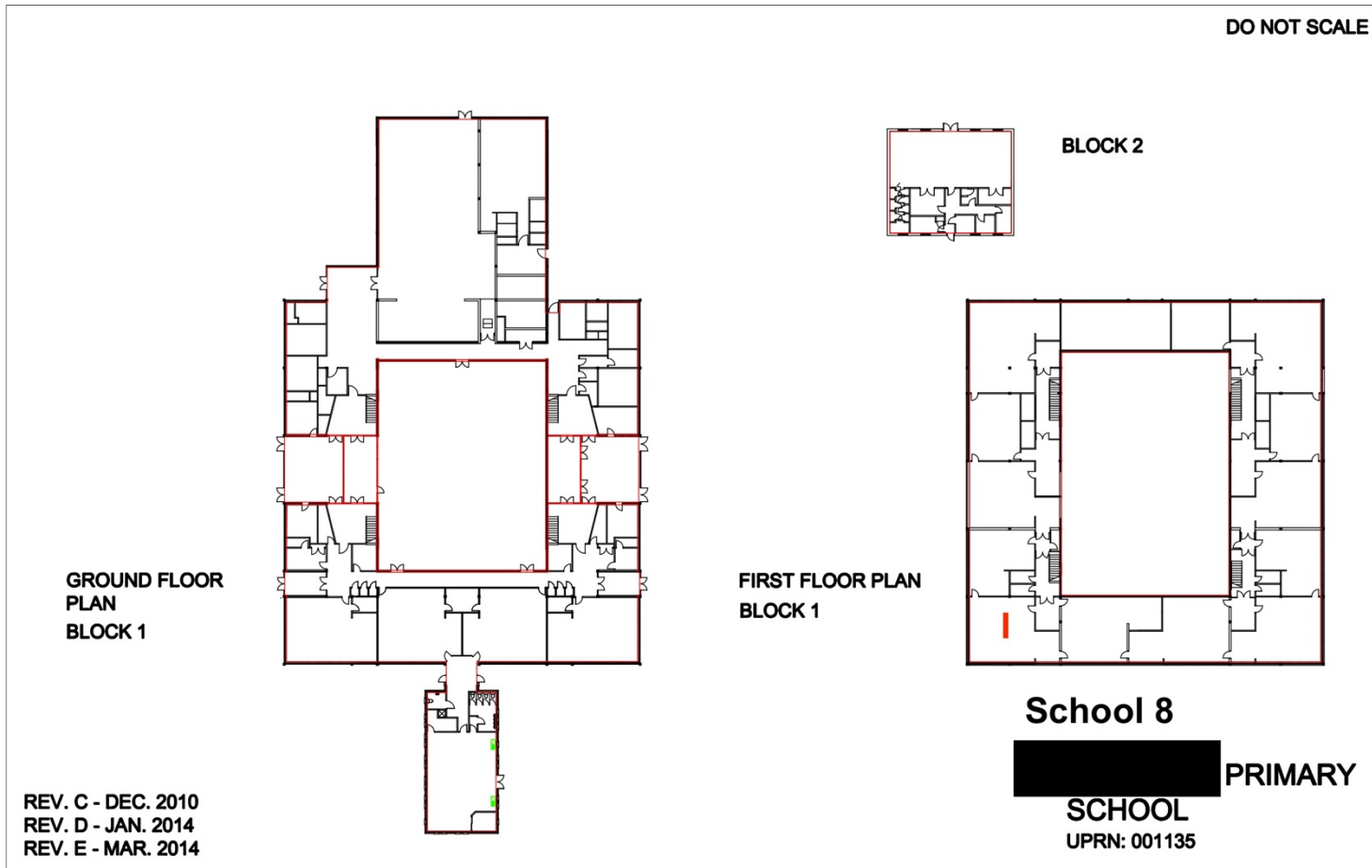
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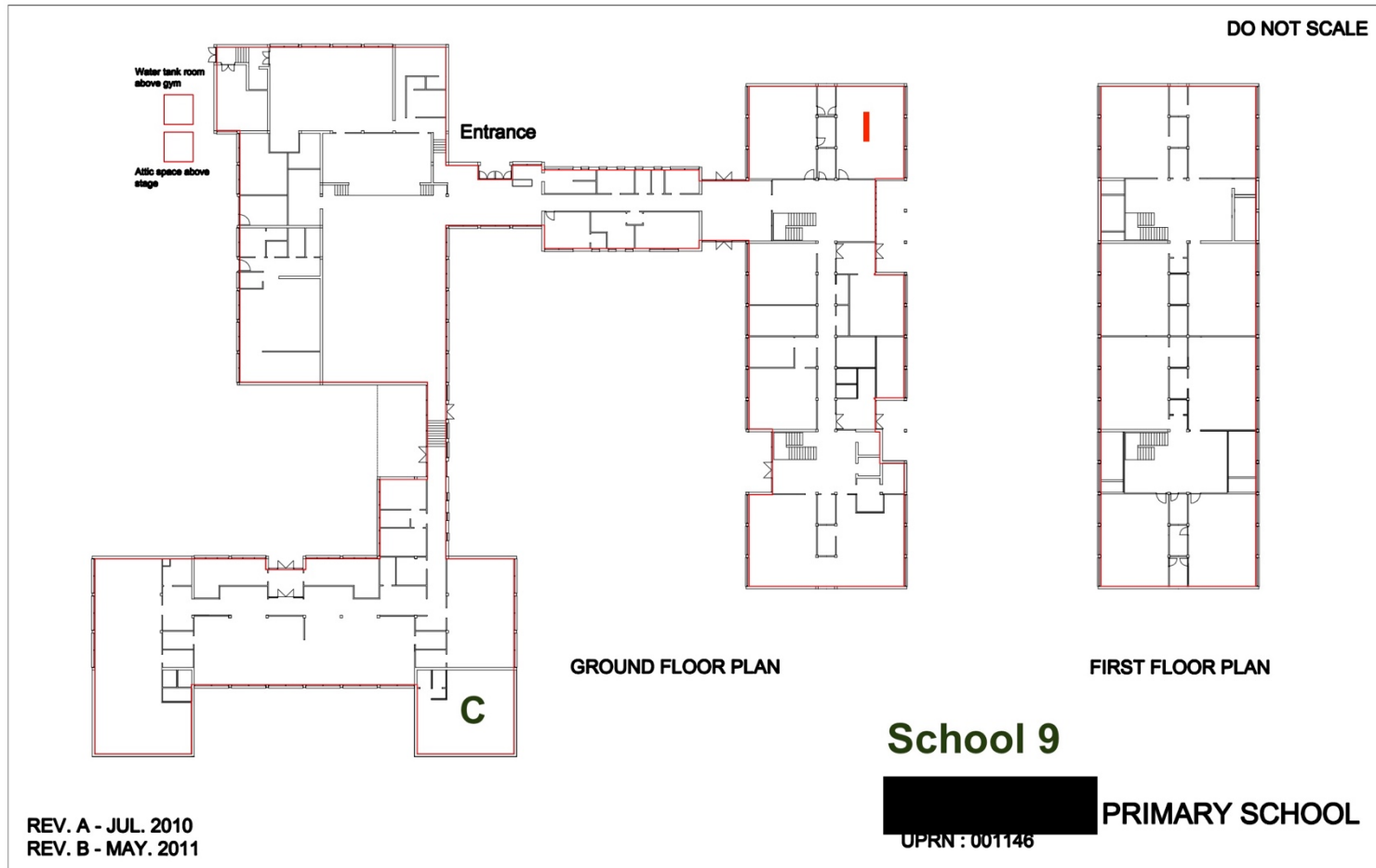
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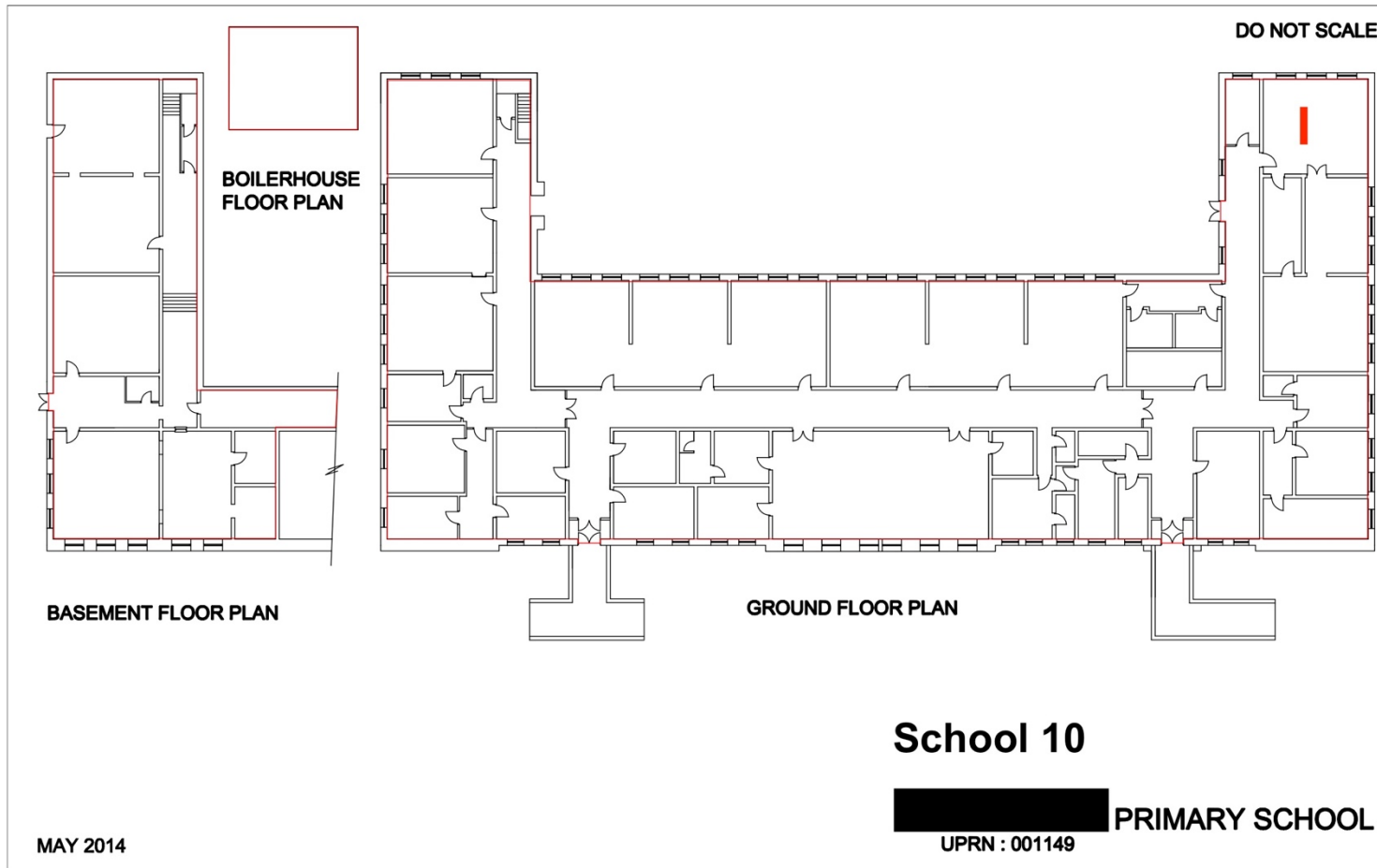
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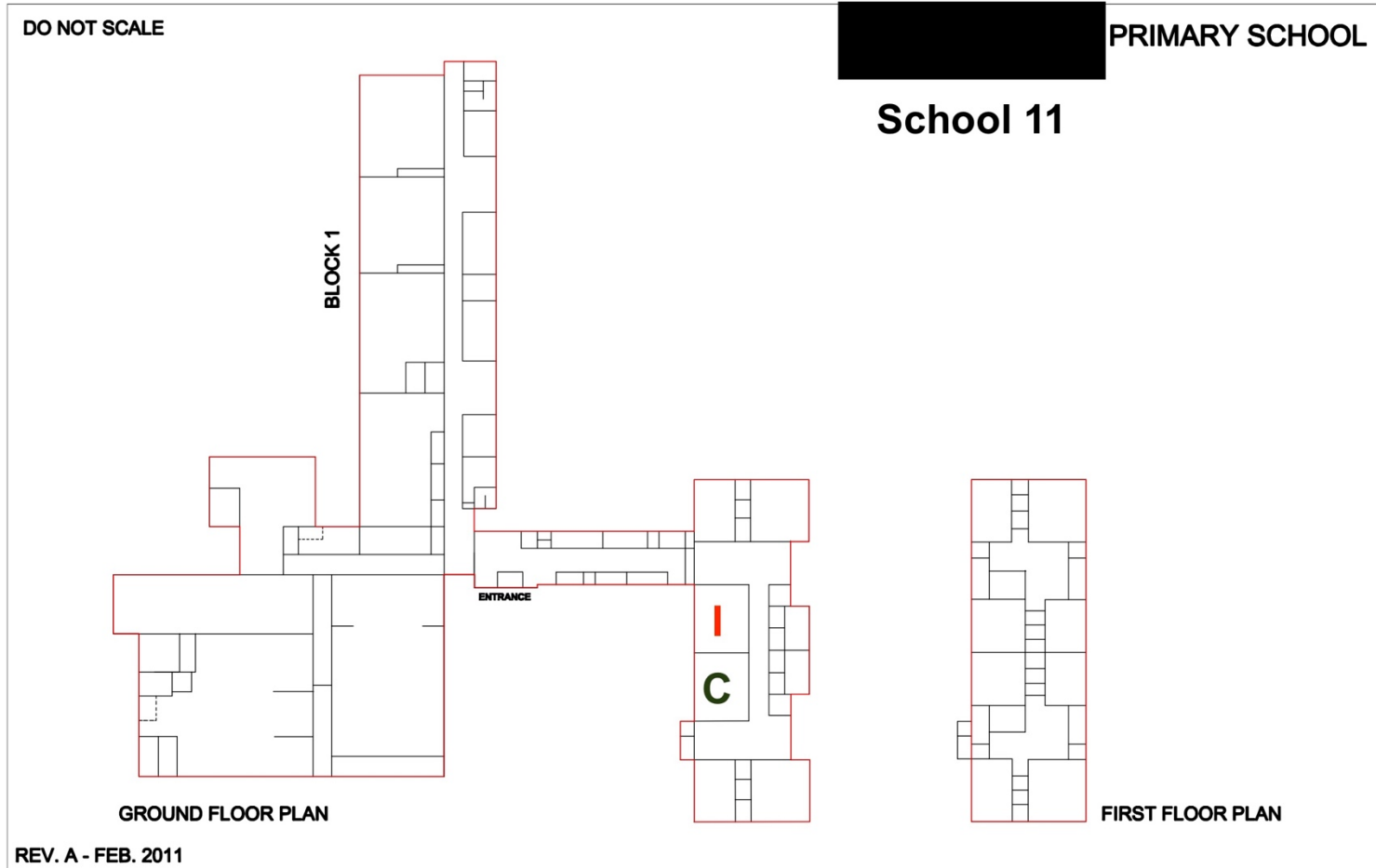
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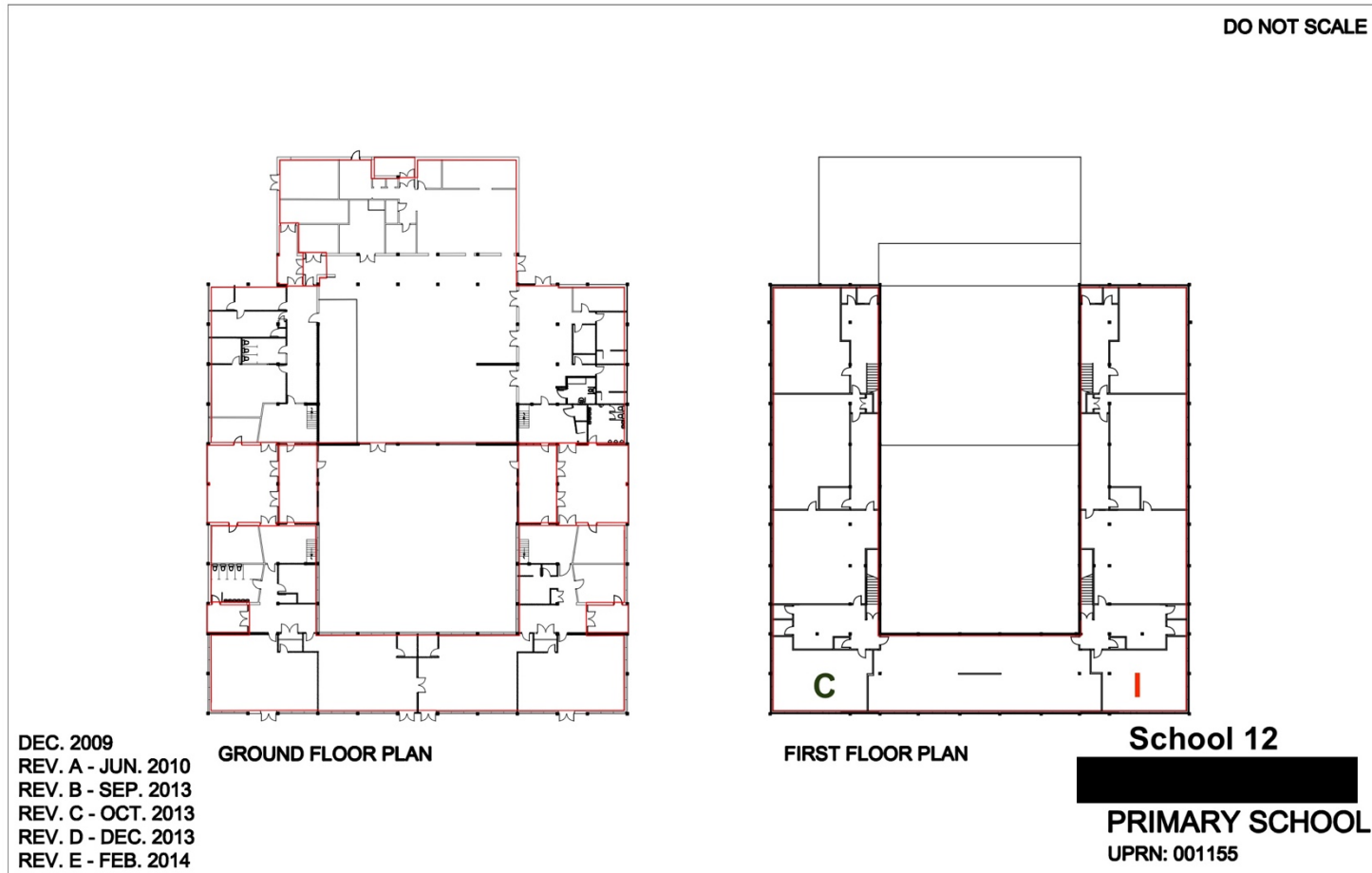
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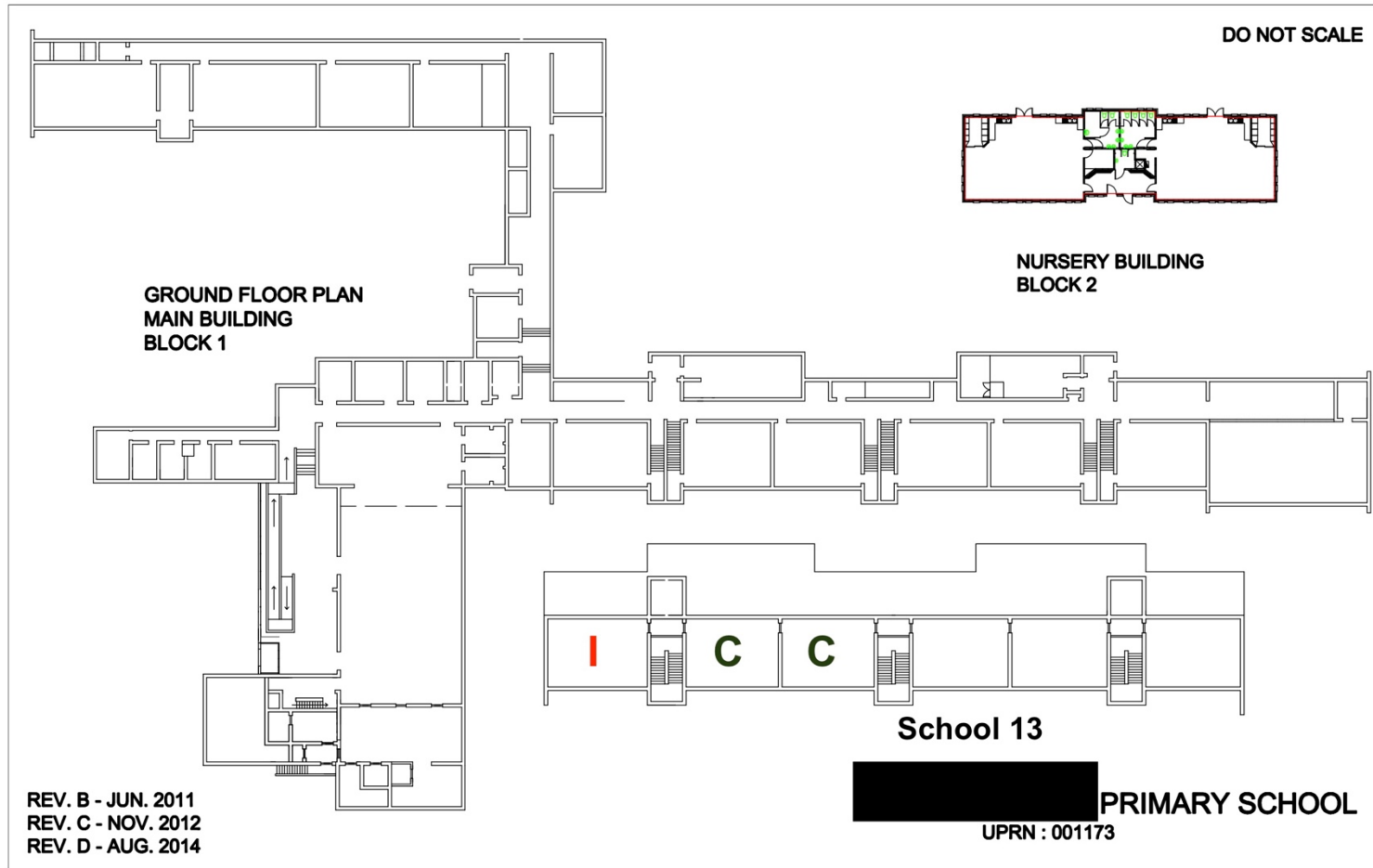
Appendix 3



Appendix 3



Appendix 3



Appendix 4



Installation instructions Dynamic SoundField

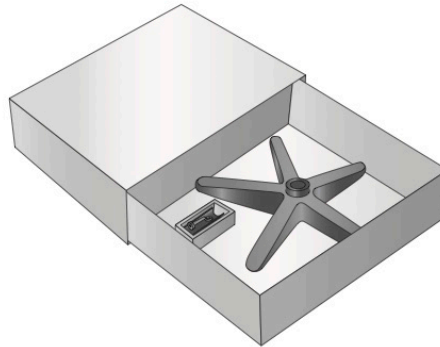
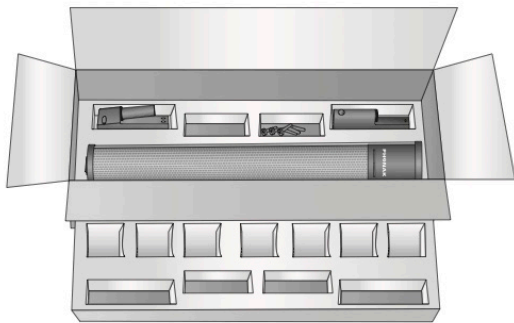
The following materials are included (if any are missing, contact your local Phonak dealer):

DigiMaster 5000 package

A B C D

Optional: Stand plate package

F G H



Optional: Stand tube package

I



Follow these installation instructions carefully to make sure your Dynamic SoundField system is properly installed.



Dispose of the packaging material as per local regulations.

Appendix 4



Installation instructions Dynamic SoundField

The following tools are required for the installation:

To mount the loudspeaker on the wall:

- Drill with 5mm bit
- Spirit level
- Pencil
- Torx screwdriver T20*
- Hex wrench 5*

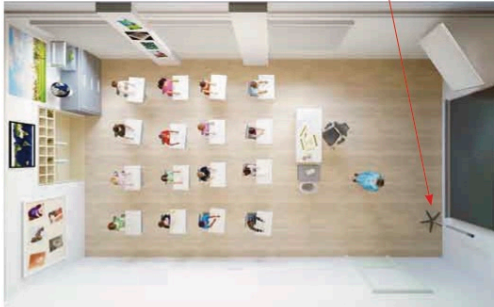
To mount the loudspeaker on the floor stand:

- Hex wrench 5*
- Hex wrench 6*

*Delivered from Phonak

1. Selecting the right location

1) Identify an open and safe place, ideally in front of the class, e.g. on the right or left side of the Smartboard or blackboard.



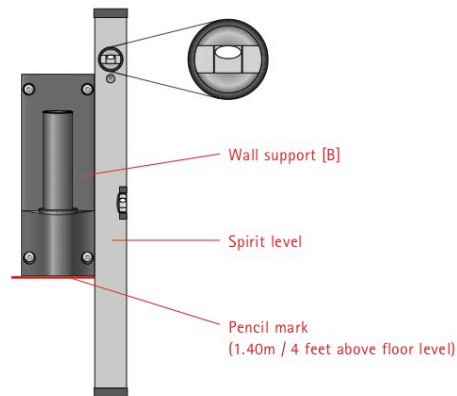
2) Make sure there is a power source nearby.

2. Installation

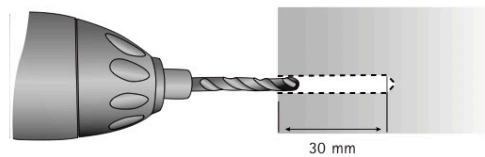
If you plan to use the DigiMaster 5000's floor stand, go directly to chapter 2.2: Mounting the DigiMaster 5000 on its stand.

2.1 Mounting DigiMaster 5000 on the wall

1) Measure 1.40 meters (4 feet) up from the students' floor level and mark the wall with a pencil. Hold the wall support [B] against the wall so that the pencil mark is at the bottom of the wall support. Adjust the wall support using the spirit level until it is level. Use the pencil to mark the wall through the wall support's four holes.



2) Remove the wall support and drill 4 holes using a 5mm (0.2 inches) diameter drill bit. The depth of these holes should be at least 30mm (1.2 inches).



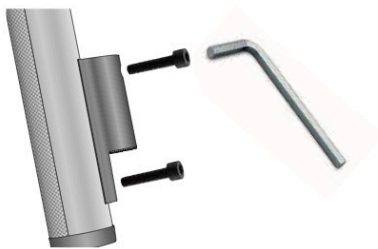
3) Push the anchors [D] into the holes. Mount the wall support using the 4 torx screws [D] and a torx T20 screwdriver.

Appendix 4

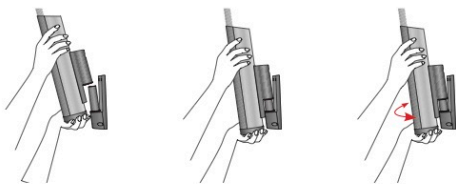


Installation instructions Dynamic SoundField

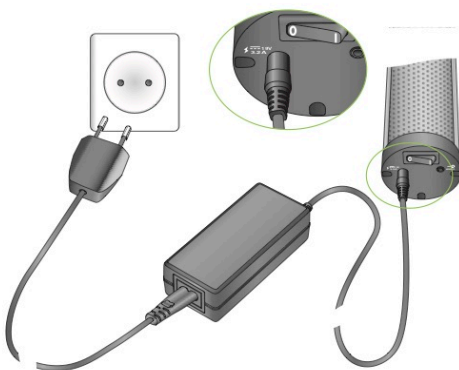
4) Mount the array fixation [C] on the DigiMaster 5000 by using the two black hex screws [D] and hex wrench 5.



5) Carefully attach the DigiMaster 5000 [A] to the wall support and turn it to face the center of the class.



6) Attach the power cable to the power adapter [E]. Plug the power cable into the mains and the 19Volt jack into the socket on the bottom of the DigiMaster 5000. Your DigiMaster 5000 is now ready to be paired with the inspiro.



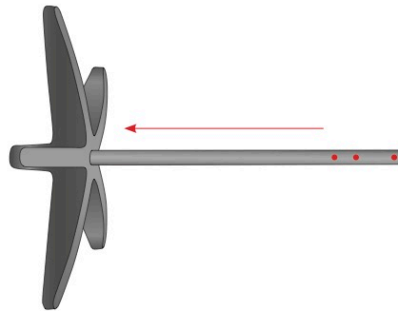
Make sure the power cable is safely positioned!

Now go directly to chapter 3: Pairing the DigiMaster 5000 with the inspiro.

2.2 Mounting the DigiMaster 5000 on its stand

1) Take the plate [F], stand tube [I], black M8 screw and M8 washer [H].

2) Gently place the 'screw thread' end of the tube stand in the center of the plate (see picture below). The three holes are on the upper side of the stand. Fix the tube from the underside of the plate, using the screw M8, washer and hex wrench 6. Place the stand on the floor.



3) Take the DigiMaster 5000 and the tube connection [G]. Hold the tube connection behind the DigiMaster 5000, where the 4 holes are situated. The two fingers of the tube connection should fit into the two inner holes.



4) Take the two black hex screws [D] from the wall mount kit and push these through the two holes in the upper part of the stand tube. Screw the DigiMaster 5000 featuring the tube connection to the tube using hex wrench 5.

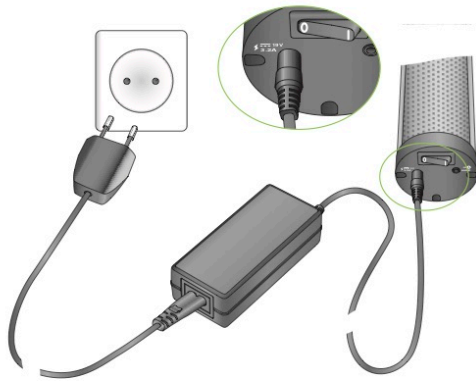


Appendix 4



Installation instructions Dynamic SoundField

5) Attach the power cable to the power adapter [E]. Plug the power cable into the mains and the 19Volt jack into the socket on the bottom of the DigiMaster 5000. Your DigiMaster 5000 is now ready to be paired with inspiro.



Make sure the power cable is safely positioned!

3. Pairing the DigiMaster 5000 with the inspiro

1) Take inspiro and make sure it is charged (see the Dynamic SoundField User Guide). Switch on inspiro. If the battery symbol appears, press the two buttons shown below-left simultaneously.



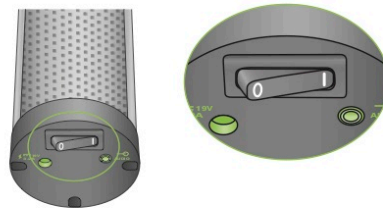
2) Release the two buttons then press OK.



4

3) You will now see the inspiro installer menu. Select "Pairing". inspiro will now guide you through the pairing process. Please follow the instructions provided:

a) When you see three dots on the inspiro LCD, hold inspiro close to the loudspeaker (nearer than 1 meter / 3 feet) and switch on the DigiMaster 5000.



b) After a short time, inspiro will inform you that the loudspeaker has been paired. The LED color of the DigiMaster 5000 will now display a constant blue light. This blue light shows that the Dynamic SoundField system is ready for operation.

4) If not required immediately switch off both inspiro and the DigiMaster 5000. Dynamic SoundField's installation is complete.

 Please check the Dynamic SoundField User Guide to learn about the standard functionality of Dynamic SoundField.

Appendix 4

Dynamic SoundField

Technical Data

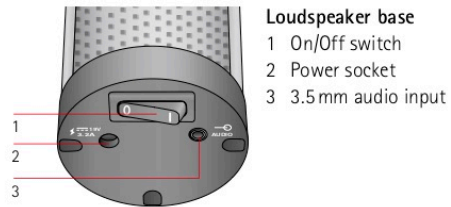


The Dynamic SoundField consists of the DigiMaster 5000 loudspeaker unit and the inspiro transmitter with the EasyBoom microphone.

Features

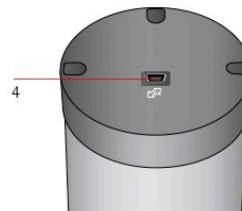
- Installation-free
- Only one loudspeaker per classroom
- Unlimited number of Dynamic SoundField systems per school building
- Exclusive built-in FM compatibility for children using hearing instruments
- Automated Dynamic behaviour for optimal signal-to-noise ratios (SNRs)
- Unique 'line-source' loudspeaker unit for crystal clear sound
- 12 high-quality loudspeakers per loudspeaker unit
- Premium loudspeaker design
- Automatic frequency hopping for interference-free sound
- Floor-stand or wall-mountable use
- mini-USB for downloading new features
- MultiTalker Network with inspiro and DynaMic for up to 10 speakers
- Durable EasyBoom microphone

DigiMaster 5000 Controls



Loudspeaker base

- 1 On/Off switch
- 2 Power socket
- 3 3.5 mm audio input



Loudspeaker top

- 4 mini-USB



Status indicator

V1.00/2010-06/visu1 © Phonak AG All rights reserved/page 1/4



DigiMaster 5000

inspiro



Appendix 4

Dynamic SoundField

inspiro Controls



- inspiro**
- 1 On/Off slider
 - 2 Color LCD
 - 3 Soft keys
 - 4 Keypad lock key
 - 5 Microphone mute key

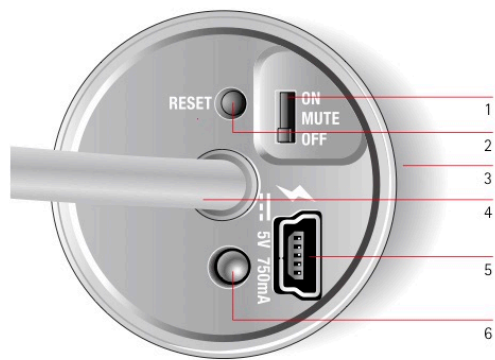


- 6 3.5 mm audio input
- 7 mini-USB for charging



- 8 Button to attach the belt clip and the neck-loop
- 9 Cable wrapper

DynaMic Controls



- DynaMic**
- 1 On/Mute/Off slider
 - 2 RESET Button
Use a pen to press the button
 - 3 Built-in vibration alarm
 - 4 FM antenna
Emits FM to FM receivers
 - 5 mini-USB interface
For charging
 - 6 The LED indicates the following:
 - battery status
 - charging
 - error status

Appendix 4

Dynamic SoundField

DigiMaster 5000

General data

Height:	895 mm (35 inches)
Diameter:	72 mm (2.8 inches)
Weight (without floor stand):	2070 g
Operating temperature range:	0°C to +45°C
Humidity:	20 % to 85 %
Transmission technology:	2.4 GHz with automatic frequency hopping
Frequency planning:	not necessary
Number of Dynamic SoundField systems per school building:	unlimited
Operating range:	typically >10 meters (> 33 feet)

Audio characteristics

Audio bandwidth for speech:	200 Hz–7.5 kHz
Signal-to-noise ratio with EasyBoom:	> 55 dB
Audio bandwidth for auxiliary audio input:	200 Hz–15 kHz
Signal-to-noise ratio of external audio:	> 70 dB
Volume control for voice:	+/- 8 dB
Volume control for auxiliary audio input:	+/- 10 dB
Power output:	up to 40 W
Loudspeaker impedance:	4 Ω
Vertical aperture angle of the main lobe @500Hz:	+/- 25°
Vertical aperture angle of the main lobe @2kHz:	+/- 7°
Auxiliary input socket:	3.5 mm jack
Auxiliary input impedance:	> 10kΩ

Dynamic characteristics

Target gain for noise level < 54 dB SPL:	+6 dB compared to the voice level
Start of dynamic adaptation:	noise level > 54 dB SPL
SNR with 45 dB SPL noise level in classroom:	> 20 dB*
SNR with 55 dB SPL noise level in classroom:	> 12 dB*
SNR with 65 dB SPL noise level in classroom:	> 10 dB*
Typical average output level (Volume control 0 dB, speech level of 65 dB SPL@1 m):	Noise level < 54 dB SPL: 71 dB SPL@1 m, 66 dB SPL in the reverberant field Noise level = 60 dB SPL: 75 dB SPL@1 m, 70 dB SPL in the reverberant field Noise level = 66 dB SPL: 81 dB SPL@1 m, 76 dB SPL in the reverberant field Noise level > 66 dB SPL: 81 dB SPL@1 m, 76 dB SPL in the reverberant field
Maximum average output level with EasyBoom:	89 dB SPL@1 m (Volume control +8 dB, noise level of 60 dB SPL, speech level of 75 dB SPL@1 m)
Maximum peak output level with EasyBoom:	96 dB SPL@1 m (Volume control +8 dB, noise level >60 dB SPL, speech level of 75 dB SPL@1 m)
Maximum peak output level over auxiliary audio input:	100 dB SPL

Power supply

Voltage input:	100–240 V
Voltage output:	19VDC/65 W
Power consumption in standby mode:	< 1 W
Power consumption in Off mode:	< 0.5 W
Plug:	5.5 x 2.5 x 11.5 mm, polarity+ center

Floor stand

Height:	1035 mm (41 inches)
Diameter of the foot print:	750 mm (29 inches)
Weight:	2165 g

* Speech level of 65 dB SPL@1 m, SNR measured at a distance of 4 m from the voice and loudspeaker sources

Appendix 4

Dynamic SoundField

inspiro

General data

Type:	Dynamic SoundField and Dynamic FM transmitter
Length:	83 mm
Width:	56 mm
Height:	21 mm
Weight:	69 g
Operating temperature range:	-10°C to +60°C
Humidity:	20 % to 75 %
Transmission technology:	2.4 GHz including automatic frequency hopping
Operating range:	Sufficient for classroom sizes > 10 meters (33 feet)

Power supply

Type:	Dedicated inspiro charger
Connector:	mini-USB

Battery

Type:	Lithium polymer
Dimensions:	Length: 50 mm Width: 25.5 mm Height: 5.8 mm
Voltage:	3.7V
Capacity:	750 mAh
Operating time (normal mode):	9 hours
Charging temperature range:	0°C to +45°C
Charging time with charger:	100 % in 2 hours 80 % in 1 hour

If inspiro is emitting to the DigiMaster 5000 and to Phonak FM receivers in parallel, its power consumption is slightly higher, reducing the operating time to 7-8 hours.

Dynamic SoundField

DigiMaster 5000 + inspiro

Standards

Electrical safety:	IEC/EN 60950-1
RF standards:	for 2.4 GHz: EN 300 328 for FM: EN 300 422 EMC: EN 301 489-1, -9, -17, EN55013, EN55020
Product power consumption complies with Ecodesign Directive 2005/32/EC:	EC No 1275/2008, EN 62301 Power supply efficiency level V

Accessories

DigiMaster 5000

Power adapter with power cables for Europe, USA, AUS and UK
Wall mount Kit
Tool set for the installation
Audio cable 1 m/3 feet
Audio cable 3 m/10 feet
Scart adapter for audio cable
Cinch adapter for audio cable

inspiro

Additional inspiro transmitters for the MultiTalker Network
Additional Dynamic surround microphones for the MultiTalker network
inspiro single charger
inspiro twin charger
Replacement battery for inspiro 3.7V/750mAh
Replacement clip for inspiro
Replacement neck loop for inspiro

EasyBoom

EasyBoom microphone for the inspiro
EasyBoom adapter cable for inspiro
Replacement foam for EasyBoom

DynaMic

Desk stand
Clamp for 3/8" and 5/8" (K&M)
Replacement microphone head
Colour rings

Appendix 5

MADSEN Xeta

Key features

Air, bone and masking
 Pure, warble and pulsed tones
 Auto threshold and auto screening
 Special tests (optional): ABLB, SISI, Stenger
 Built-in Talk-over communication
 Patient data storage (50 planned patients and 75 full audiograms)
 User configurable setups
 Connects with OTosuite™ Audiometry software (NOAH compatible)
 Masking Assistant™

Technical specifications

Pure tone frequencies

AC: 125-8000 Hz

BC: 250-8000 Hz

Masking: Narrow Band Noise

Stimulus levels

AC: -10 to 120 dB HL at mid-frequencies, 5 dB steps

BC: -10 to 70 dB HL at mid-frequencies, 5 dB steps

Automatic threshold test

Test adheres to the modified (ascending) Hughson & Westlake method

Normal and Quick mode

Automatic screening test

Optional threshold search for failed frequencies

PC interface

RS232 (USB converter available)

Dimensions and Weight

Approx. 355x415x130 mm, 14x16.5x5.1 inches

Approx. 4 kg, 8.8 lb.

Power supply

Internal, 100-240 VAC, 50/60 Hz

Standards

Audiometer: EN 60645-1 and ANSI S3.6

Patient safety: Complies with EN 60601-1, Class 1

Type B: U2601-1; CAN/CSA-C22.2 NO 601.1-90

EMC: EN 60601-1-2

Otometrics is the world's leading manufacturer of hearing and balance instrumentation and software - innovative concepts designed to help healthcare professionals make the best possible decisions. Our solutions range from infant screening applications and audiologic diagnostics, to balance testing and hearing instrument fitting.

Headquartered in Copenhagen, Denmark, and with a center of development in the United States, we maintain a global network of distributors and subsidiaries. Otometrics is part of GN Store Nord.

○ Hearing Assessment ● Fitting Systems ● Balance Assessment

GN Otometrics, Europe. +45 45 75 55 55. info@gnotometrics.dk
 GN Otometrics, North America. 1-800-289-2150. sales@gnotometrics.com
 www.otometrics.com

Accessories

Standard

- Choice of: TDH39, E-A-RTONE 3A insert phone, ME70 or HOLMCO
- Patient responder switch

Optional

- Bone conductor
- E-A-RTONE 3A Mono insert masking phone
- OTosuite™ Audiometry software
- Carrying case
- Special tests



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Distributor:



MADSEN Xeta

○ Hearing Assessment ● Fitting Systems ● Balance Assessment



Appendix 5

Audiometry has never been this easy

Intuitive and well thought out, the MADSEN™ Xeta™ audiometer from Otometrics is perfect for those who want fast, efficient testing. Air, bone, and masking, combined with valuable features such as an intuitive layout, flexible storage, and a built-in PC connection, ensure efficient audiometry - in the clinic or in the field.

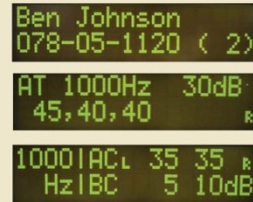
Simple to learn

Thanks to its highly intuitive design, only a minimum of training is needed to operate the MADSEN Xeta audiometer. Significant effort has been put into creating a user-friendly layout. The result is a non-nonsense "one button = one function" design that gives you immediate access to everything needed during

testing. And convenient indicator lights provide fast overview of the current setting. In short, audiometry has never been this easy!

Advance planning

The MADSEN Xeta also makes it easy to manage test schedules. The audiometer links directly to your PC so there's no need to retype the names and IDs of patients. By pre-loading the audiometer, patients are always properly identified during testing, and when documenting and reviewing results. And moving from one patient to the next can be accomplished quickly and efficiently.



Patients are properly identified by browsing the list of pre-loaded names and IDs.

Follow the auto threshold process in a list of detected minimum audible levels.

Check for air/bone gaps or view the individual air/bone conduction audiograms.

Flexible patient handling

By virtue of its built-in data storage and flexible patient handling, the MADSEN Xeta is truly a state-of-the-art audiometer.

With a storage capacity of 50 planned patients and 75 full audiograms, the MADSEN Xeta is geared for intensive testing. Its built-in memory and advanced interface let you leaf



through lists of pre-loaded patients, browse through test results, or resume testing at any time. This creates an incredibly dynamic and flexible test setting.

The lightweight design and flexible patient handling make MADSEN Xeta the ideal portable solution. And back in the clinic, the MADSEN Xeta easily connects to local PCs for use with our OTOSuite™ Audiometry software.

Fast and efficient testing

Whether it is testing on-site or in the clinic, time is always at a premium. And saving time imposes high demands on audiological equipment. The MADSEN Xeta audiometer meets the need for testing efficiency.

The MADSEN Xeta features all the necessary tests, including auto threshold and auto screening. The auto modes permit fast and easy testing, yet maintain the highest professional standards. To ensure valid,

high-quality test results, a Masking Assistant™ alerts users whenever masking is recommended at specific frequencies. For rapid and reliable switching between test scenarios, user-configurable settings can be loaded at the touch of a button.

The MADSEN Xeta logically groups all related operational controls according to mode of application. This makes it exceptionally easy to navigate through the system and switch effortlessly between patients and tests.



By combining an easy to use audiometer with built-in storage capability and optional PC software the MADSEN Xeta makes testing fast, efficient and comprehensive. This is what we call Intelligent Integration™.

The PC is a common sight in audiology today and connecting the MADSEN Xeta to your PC holds many advantages.

OTOSuite™ Audiometry software makes it possible to view and process test data on the screen and generate paper/electronic reports for storage or sharing.

A PC connection also enables effective integration with today's electronic medical record systems.



Stimulus and masking signals are clearly displayed together with stored audiogram symbols.



Appendix 6



The 62X series sound level meters use the latest digital technology to give standards of performance never seen in such a compact design.

Applications

- Occupational Noise Measurement
- Workplace noise
- Selection of hearing protection
- Calculation of noise exposure
- Ensuring compliance with workplace noise legislation
- Machinery noise tests

Key features

- Compact, rugged design
- Simple operation
- Single large measurement range
- Large memory
- High resolution colour display
- Real-time octave band analysis ('B' models)
- Simultaneous measurement of all workplace noise parameters
- Instrument menu in 9 languages
- Pre-defined and user configurations available
- Automatic calibration function
- Long battery life

Appendix 6

Using a high resolution colour TFT display, the 62X series is specifically designed to ensure taking noise measurements is quick and easy.

Different models are available depending on your requirements for use in general workplace noise measurements, up to full industrial hygiene requirements where octave band analysis is required for the effective selection of hearing protection.



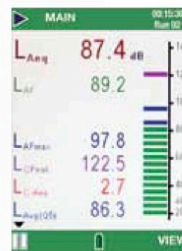
Octave band measurement screen

High resolution colour display

- Unique colour coding of measurements
- Bright backlight
- View in all light conditions

The 62X series uses colours of the high-resolution display to aid the user in making measurements. Measurement screens are colour coded depending on the mode of operation. For example, during a measurement run, the header and footer of the display is green (shown right), whereas when a run is stopped they are red, similar to traffic lights for 'stop' and 'go'.

Measured parameters are displayed in different colours, and the bar graphs are illustrated with the same colours to give an easy understanding of the noise climate.



Broadband measurement screen

Appendix 6

CASELLA
62X SERIES

Simple operation



Set-up selection

Multi-lingual user interface

- Intuitive menu structure
- Multilingual user interface
- Predefined and user selectable setups

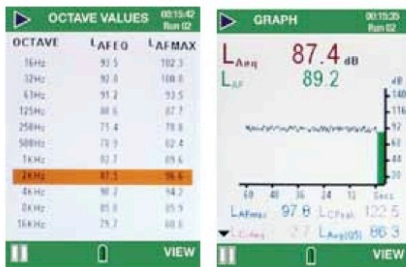
The 62X series was designed with ease of use in mind. The menu structure is designed to pick up and use without the use of a manual. A simple icon structure is used with word prompts for each selection, available in seven languages.

The instrument has six selectable setups. Four pre-defined setups can be used to satisfy local workplace noise legislation. Two user setups can be defined to display parameters and weightings as required. Regardless of the setup

used, the 62X series measures and stores all parameters and weightings even if not selected. These can be viewed if necessary on the software.

Up to 100 measurements can be stored without the need to download. All runs are date and time stamped. When connected to a PC via the USB connection, the 62X series acts like a memory card, so data files can be moved to a PC and easily reviewed without the need for proprietary software.

Digital technology



Tabular octave results

Time history display

- Large measurement range
- Simultaneous measurement
- Automatic calibration

By using Digital Signal Processing (DSP) technology, the 62X series measures all the workplace noise parameters simultaneously with necessary time and frequency weightings, preventing incorrect setup of the instrument. The instrument has a single large measurement range of 20-140dB, eliminating the need to change measurement range and preventing errors.

On the CEL-620B model, octave analysis is performed in real-time, saving time compared to performing measurements sequentially.

Octave band results are shown in both bar-graph and tabular form with the dominant frequency highlighted. Time history of the broadband noise level is displayed in real-time, so a user can see how the noise level varies with time.

Instruments range



Automatic calibration

- Range of instruments available
- Future proof upgrade ability
- Complete measurement kits
- All models available in Class 1 or Class 2

All 62X models are integrating so measure average noise levels as well as peak levels for workplace noise legislation. CEL-620A model also simultaneously measures the L_C and L_A used within the HML method for the selection of hearing protection. In addition, the CEL-620B model performs real-time octave band analysis from 16Hz to 16kHz, values which are used in the

octave band method for selection of hearing protection. If future requirements change, any instrument can be upgraded to a higher model without returning to Casella. Complete measurement kits are provided with an acoustic calibrator in a robust kit case complete with instruction manuals and calibration certificates.

Solutions for Risk Reduction

Appendix 6



Technical Specification

Applicable Standards:

IEC 60651 - 1979	Octave filters (CEL-620B model only):
IEC 60804 - 2000	IEC 61260 Class 0
IEC 61672 - 2002	ANSI S1.11-2004
ANSI S1.4 - 1983 (R2006)	
ANSI S1.43 - 1997 (R2007)	

Technical:

Total measurement range:	20 to 140dB RMS (single range), 143.0 dB Peak
Frequency weightings RMS:	Simultaneous A, C & Linear (Z)
Frequency weightings Peak:	Simultaneous A, C & Linear (Z)
Time weightings:	Simultaneous Slow, Fast & Impulse
Amplitude weightings:	Q3, Q4 and Q5 (Q4 & Q5 applicable to L_{avg} only)
Thresholds:	70 to 90 (dB) in 1 dB steps (applicable to L_{avg} only)
Noise floor:	<33dB(A) Class 2, <25dB(A) Class 1
Runs stored:	100
Display:	320x240 pixel transmissive colour TFT
Frequency bands:	11 octave bands 16Hz to 16kHz (CEL-620B model only)
Calibration information:	Stores pre and post run calibration date, time and level
Output (PC.):	USB 2.0 'A' to 'Mini B'
Batteries:	3 x AA Alkaline (supplied) or rechargeable
External power:	9-14V DC at 250mA via 2.1mm connector
Battery life:	11 hours with backlight on, 20 hours backlight off
Tripod mount:	1/4" Whitworth socket
Size mm (in):	72 x 229 x 31mm (2.8 x 9.0 x 1.2")
Weight gm (oz):	295g (10.4oz)

Measured Parameters:

CEL-620A
 L_{XY} , L_{XYmax} , L_{XYmin} , L_{Xeq} , L_{Xpeak} , L_{avg} , L_C , L_A , L_{Zeq} , L_{TMS} , L_{TMS} , L_{AE}

CEL-620B
 L_{XY} , L_{XYmax} , L_{XYmin} , L_{Xeq} , L_{Xpeak} , L_{avg} , L_C , L_A , L_{Zeq} , L_{TMS} , L_{TMS} , L_{AE}

Octaves: L_{XY} , L_{Zeq} , L_{XYmax}

Where X is the frequency weighting A, C or Z and Y represents time weighting Fast (F), Slow (S) or Impulse (I).

All weightings simultaneously measured where appropriate.

Environmental:

In operation:	Relative humidity of 5% to 90% (non-condensing) Temperature 0 to 40°C (class 2), -10 to 50°C (class 1) Atmospheric pressure of 65 to 108kPa
In storage:	0 to 90%RH in the absence of condensation Temperature -20 to 60°C Atmospheric pressure of 65 to 108kPa

ORDERING INFORMATION

CEL-620A/2:	Integrating Digital Sound Level Meter (Class 2)
CEL-620B/2:	Integrating Octave Band Sound Level Meter (Class 2)
CEL-620A/1:	Precision Integrating Digital Sound Level Meter (Class 1)
CEL-620B/1:	Precision Integrating Octave Band Sound Level Meter (Class 1)

All instruments and calibrators are provided with calibration certificates. Casella CEL also has a UKAS calibration facility if required.

INSTRUMENT KITS

Complete kits are available with acoustic calibrator (CEL-120), kit case, windshield, instruction manuals and USB cable. For a complete instrument kit add /K1 to the part number e.g. CEL 620A/2/K2. A typical instrument kit is pictured on the right.

Kits come complete with Casella Insight Data Management Software, see Insight data sheet for more details.



OTHER ACCESSORIES

CEL-6840	Standard kit case	CEL-6718	Lightweight tripod
196030c	Executive kit case	CEL-251	Microphone Class 1
CEL-6841	Windshield	CEL-252	Microphone Class 2
CEL-120/1	Acoustic Calibrator Class 1	PC18	Universal power supply
CEL-120/2	Acoustic Calibrator Class 2	CMC51	USB download cable

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SM08006 v1.2



Appendix 7



Soundfield Research in Fife: Student's Survey

Soundfield Research in Fife: Student's Survey

NAME	DATE
SCHOOL	CLASS
TEACHER	SEATING PLACE
	Near the front of the class
	Near the middle of the class
	Near the back of the class

Thank you for helping with my project.

My project is about soundfield systems and noise in classrooms.



I would like to know about noise in your classroom.

I would like to know how you feel about the noise.

I am going to ask you some questions to help me with my project

Thank you for helping me with my project.



Appendix 7



Soundfield Research in Fife: Student's Survey

Question 1 - Which noises can you hear in your classroom? There are **no wrong answers. Put a **circle** around the noises you hear. You can circle as many as you want.**

<p>Noise from Computers</p>	<p>Buzzing from Lights</p>	<p>Noise from printers</p>	<p>Smartboard Projector</p>	<p>Noise from toilets</p>	<p>Noise from fans</p>
<p>Classroom noise during Art</p>	<p>Classroom noise during Golden Time</p>	<p>Children talking near me</p>	<p>Children talking in other parts of the class</p>	<p>Other noises – I'm not sure where they are from</p>	<p>Noise from other classrooms</p>
<p>Children getting things from their bags</p>	<p>Scrapping of chairs and table legs</p>	<p>Clattering pens and pencils</p>	<p>Heaters</p>	<p>Noise from people in the corridor</p>	<p>Other?</p>
<p>Noise from the playground</p>	<p>Road traffic</p>	<p>Noise from the gym hall</p>	<p>Noise from dinner hall</p>	<p>Music</p>	<p>Planes and trains</p>



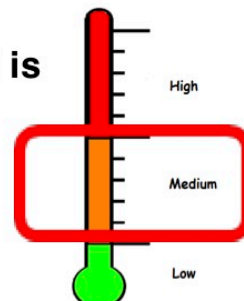
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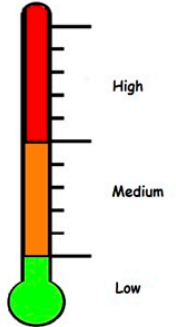
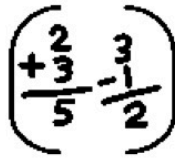
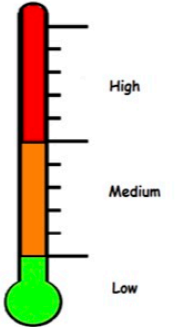

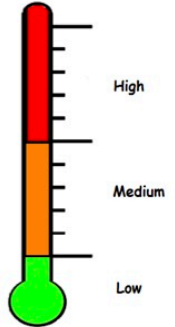

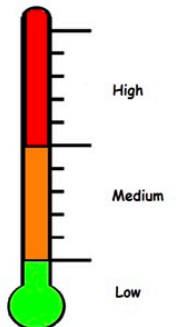

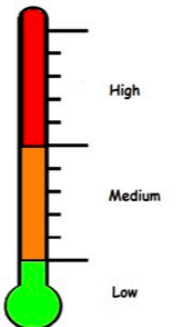

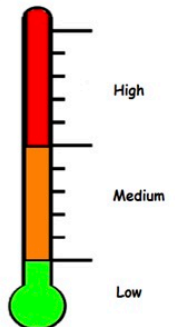

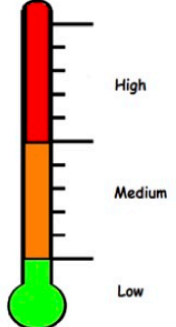

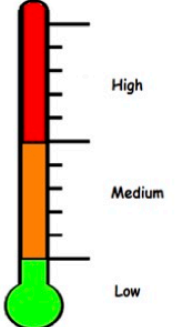

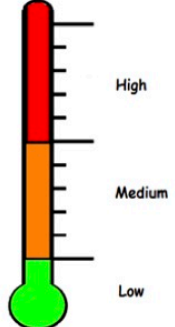


Soundfield Research in Fife: Student's Survey

Question 2 – How noisy or quiet is it during lessons? Put a circle around if the noise level is

Low, medium or high



<p>writing</p> 		<p>Maths</p> 		<p>Circle Time</p> 	
<p>Spelling</p> 		<p>Project work</p> 		<p>Problem solving</p> 	
<p>Reading</p> 		<p>Golden time</p> 		<p>Art</p> 	

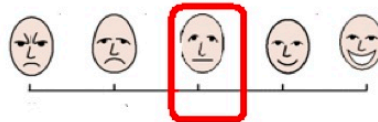


Appendix 7



Soundfield Research in Fife: Student's Survey

**Question 4 – How well can you hear the teacher or other students in your class when the teacher uses the soundfield?
Put a circle on the answer you feel is right.**



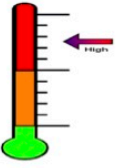






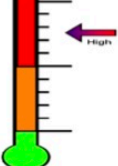



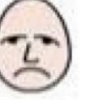
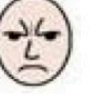
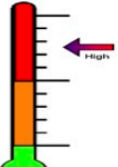


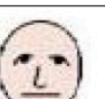
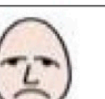
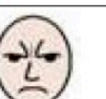
	Noise Levels	Always Easy	Mostly easy	Not hard or easy	Mostly hard	Always hard
<p>The teacher is talking at the front of the class but you cannot see her face.</p> <p>How well can you hear the words your teacher says?</p>						
<p>The teacher is talking at the front of the class and you can see her face.</p> <p>How well can you hear the words your teacher says?</p>						
<p>The teacher is walking around the classroom and you cannot see her face.</p> <p>How well can you hear the words your teacher says?</p>						



Appendix 7



Soundfield Research in Fife: Student's Survey

Other students are talking.	Noise Levels	Always Easy	Mostly easy	Not hard or easy	Mostly hard	Always hard
How well can you hear the words your teacher says?						
Other students are walking around the class.		Always Easy	Mostly easy	Not hard or easy	Mostly hard	Always hard
How well can you hear the words your teacher says?						
You are working in a group. Your teacher is talking.	Noise Levels	Always Easy	Mostly easy	Not hard or easy	Mostly hard	Always hard
How well can you hear the words your teacher says?						

Appendix 8

Soundfield Research in Fife: Teacher's Survey

Year Group		Number in class:					
Name of Teacher	Gender	Years teaching					
		Probation year	1-2 years	3-4 years	5-6 years	7-8 years	9-10 years
		11-12 years	13-14 years	15-16 years	17-18 years	19-20 years	21+ years

SOURCES OF NOISE

Which, if any, noise sources are you aware of in your classroom?

Sources of Noise		Delete as appropriate/Add in others		
Noise from outside the classroom	Noise from toilets	Traffic noise	Noise from other classrooms	Noise from sports fields
		Student traffic on corridors	Noise from dinner hall	Other – please specify
Noise from inside the classroom	Scraping chairs	Heating system/heaters	ICT equipment – projector fans, PCs	Learner's talking
		Lights	Others – please specify	

APPRAISAL OF NOISE LEVELS DURING LESSONS



Can you state the noise levels during the following teaching activities? Score on a basis of 0 to 10 where 0 is very low and 10 is very high

Lesson activity	Noise Levels - Score 0 to 10 (0 very quiet and 10 very loud)										
Spelling Test	0	1	2	3	4	5	6	7	8	9	10
Mental maths	0	1	2	3	4	5	6	7	8	9	10
Whole class teaching	0	1	2	3	4	5	6	7	8	9	10
IDL	0	1	2	3	4	5	6	7	8	9	10
Group work	0	1	2	3	4	5	6	7	8	9	10
Practical lesson e.g. Art	0	1	2	3	4	5	6	7	8	9	10
Project work	0	1	2	3	4	5	6	7	8	9	10
Children working individually with some of them moving around the room	0	1	2	3	4	5	6	7	8	9	10
Golden Time/choice	0	1	2	3	4	5	6	7	8	9	10

Appendix 8

Soundfield Research in Fife: Teacher's Survey

SOUNDFIELD QUESTIONS

Learners responded better to spoken instruction.	Strongly Disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
					
Learners were able to hear me better.	Strongly Disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
					
I did not need to raise my voice as often.	Strongly Disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
					
Learner's attention span improved.	Strongly Disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
					
I felt self-conscious using the soundfield system.	Strongly Disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
					
Noise levels were lower in my class.	Strongly Disagree	Disagree	Neither Agree or disagree	Agree	Strongly Agree
					

Appendix 9

Developed Ability

Picture Vocabulary

carrots

Quiz 00:15:00
Question 00:01:00

Again

This interface displays six images of fruits: carrots, cherries, a mixed fruit basket, strawberries, and a bowl of fruit. A quiz timer shows 00:15:00 for the quiz and 00:01:00 for the question. An 'Again' button with a left arrow is visible.

Non-Verbal

Quiz 00:07:00
Number right 0

Next

This interface shows two boxes of dots. The first box contains 3 blue dots, and the second contains 8 dots (5 white and 3 blue). A quiz timer shows 00:07:00 and 'Number right' is 0. A 'Next' button with a right arrow is visible.

Reading

Word Recognition

leafes leavs lieves loaves leaves

Quiz 00:10:00
Question 00:01:00

Again

This interface shows six boxes with different spellings of the word 'leaves': leafes, leavs, lieves, loaves, and leaves. The 'leaves' box is highlighted in yellow. A quiz timer shows 00:10:00 and 00:01:00. An 'Again' button with a left arrow is visible.

Word Decoding

awit alit alwit alwet alwite

Quiz 00:10:00
Question 00:01:00

Again

This interface shows six boxes with different letter combinations: awit, alit, alwit, alwet, and alwite. The 'alwit' box is highlighted in yellow. A quiz timer shows 00:10:00 and 00:01:00. An 'Again' button with a left arrow is visible.

Appendix 9

Comprehension

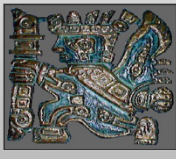
Appealing to Your Senses

Advertising is a big business and companies aim to stimulate all five human senses in an attempt to buy their products. Most people are familiar with advertisements on the radio that communicate their message using a combination of version and sound, and of taste samples of food products in shops. Fewer people are aware that businesses also use perfumes to create an optimal shopping environment in which to market their products. The use of scents in shops and showrooms is frequently so subtle that the

companies aim to stimulate all five human senses in an attempt to buy their products. Most people are familiar with advertisements on the radio that communicate their message using a combination of version and sound, and of taste samples of food products in shops. Fewer people are aware that businesses also use perfumes to create an optimal shopping environment in which to market their products. The use of scents in shops and showrooms is frequently so subtle that the

Passage 00:10:00

Next




Spelling

specia

a b c d e f
g h i j k l m n o p
q r s t u v w x y z
(space) (back)

Quiz 00:20:00
Question 00:02:00

Again Next



General Mathematics and Mental Arithmetic

General Maths

The table below shows the temperature inside a greenhouse throughout one day and evening:


Time	Temperature (°C)
9.00am	12
11.00am	18
1.00pm	24
3.00pm	19
5.00pm	15
7.00pm	12
9.00pm	8
11.00pm	-1

By how many degrees did the temperature drop between 7pm and 11pm?

11°C 13°C 12°C -1°C

Quiz 00:20:00
Question 00:05:00

Again




Mental Arithmetic

5 - 2 = ?

1 2
3 4

Section 00:03:00
Question 00:00:30

Again



Appendix 10

micro LM-100

micro LM-100 Laser Distance Meter



⚠ WARNING
 Read this Operator's Manual carefully before using this tool. Failure to understand and follow the contents of this manual may result in electrical shock, fire and/or serious personal injury.

micro LM-100 Laser Distance Meter	
Record Serial Number below and retain product serial number which is located on nameplate.	
Serial No.	

micro LM-100 Laser Distance Meter

- Use only accessories that are recommended by the manufacturer for your equipment. Accessories that may be suitable for one piece of equipment may become hazardous when used with other equipment
- Keep handles dry and clean; free from oil and grease. Allows for better control of the equipment.

Service

- Have your equipment serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the tool is maintained.

Specific Safety Information

⚠ WARNING
 This section contains important safety information that is specific to this tool.

Read these precautions carefully before using the micro LM-100 Laser Distance Meter to reduce the risk of eye injury or other serious personal injury.

SAVE THESE INSTRUCTIONS!

Keep this manual with the tool for use by the operator.

Laser Distance Meter Safety

- Do not look into the laser beam. Looking into the laser beam may be hazardous to the eyes. Do not look at the laser beam with optical aids (such as binoculars or telescopes).
- Do not direct the laser beam towards other people. Make sure the laser is aimed above or below eye level. Laser beams may be hazardous to the eyes.

If you have any question concerning this Ridgid Tool product:

- Contact your local RIDGID distributor.

- Visit www.RIDGID.com or www.RIDGID.eu to find your local Ridgid Tool contact point.
- Contact Ridgid Tool Technical Services Department at rttechservices@emerson.com, or in the U.S. and Canada call (800) 519-3456.

Description, Specifications And Standard Equipment

Description

The RIDGID® micro LM-100 provides simple, quick, and accurate distance readings at the push of a button. You simply push the measurement button to turn on the class II laser and point at the remote or difficult to reach place to be measured to, then push the measurement button again. The micro LM-100 provides a quick measurement on a clear easy to read backlit LCD display.

Specifications

Range	0.05 to 50m* (0.16 ft to 164 ft*)
Measuring Accuracy Up To 10m (2, Standard Deviation)	Typically: ±1.5mm** (± 0.06 in**)
Measuring Units.....	m, in, ft
Laser Class.....	Class II
Laser Type.....	635 nm, <1 mW
Ingress Protection.....	IP 54 Dust Proof, Splash Proof
Memory.....	20 Measurements
Operating Temperature.....	0°C to 40°C (32°F to 104°F)
Storage Temperature	-10°C to 60°C (14°F to 140°F)
Battery Life	Up to 4,000 Measurements

Appendix 10

RIDGID micro LM-100 Laser Distance Meter

Batteries(2) AAA
 Auto. Laser Switch-Off.....After 30 Seconds
 Auto. Shut-Off.....After 3 Minutes of Inactivity
 Dimension115 x 48 x 28mm
 (4 1/2" x 1 7/8 x 1 1/8")
 Weight.....0.2kg (7oz)

Features

- Area, Volume Calculations
- Indirect Measurement
- Addition/Subtraction
- Display Illumination and Multi-line Display
- Continuous Measurement
- Min/Max Distance Tracking
- Beep Indication

* Range is limited to 50m (164 ft.) Use a commercially available target plate to improve measurement ability during daylight or if the target has poor reflection properties.

**In favorable conditions (good target surface properties, room temperature) up to 10m (33 ft). In unfavorable conditions, such as intense sunshine, poorly reflecting target surface or high temperature variations, the deviation over distances above 10m (33 ft) can increase by $\pm 0.15\text{mm/m}$ ($\pm 0.0018\text{ in/ft}$).



Figure 1 – micro LM-100 Laser Distance Meter

Controls

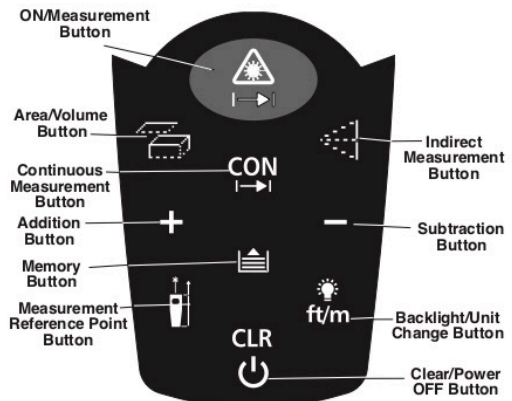


Figure 2 – micro LM-100 Buttons

micro LM-100 Laser Distance Meter RIDGID

LCD Display Icons

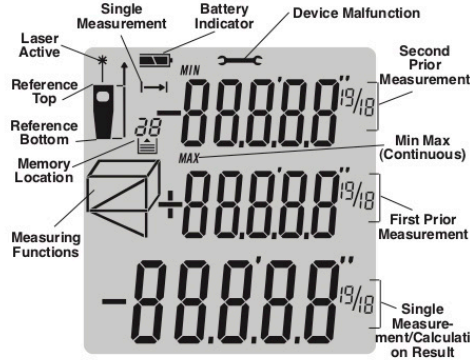


Figure 3 – micro LM-100 LCD Display

Standard Equipment

- micro LM-100
- Carrying Case
- Wrist Strap
- Batteries (2 AAA)
- Operator's Manual

NOTICE This equipment is used to make distance measurements. Incorrect use or improper application may result in incorrect or inaccurate measurements. Selection of appropriate measurement methods for the conditions is the responsibility of the user.

Laser Classification

The RIDGID micro LM-100 generates a visible laser beam that is emitted from the top of the device.

The device complies with class 2 lasers according to: EN 60825-1:1994/A11:1996/A2:2001/A1:2002

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix 10

Electromagnetic Compatibility (EMC)

The term electromagnetic compatibility is taken to mean the capability of the product to function smoothly in an environment where electromagnetic radiation and electrostatic discharges are present and without causing electromagnetic interference to other equipment.

NOTICE The RIDGID micro LM-100 conforms to all applicable EMC standards. However, the possibility of it causing interference in other devices cannot be precluded.

Installing Wrist Strap

Route small end of wrist strap through loop on micro LM-100 housing. Thread strap end through loop of small end and pull tight.



Figure 4 – Installing Lanyard



Figure 5 – Changing Batteries

Changing/Installing Batteries

The micro LM-100 is supplied with batteries installed. If the battery indicator is flashing, the batteries need to be replaced. Remove the batteries prior to long term storage to avoid battery leakage. (Figure 5)

1. Use a Phillips head screw driver to loosen the battery compartment cover screw and remove the cover.

2. Remove existing batteries.
3. Install two AAA alkaline batteries (LR03), observing the correct polarity as indicated in the battery compartment.

NOTICE Use batteries that are of the same type. Do not mix battery types. Do not mix new and used batteries. Mixing batteries can cause overheating and battery damage.

4. Replace cover and tighten screw.

Pre-Operation Inspection

⚠ WARNING

Before each use, inspect your distance meter and correct any problems to reduce the risk of injury or incorrect measurements.

Do not look into the laser beam. Looking into the laser beam may be hazardous to the eyes.

1. Clean any oil, grease or dirt from equipment. This aids inspection.
2. Inspect the distance meter for any broken, worn, missing, misaligned or binding parts, or any other condition which may prevent safe and normal operation.
3. Check that the warning labels are present, firmly attached and readable. (See Figure 6.)
4. If any issues are found during the inspection, do not use the distance meter until it has been properly serviced.
5. Following the Operation Instructions, turn the distance meter on, make a measurement and confirm the same measurement with another instrument (tape measure, etc.). If the correlation between the measurements is not acceptable, do not use the distance meter until it has been properly serviced.

Appendix 11

User's Guide



Fireface UC

Portable USB Audio at its best!



USB 2.0 Digital I/O System
8 + 8 + 2 Channels Analog / ADAT / SPDIF Interface
24 Bit / 192 kHz Digital Audio
36 x 18 Matrix Router
2 x MIDI I/O
Stand-Alone Operation
MIDI Remote Control

30. Technical Specifications

30.1 Analog

AD, Line In 5-8, rear

- Resolution AD: 24 bit
- Signal to Noise ratio (SNR): 110 dB RMS unweighted, 113 dBA
- Frequency response @ 44.1 kHz, -0.1 dB: 5 Hz – 20.6 kHz
- Frequency response @ 96 kHz, -0.5 dB: 5 Hz – 45.3 kHz
- Frequency response @ 192 kHz, -1 dB: 5 Hz - 90 kHz
- THD: < -100 dB, < 0.001 %
- THD+N: < -98 dB, < 0.0012 %
- Channel separation: > 110 dB
- Maximum input level: +19 dBu
- Input: 6.3 mm TRS jack, electronically balanced
- Input impedance: 10 kOhm
- Input sensitivity switchable to Lo Gain, +4 dBu, -10 dBV
- Input level for 0 dBFS @ Lo Gain: +19 dBu
- Input level for 0 dBFS @ +4 dBu: +13 dBu
- Input level for 0 dBFS @ -10 dBV: +2 dBV

Line In 3-4, front

- as AD, but:
- Signal to Noise ratio (SNR): 105 dB RMS unweighted, 109 dBA
- Gain range via rotary encoder: 0 up to +18 dB
- Maximum input level, Gain 0 dB: +19 dBu
- Maximum input level, Gain 18 dB, Inst: -16 dBu
- CLIP LED: -2 dBFS
- SIG LED: -65 dBFS

Microphone/Line 1-2, front

- as AD Line In 5-8, but:
- Input: Neutrik XLR/TRS Combo jack, electronically balanced
- Input impedance: XLR 2 kOhm, TRS 8 kOhm balanced
- Low Roll Off -0.5 dB: 18 Hz, -1 dB: 12 Hz
- Gain range: 0 dB, +10 up to +65 dB
- Maximum input level XLR, Gain 0 dB: +10 dBu
- Maximum input level XLR, Gain 65 dB: -55 dBu
- Maximum input level TRS, Gain +0 dB: +21 dBu
- Maximum input level TRS, Gain +65 dB: -44 dBu
- CLIP LED: -2 dBFS
- SIG LED: -65 dBFS

Appendix 11

DA, Line Out 1-6, rear

- Resolution: 24 bit
- Dynamic range (DR): 110 dB, 113 dBA @ 44.1 kHz (unmuted)
- Frequency response @ 44.1 kHz, -0.1 dB: 1 Hz – 20.4 kHz
- Frequency response @ 96 kHz, -0.5 dB: 1 Hz – 44.8 kHz
- Frequency response @ 192 kHz, -1 dB: 1 Hz - 80 kHz
- THD: -100 dB, < 0.001 %
- THD+N: -96 dB, < 0.0015 %
- Channel separation: > 110 dB
- Maximum output level: +19 dBu
- Output: 6.3 mm TRS jack, servo-balanced
- Output impedance: 75 Ohm
- Output level switchable Hi Gain, +4 dBu, -10 dBV
- Output level at 0 dBFS @ Hi Gain: +19 dBu
- Output level at 0 dBFS @ +4 dBu: +13 dBu
- Output level at 0 dBFS @ -10 dBV: +2 dBV

DA – Phones, 7/8, front

- as DA, but:
- Output: 6.3 mm TRS jack, unbalanced
- Output impedance: 30 Ohm

30.2 MIDI

- 2 x MIDI I/O breakout cable with 4 x 5-pin DIN jacks
- Galvanically isolated by optocoupled input
- Hi-speed mode: Jitter and response time typically below 1 ms
- Separate 128 byte FIFOs for input and output

30.3 Digital

- Clocks: Internal, ADAT In, SPDIF In, word clock in. Optional LTC/Video in
- Low Jitter Design: < 1 ns in PLL mode, all inputs
- Internal clock: 800 ps Jitter, Random Spread Spectrum
- Jitter suppression of external clocks: > 30 dB (2.4 kHz)
- Effective clock jitter influence on AD and DA conversion: near zero
- PLL ensures zero dropout, even at more than 100 ns jitter
- Digital Bitclock PLL for trouble-free varispeed ADAT operation
- Supported sample rates: 28 kHz up to 200 kHz

30.4 Digital Inputs

Word Clock

- BNC, not terminated (10 kOhm)
- Switch for internal termination 75 Ohm
- Automatic Double/Quad Speed detection and internal conversion to Single Speed
- SteadyClock guarantees super low jitter synchronization even in varispeed operation
- Not affected by DC-offsets within the network
- Signal Adaptation Circuit: signal refresh through auto-center and hysteresis
- Overvoltage protection
- Level range: 1.0 Vpp – 5.6 Vpp
- Lock Range: 27 kHz – 200 kHz
- Jitter when synced to input signal: < 1 ns
- Jitter suppression: > 30 dB (2.4 kHz)

Appendix 11

ADAT Optical

- 1 x TOSLINK
- Standard: 8 channels 24 bit, up to 48 kHz
- Double Speed (S/MUX): 4 channels 24 bit 96 kHz
- Quad Speed (S/MUX4) : 2 channels 24 bit 192 kHz
- Bitclock PLL ensures perfect synchronisation even in varispeed operation
- Lock Range: 31.5 kHz – 50 kHz
- Jitter when synced to input signal: < 1 ns
- Jitter suppression: > 30 dB (2.4 kHz)

AES/EBU - SPDIF

- 1 x RCA and 1 x optical, according to IEC 60958
- High-sensitivity input stage (< 0.3 Vpp)
- Accepts Consumer and Professional format, copy protection will be ignored
- Lock Range: 27 kHz – 200 kHz
- Jitter when synced to input signal: < 1 ns
- Jitter suppression: > 30 dB (2.4 kHz)

30.5 Digital Outputs

Word Clock

- BNC
- Max. output voltage: 5 Vpp
- Output voltage @ 75 Ohm termination: 4.0 Vpp
- Output impedance: 10 Ohm
- Frequency range: 27 kHz – 200 kHz

ADAT

- 1 x TOSLINK
- Standard: 8 channels 24 bit, up to 48 kHz
- Double Speed (S/MUX): 4 channels 24 bit 96 kHz
- Quad Speed (S/MUX4) : 2 channels 24 bit 192 kHz

AES/EBU - SPDIF

- 1 x RCA and 1 x optical, according to IEC 60958
- Output level Professional 2.0 Vpp, Consumer 0.8 Vpp
- Format Professional according to AES3-1992 Amendment 4
- Format Consumer (SPDIF) according to IEC 60958
- Single Wire mode, sample rate 28 kHz up to 200 kHz

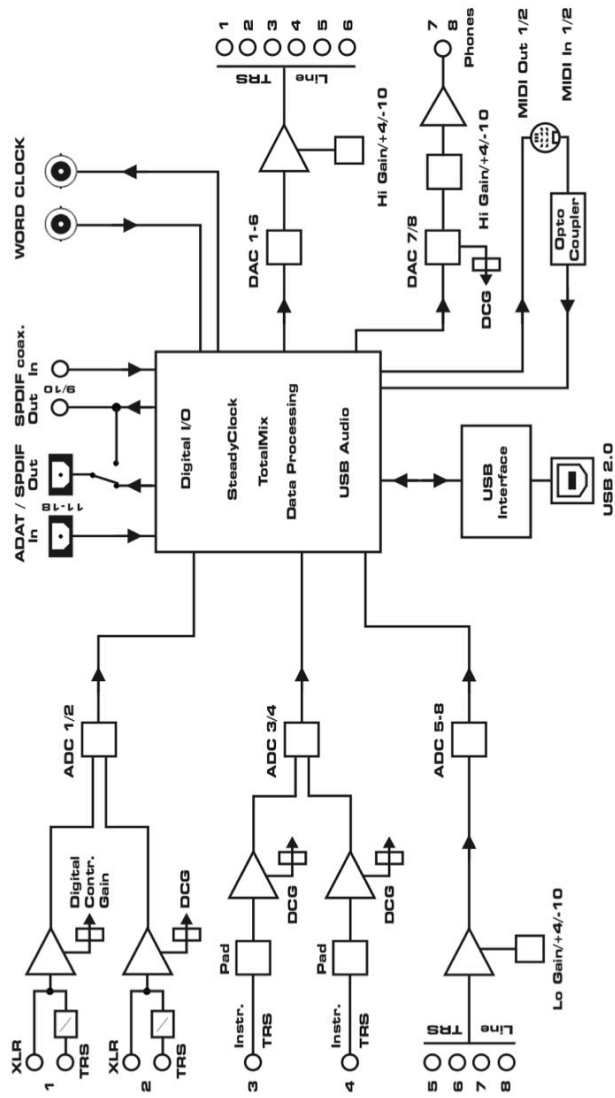
30.6 General

- Power supply: external power supply
- Typical power consumption: 13 Watts
- Current at 12 Volt operating voltage: 910 mA (11 Watts)
- Dimensions including rack ears (WxHxD): 265 x 44 x 165 mm (10.5" x 1.73" x 6.5")
- Dimensions without rack ears/handles (WxHxD): 218 x 44 x 155 mm (8.6" x 1.73" x 6.1")
- Weight: 1.5 kg (3.3 lbs)
- Temperature range: +5° up to +50° Celsius (41° F up to 122°F)
- Relative humidity: < 75%, non condensing
- Included power supply: Internal switching PSU, 100 - 240V AC, 12V DC, 2A, 24 Watts

Appendix 11

32. Diagrams

32.1 Block Diagram Fireface UC



Studio Monitors

TRUTH B3031A/B3030A

TRUTH — 2-Way Active Ribbon Studio Reference Monitor with Kevlar Woofer

- Ultra-linear frequency response with individual frequency diagrams
- Built-in 150 and 75 watt power amplifiers (75 and 35 watt for B3030A) with enormous power reserve
- Ultra-high resolution, 2" velocity ribbon transducer for ultimate sound reproduction
- Long-throw 8 ¾" woofer (6 ¾" for B3030A) with deformation-resistant Kevlar cone and aluminum die-cast chassis for ultimate bass response
- Controlled dispersion characteristics and extremely large "sweet spot" owing to the unique BEHRINGER wave guide technology
- Active crossover network with 4th order Linkwitz-Riley filters
- Adjustable to a wide range of acoustic conditions and subwoofer operation
- Separately controlled limiter for low and high-frequency overload protection
- Magnetic shielding allows placement near computer monitors
- Servo-balanced inputs with XLR and ¼" TRS connectors
- High-quality components and exceptionally rugged construction ensure long life
- Conceived and designed by BEHRINGER Germany

behringer.com



Honesty

When it comes to your studio recordings, you want honesty. In fact, considering how important your art is, you should demand it! That's why we designed the new B3030A and B3031A Reference Monitors to speak nothing but the TRUTH. Oh, they still sound great hooked up to your stereo or your video surround system, but they were really built with the studio in mind — where every note you play or sing is "under the microscope."

Built on a Legacy

Our TRUTH B2030A and B2031A monitors have been so wildly successful that we've sold thousands upon thousands of them to some of the most critical ears on the planet. So, from the moment we started this project, we knew these new speakers would have to be something really special, and indeed they are!

Years of R'n'D

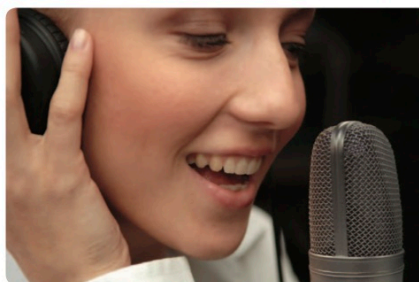
For the past two years our Researd Development team has been on a mission to create the "perfect" studio monitor. Since the TRUTH B2031A had

already become the industry standard, our acoustic engineers decided to start there and see just how far they could push the envelope. They tried a variety of transducers and enclosure designs, along with existing and emerging technologies. When all the dust settled, they chose to deploy an ultra-high resolution, 2" velocity ribbon transducer and a long-throw, Kevlar-coned woofer in a deformation-resistant, die-cast aluminum chassis.

Why Kevlar?

We're glad you asked. Kevlar has an incredible strength-to-weight ratio — that's one reason it's used in bulletproof vests. Kevlar gives our LF transducer the strength to handle the extremely high energy levels required for distortion-free, chest-pounding bass. And since they have such low mass, Kevlar speaker cones also respond much more quickly than those made of paper, important for not only maintaining bass content integrity, but critical for midrange accuracy and definition. Our Kevlar transducers reproduce even the subtlest nuance of the low-frequency realm without muddying the midrange.

Continued on next page



TRUTH B3031A/B3030A

What's with the funny-looking tweeter?

Ribbon tweeters bring a level of accuracy and sophistication to high-resolution studio monitors that was previously unattainable. They provide exceptionally wide horizontal dispersion (for a larger "sweet-spot"), while holding the vertical dispersion extremely tight. And since our ribbon transducer diaphragm is virtually weightless, it reacts instantaneously to changes in the high-frequency content. Now, not only do you hear the dulcet tones of a flute, you hear the breath flowing through it... You hear the wind chimes bouncing off each other... You can hear the fingernails on the nylon strings of a classical guitar...

Another reason why ribbon tweeters are so supremely accurate is their ability to reproduce frequencies far above our normal hearing range. Even though we can't hear these "ultrasonics," the lower harmonics they generate do affect the way we experience the stereo image. For instance, a 30 kHz signal is too high for us to hear, but we can hear its first sub-harmonic (15 kHz), second sub-harmonic (7.5 kHz), and third (3.75 kHz), etc. All these sub-harmonics combine with the primary sound to create stunning realism.



Power to the People

It takes quite a bit more than just a "bulletproof" woofer and a high-tech ribbon tweeter stuck inside a fancy box to make a studio monitor of this class. It also takes power — and lots of it! But even more importantly, that power has to be matched to the individual high- and low-frequency transducers. While some of our competitors are content to stick whatever speakers they have on the shelf into haphazardly designed boxes and then strap on a one-size-fits-all amplifier package, we build every single component from the ground up.

We pack 225-Watts of bi-amped technology (including a time- and phase-corrected active crossover) into

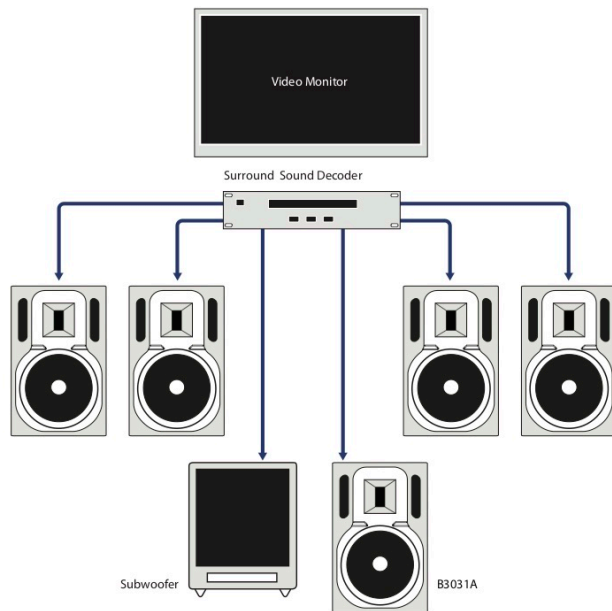
every B3031A (110-Watts for B3030A), ensuring that you have the enormous power reserves you'll need to drive them really hard.

Designed to Work in Your Environment

The ideal environment for listening is a room that is "flat," neither too reflective (echoes) nor too absorptive (where the sound is muffled). But since all rooms are not the same acoustically, all TRUTH monitors come equipped to function in a wide variety of situations. Switches are provided to adapt the monitor's low- and high-frequency characteristics for optimal performance specific to your listening environment.

Continued on next page

Surround Sound Setup



TRUTH B3031A/B3030A

Placement is also critical. Ideally, all loudspeakers should be placed away from walls to ensure proper bass response. But fear not, B3030A/B3031A monitors feature Room Compensation switches so you can place them against walls, or even in corners. Walls tend to enhance low-frequency content, and corners exaggerate bass even more, but your TRUTH monitor can be custom-tailored to provide honest bass response for your situation, with the simple flick of a switch or two.

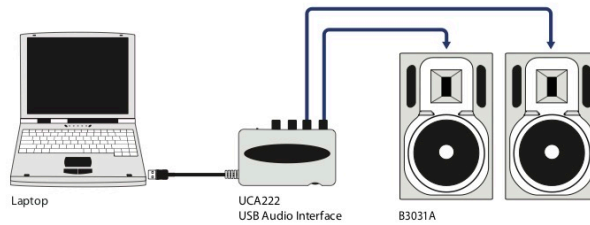
Non-fatiguing, Wide "Sweet Spot"

While some of our competitor's studio monitors have a highly focused "sweet spot" (the optimal listening position for a pair of loudspeakers), our wave-guide is designed to create a much more generous, broader listening zone. That means you won't wear a hole in the carpet in that one spot where everything sounds great. You are free to move around inside the stereo image to find the ideal spot in the mix for subtle instrument or effects placement opportunities. You also won't suffer the ravages of "monitor-fatigue-syndrome," an ailment that comes from listening to harsh high-mids and treble content for hours on end. The new 2" velocity ribbon transducer, along with our proprietary wave-guide design, generates silky-smooth high-end that is non-fatiguing, even during those all-night mix-down sessions that can test your nerves.

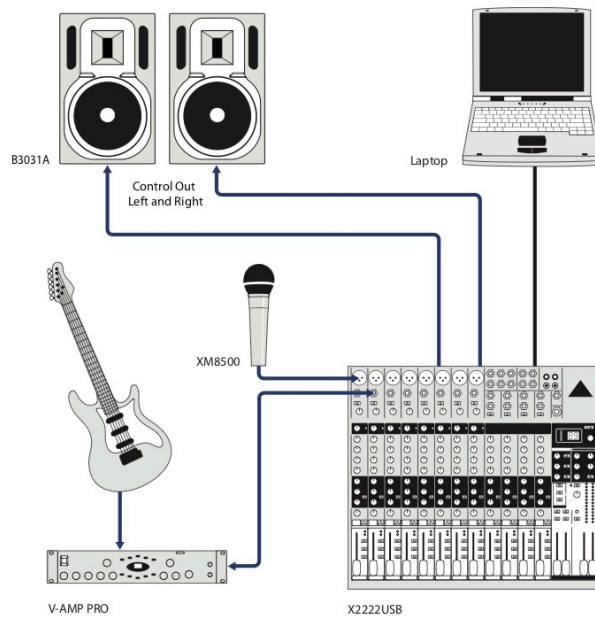
Hearing is Believing

We could bore you to tears with all the technical jargon (if you really like that stuff, there's a special treat at the end), but hearing the TRUTH will make you a believer. From the "bulletproof" bass of its Kevlar woofer to the silky top-end of its ribbon transducer, we think you'll agree that nothing in this class outperforms the B3030A and B3031A monitors. Compare them to the competition and own BEHRINGER!

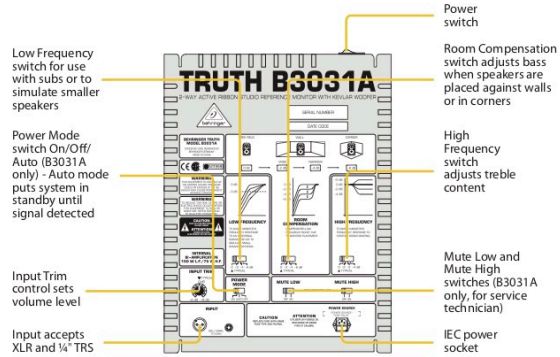
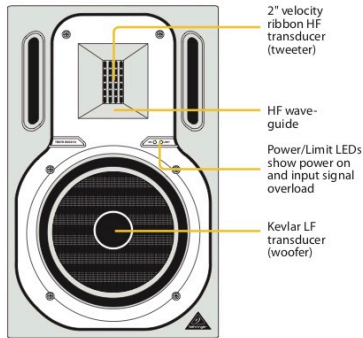
Computer Setup



Recording



TRUTH B3031A/B3030A



SPECIFICATIONS

B3031A/B3030A

Audio Inputs

XLR connector	servo-balanced input
1/4" TRS	servo-balanced input
Input impedance	10 kΩ
Input Trim	-6 dB to +6 dB
Max. input level	+22 dBu

TRANSDUCERS

B3031A

High-frequency driver	2" ribbon
Low-frequency driver	8 3/4" diameter Kevlar diaphragm

B3030A

High-frequency driver	2" ribbon
Low-frequency driver	6 3/4" diameter Kevlar diaphragm

AMPLIFIER OUTPUT POWER

Low-frequency range

B3031A

RMS @ 0.1 % THD (sine wave)	100 W @ 4 Ω
Peak power	150 W @ 4 Ω

B3030A

RMS @ 0.1 % THD (sine wave)	50 W @ 4 Ω
Peak power	75 W @ 4 Ω

High-frequency range

B3031A

RMS @ 0.1 % THD (sine wave)	30 W @ 6 Ω
Peak power	75 W @ 6 Ω

B3030A

RMS @ 0.1 % THD (sine wave)	25 W @ 6 Ω
Peak power	35 W @ 6 Ω

CROSSOVER

B3031A/B3030A

Type	active, 4 th order Linkwitz-Riley
Crossover frequency	3.6 kHz

SYSTEM SPECIFICATION

B3031A

Frequency response	50 Hz to 24 kHz
Sound pressure level	max. 116 dB SPL @ 1 m (pair)

B3030A

Frequency response	50 Hz to 24 kHz
Sound pressure level	max. 113 dB SPL @ 1 m (pair)

POWER SUPPLY

Voltage/Fuses

B3031A

100 - 120 V~, 50/60 Hz	T 5.0 A H 250 V
220 - 230 V~, 50/60 Hz	T 2.5 A H 250 V

B3030A

100 - 120 V~, 50/60 Hz	T 2.0 A H 250 V
220 - 230 V~, 50/60 Hz	T 1.6 A H 250 V

B3031A

Power consumption	max. 200 W
Mains connection	Standard IEC connector

B3030A

Power consumption	max. 110 W
Mains connection	Standard IEC connector

DIMENSIONS/WEIGHT

B3031A

Dimensions (HxWxD)	15.75 x 9.81 x 11.38"
	400 x 250 x 290 mm

Weight 33 lbs/15 kg

B3030A

Dimensions (HxWxD)	12.50 x 8.40 x 8.33"
	315 x 215 x 210 mm

Weight 22 lbs/10 kg

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behringer.com



Appendix 11

AT8010 OMnidirectional CONDENSER MICROPHONE



- All-purpose condenser microphone ideal for handheld interviews and general audio acquisition
- Omni pattern provides maximum ambient pickup
- Switchable 80 Hz high-pass filter minimizes pickup of undesired low-frequency sounds
- Operates on battery or phantom power

The AT8010 requires 11V to 52V DC phantom power or a 1.5V AA battery for operation. A battery need not be in place for phantom power operation.

Battery installation: Unscrew the lower section of the microphone body, just below the nameplate. Insert a fresh 1.5V AA battery in the handle compartment ("+" end up), then reassemble the microphone. Alkaline batteries are recommended for longest life. Remove the battery during long-term storage.

Output from the microphone's XLRM-type connector is low impedance (Lo-Z) balanced. The signal appears across Pins 2 and 3; Pin 1 is ground (shield). Output phase is "Pin 2 hot" – positive acoustic pressure produces positive voltage at Pin 2.

To avoid phase cancellation and poor sound, all mic cables must be wired consistently: Pin 1-to-Pin 1, etc.

An integral 80 Hz high-pass filter provides easy switching from a flat frequency response to a low-end roll-off. The roll-off position reduces the pickup of low-frequency ambient noise (such as traffic, air-handling systems, etc.), room reverberation and mechanically coupled vibrations.

The high sensitivity of the AT8010 assures useful output and an excellent match to most input sources. In some cases, however, an attenuator such as the Audio-Technica AT8202 may be required between the microphone and preamplifier to avoid overloading sensitive input stages.

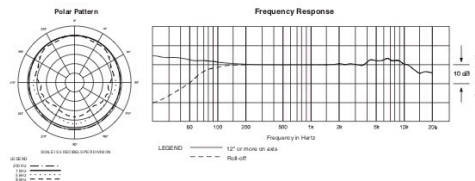
The microphone is RoHS compliant—free from all substances specified in the EU directive on hazardous substances.

Avoid leaving the microphone in the open sun or in areas where temperatures exceed 110° F (43° C) for extended periods. Extremely high humidity should also be avoided.

AT8010 SPECIFICATIONS[†]

ELEMENT	Fixed-charge back plate permanently polarized condenser
POLAR PATTERN	Omnidirectional
FREQUENCY RESPONSE	20-20,000 Hz
LOW FREQUENCY ROLL-OFF	80 Hz, 12 dB/Octave
OPEN CIRCUIT SENSITIVITY (Phantom / Battery)	-44 dB (6.3 mV) / -45 dB (5.6 mV) re 1V at 1 Pa*
IMPEDANCE (Phantom / Battery)	250 ohms / 300 ohms
MAXIMUM INPUT SOUND LEVEL (Phantom / Battery)	137 dB / 123 dB SPL, 1 kHz at 1% T.H.D.
DYNAMIC RANGE (typical) (Phantom / Battery)	113 dB / 99 dB, 1 kHz at Max SPL
SIGNAL-TO-NOISE RATIO[†]	70 dB, 1 kHz at 1 Pa*
PHANTOM POWER REQUIREMENTS	11-52V DC, 2 mA typical
BATTERY TYPE	1.5V AA/UM3
BATTERY CURRENT / LIFE	0.4 mA / 1200 hours typical (alkaline)
SWITCH	Flat, roll-off
WEIGHT (less accessories)	165 g (5.8 oz)
DIMENSIONS	178.0 mm (7.01") long, 26.0 mm (1.02") head diameter
OUTPUT CONNECTOR	Integral 3-pin XLRM-type
ACCESSORIES FURNISHED	AT8405a stand clamp for 5/16"-27 threaded stands; 5/16"-27 to 3/8"-16 threaded adapter; AT8136 windscreen; battery; soft protective pouch

[†]In the interest of standards development, ATUS offers full details on its test methods to other industry professionals on request.
* 1 Pascal = 10 dynes/cm² = 10 microbars = 94 dB SPL
[†]Typical, A-weighted, using Audio Precision System One.
Specifications are subject to change without notice.



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Appendix 12

	500Hz	1kHz	2kHz	t_{mf}
<i>school 1 intervention</i>	0.67	0.60	0.58	0.62
<i>school 1 control</i>	0.60	0.59	0.69	0.62
<i>School 2 intervention</i>	1.00	1.06	1.02	1.03
<i>school 2 control</i>	0.99	1.02	1.02	1.01
<i>school 3 intervention</i>	0.84	0.84	0.75	0.81
<i>school 3 control</i>	0.84	0.87	0.76	0.83
<i>School 4 intervention</i>	0.76	0.66	0.69	0.71
<i>school 4 control</i>	0.62	0.65	0.69	0.65
<i>school 4 control</i>	0.83	0.78	0.74	0.79
<i>School 5 intervention</i>	0.95	0.90	0.75	0.87
<i>school 5 control</i>	0.77	1.06	0.69	0.84
<i>School 6 intervention</i>	0.89	0.97	0.83	0.90
<i>School 7 intervention</i>	0.48	0.45	0.48	0.47
<i>school 7 control</i>	0.55	0.51	0.49	0.52
<i>School 8 intervention</i>	0.80	0.75	0.71	0.75
<i>School 9 intervention</i>	0.86	0.86	0.71	0.81
<i>school 9 control</i>	0.84	0.86	0.71	0.80
<i>School 10 intervention</i>	1.43	1.14	0.96	1.18
<i>School 11 intervention</i>	0.74	0.72	0.63	0.69
<i>school 11 control</i>	0.73	0.71	0.58	0.68
<i>School 12 intervention</i>	0.71	0.71	0.69	0.70
<i>school 12 control</i>	0.62	0.78	0.69	0.70
<i>School 13 intervention</i>	0.79	0.92	0.84	0.85
<i>school 13 control</i>	0.78	0.92	0.82	0.84
<i>school 13 control</i>	0.82	0.89	0.81	0.84

Appendix 13

	500	1k	2k	4k	Weighted C₅₀
<i>school 1 intervention</i>	7.68	9.01	5.01	6.07	6.94
<i>school 1 control</i>	9.81	7.52	4.02	4.41	6.44
<i>school 2 intervention</i>	6.74	2.26	-0.27	-0.13	2.15
<i>school 2 control</i>	7.57	2.05	-0.64	-0.52	2.12
<i>school 3 intervention</i>	4.70	3.35	3.31	3.65	3.75
<i>school 3 control</i>	4.78	3.79	3.14	5.18	4.22
<i>school 4 intervention</i>	5.17	4.42	3.73	2.95	4.07
<i>school 4 control</i>	7.22	7.61	3.48	5.53	5.96
<i>school 4 control</i>	5.76	6.81	4.58	2.57	4.93
<i>school 5 intervention</i>	2.80	3.30	4.62	5.18	3.97
<i>school 5 control</i>	6.75	3.19	2.64	3.10	3.92
<i>school 6 intervention</i>	5.81	4.65	4.74	3.32	4.63
<i>school 7 intervention</i>	9.51	9.22	5.94	5.44	7.53
<i>school 7 control</i>	9.10	9.00	5.87	4.89	7.21
<i>school 8 intervention</i>	4.98	4.78	3.98	3.10	4.21
<i>school 9 intervention</i>	5.69	3.63	1.93	2.52	3.44
<i>school 9 control</i>	6.25	5.34	3.18	1.86	4.16
<i>school 10 intervention</i>	2.52	-1.91	2.69	1.25	1.14
<i>school 11 intervention</i>	2.67	1.18	2.91	4.27	2.76
<i>school 11 control</i>	4.22	1.95	1.97	3.25	2.85
<i>school 12 intervention</i>	6.27	4.68	3.39	3.20	4.39
<i>school 12 control</i>	10.53	6.60	3.66	5.10	6.47
<i>School 13 intervention</i>	6.22	3.21	2.73	3.96	4.03
<i>school 13 control</i>	4.41	3.01	4.52	5.53	4.37
<i>school 13 control</i>	5.27	3.36	4.78	5.51	4.73

Appendix 14

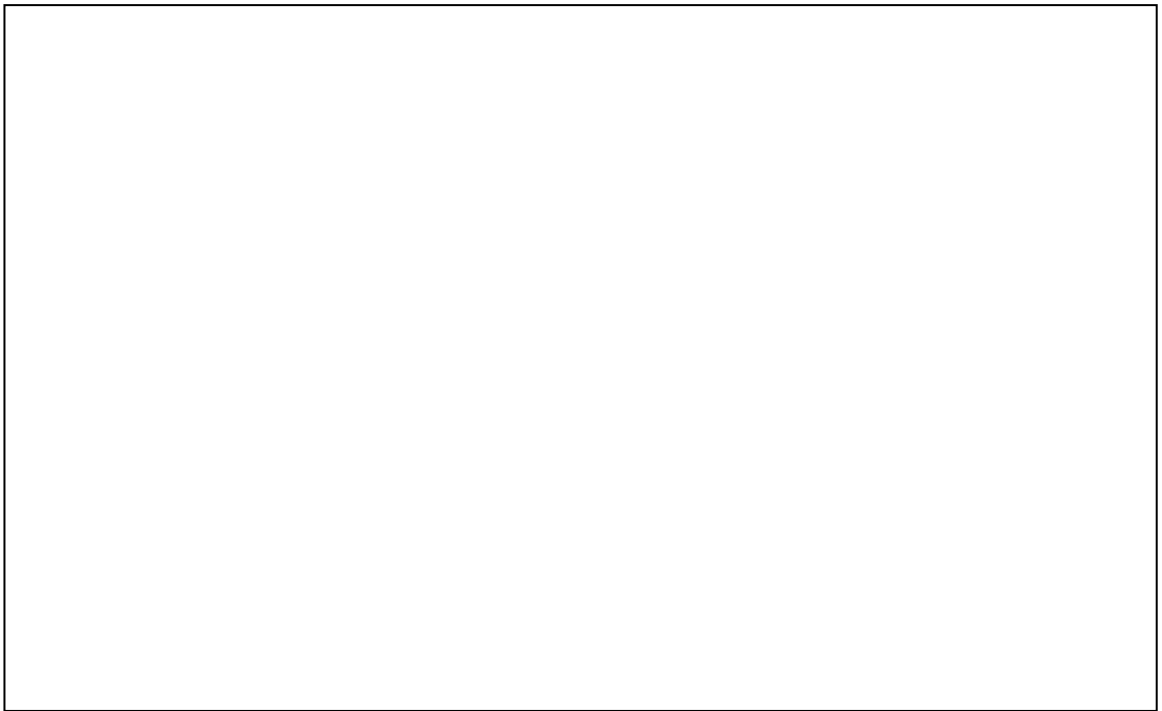
CASSROOM NOISE SURVEY

DATE OF SURVEY	
AGE RANGE/PRIMARY LEVEL	
NUMBER IN CLASS NUMBER OF CHILDREN NUMBER OF ADULTS	
TIME PERIOD	MORNING BEFORE BREAK MORNING AFTER BREAK AFTERNOON
WEATHER CONDITIONS	
SOUND LEVEL METER	

Appendix 14

PLANS

CLASSROOM PLAN



PHOTOGRAPHS

Appendix 14

NOISE

When standing in the unoccupied room what sounds can you hear?

Classroom Features	Yes	No
Heating and ventilation system is audible		
Noise from playground is audible		
Noise from road traffic is audible		
Noise from projector is audible		
Noise from the corridor is audible		
Noise from other classes is audible		
Other noises – describe		

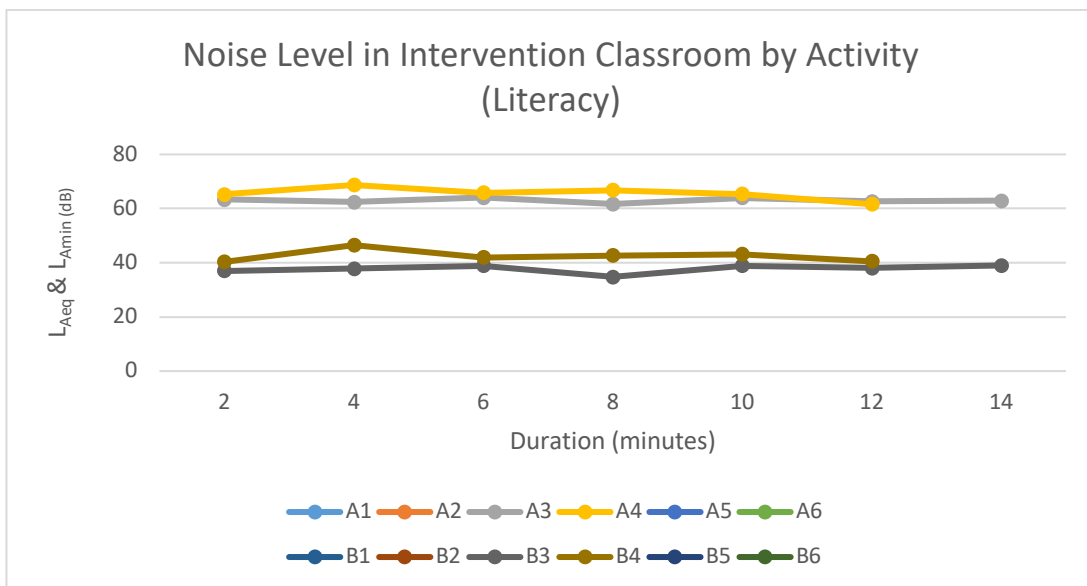
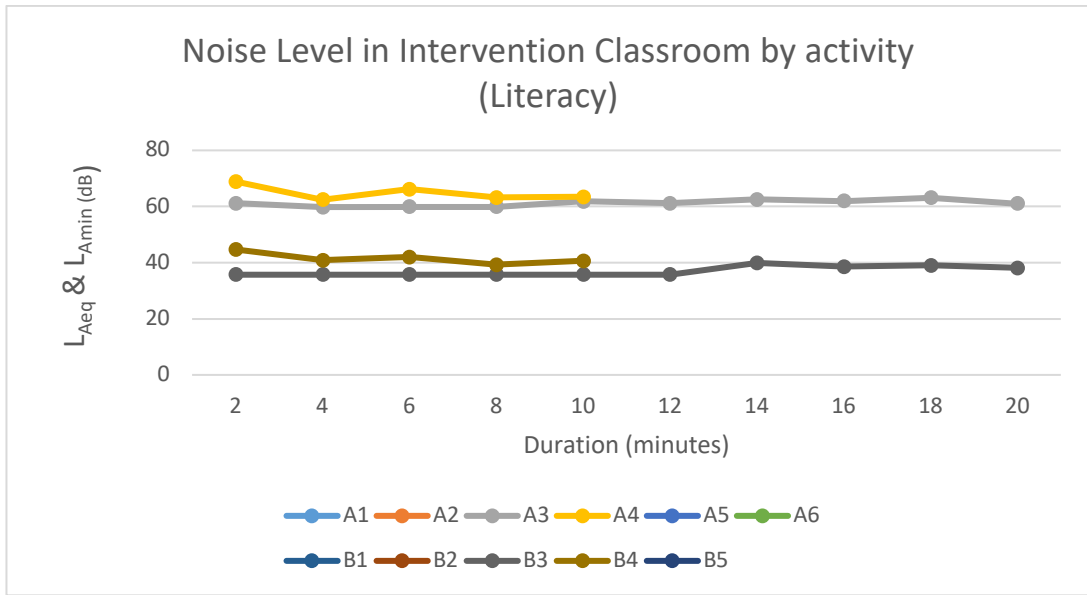
Classroom Features	Yes	No
A hard surface, flat ceiling without acoustical ceiling tiles		
Ceiling height is over 8 metres		
Acoustical ceiling tiles have been painted		
Walls are constructed of sound reflective materials (e.g., plasterboard, concrete, wood panelling)		
Floors are constructed of sound reflective materials (e.g. concrete, tiles, wood)		
Other comments		

Appendix 14

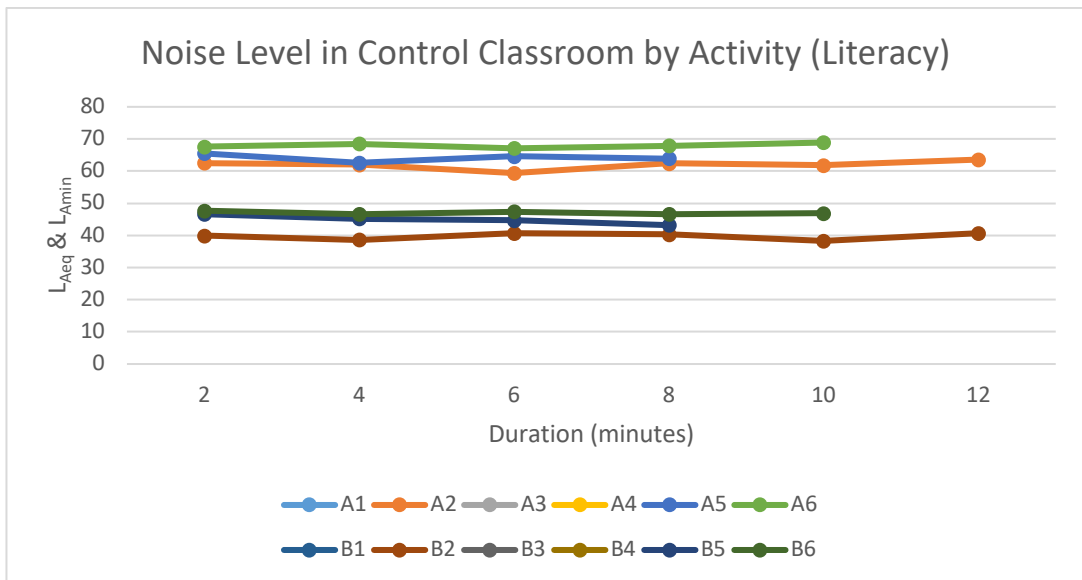
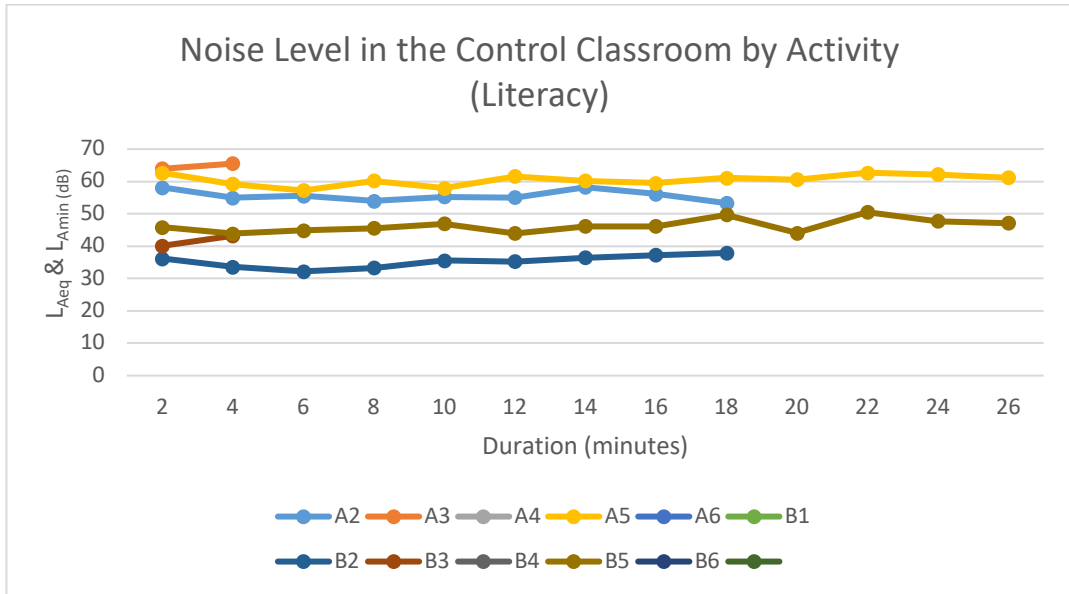
<i>Activity</i>	<i>Activity</i>	<i>Description</i>
A1	Test	Learner working individually, quietly at their table e.g. reading or test.
A2	Individual - One person talking	Learners sitting at table/floor, one person talking (Teacher or Learner) e.g. didactic teaching.
A3	Individual - More than one person talking	Learners sitting at tables/floors, some discussion/talking e.g. class have been set task/teacher talking to class – more than one person talking.
A4	Individual - More than one person talking; movement	Learners working individually with some talking and movement e.g. class set task, but some individuals are moving around the room.
A5	Individual - More than one person talking; Movement; teacher working with another group/individual	Teacher working with a group or individuals, rest of the class working at tables. individually, some talking and movement e.g. teacher is taking a reading/literacy/maths group and the rest of the class are working independently but are not directly supervised.
A6	Group work – movement	Learners working in groups, sitting at tables with some talking and movement e.g. working on projects or group discussion.

Appendix 15

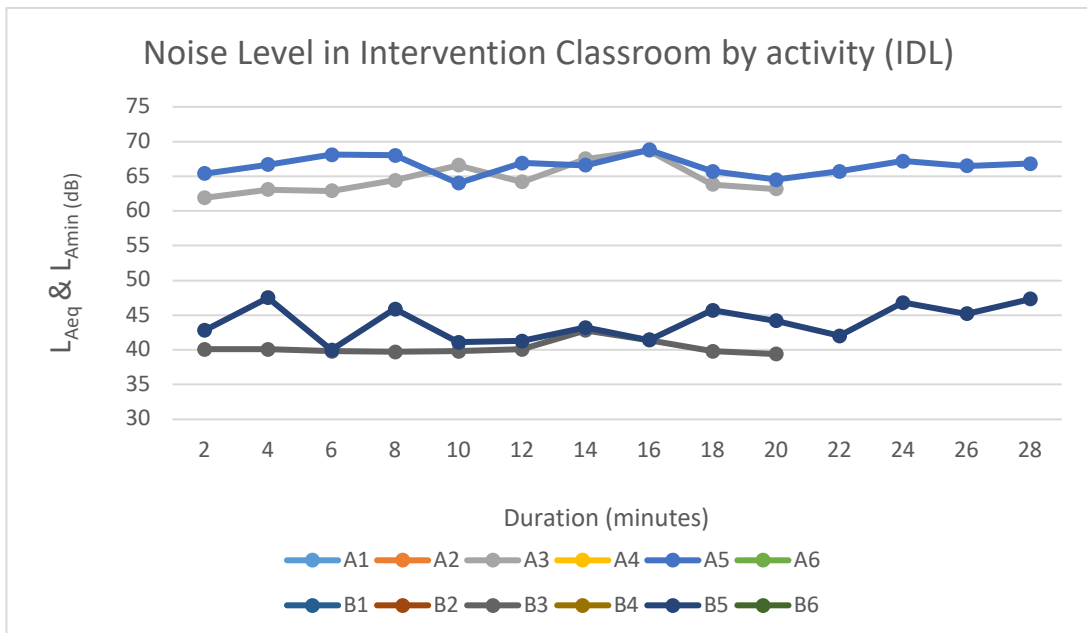
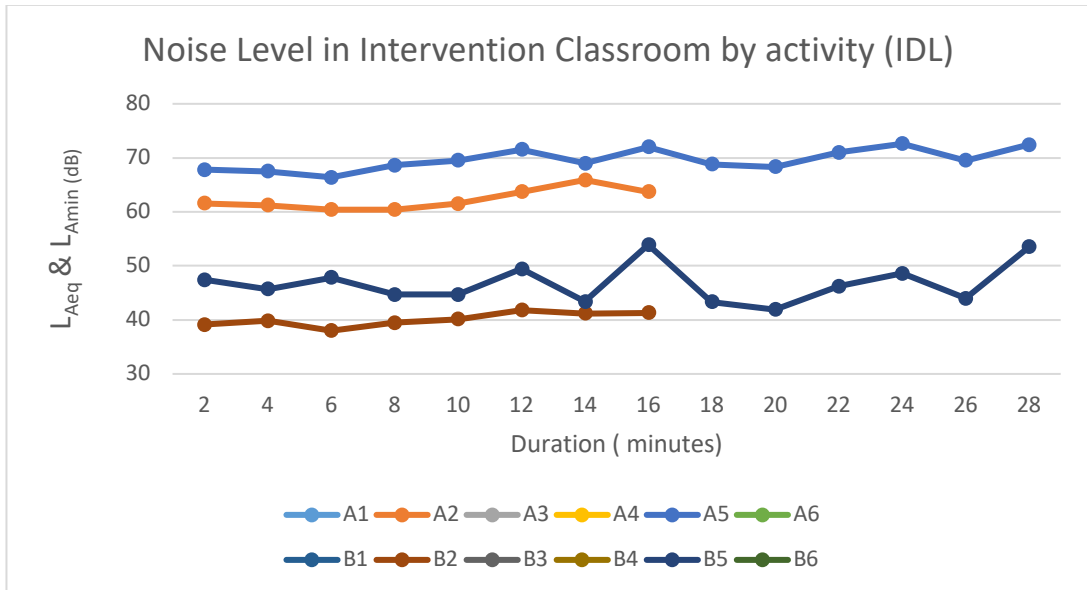
School 1



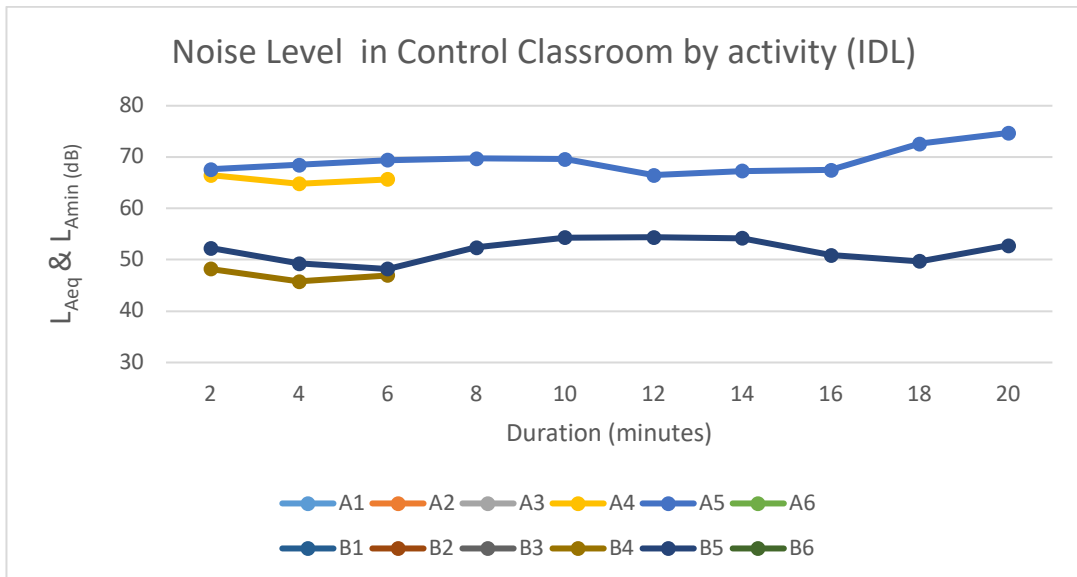
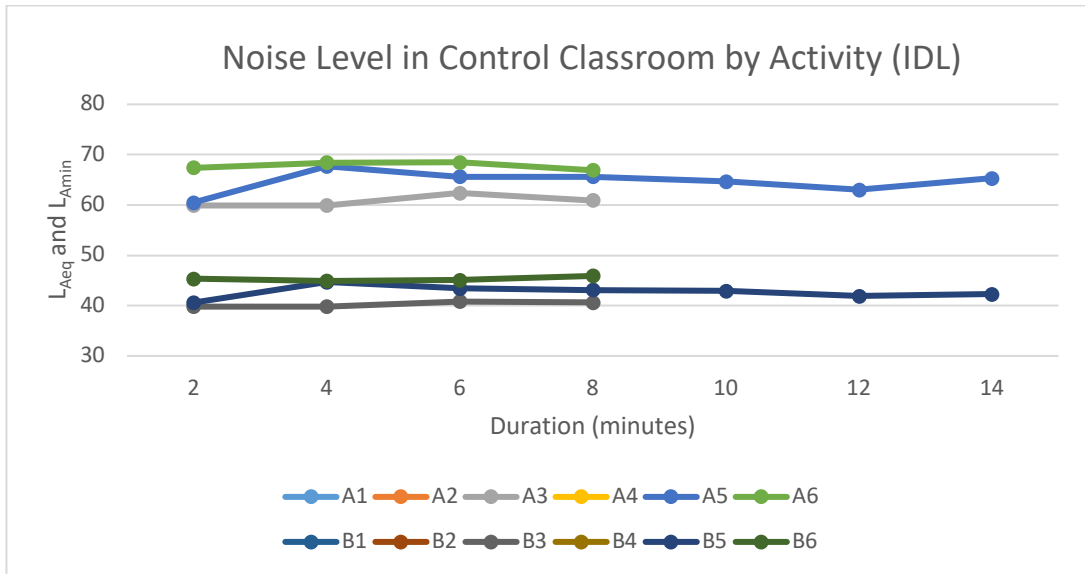
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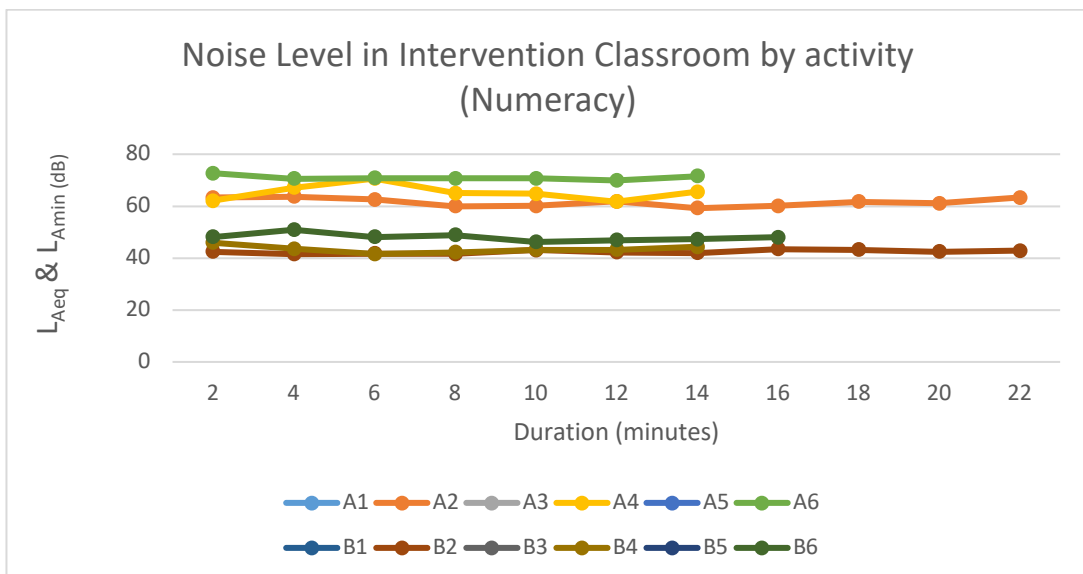
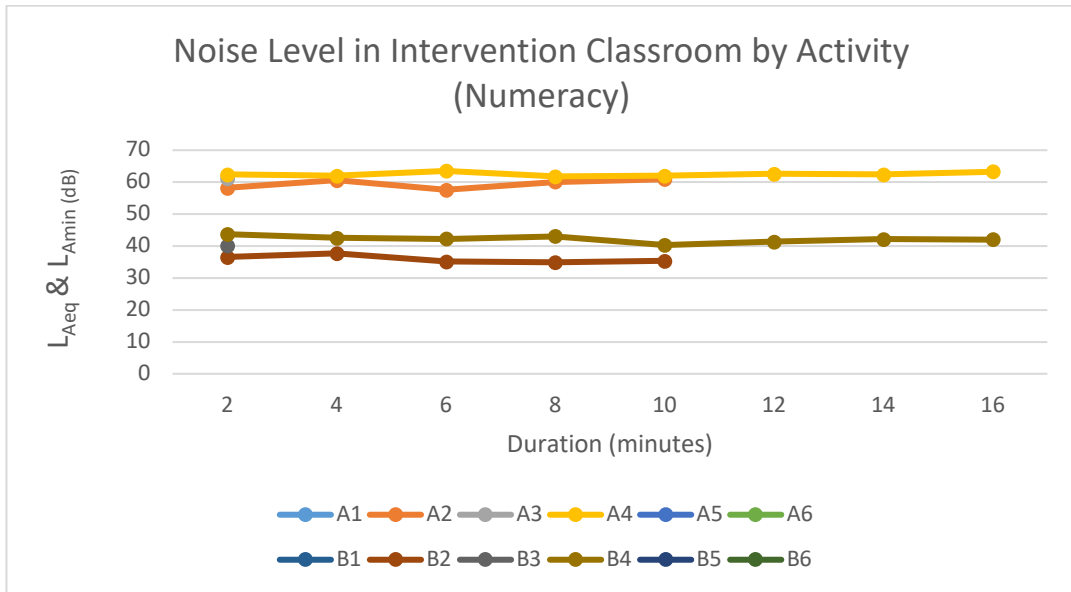
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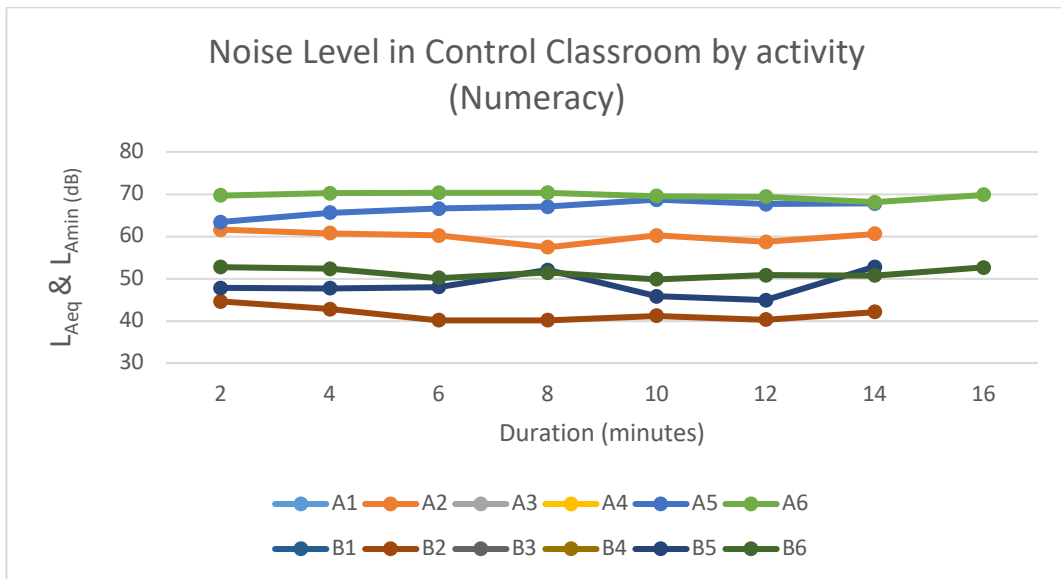
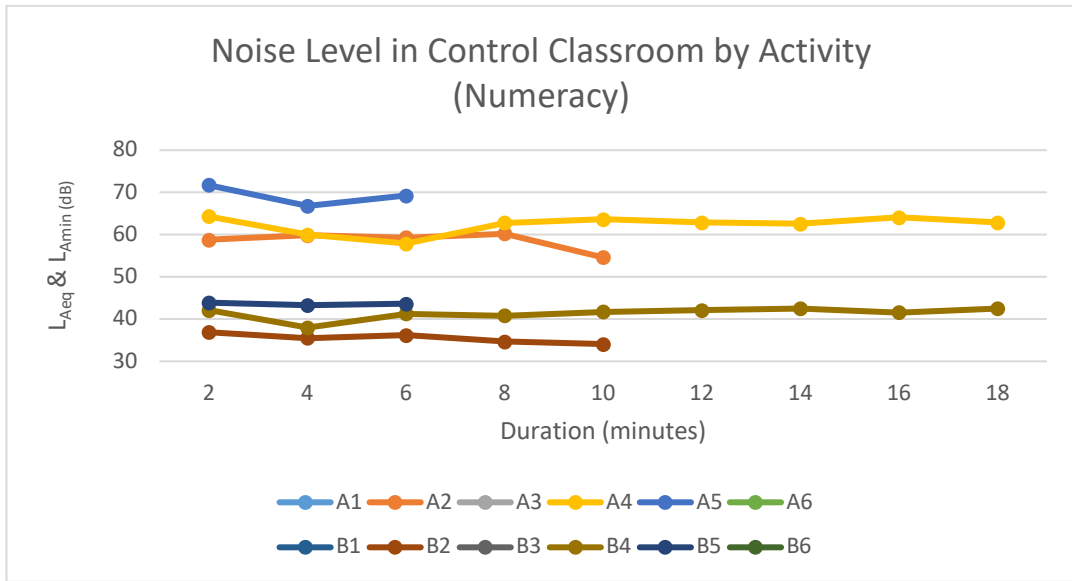
Appendix 15



Appendix 15

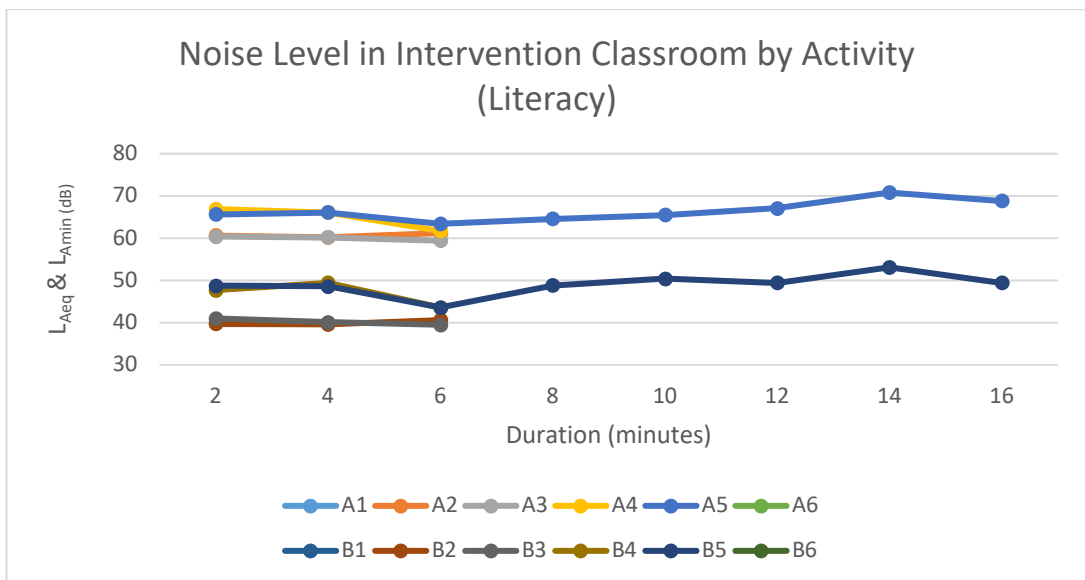
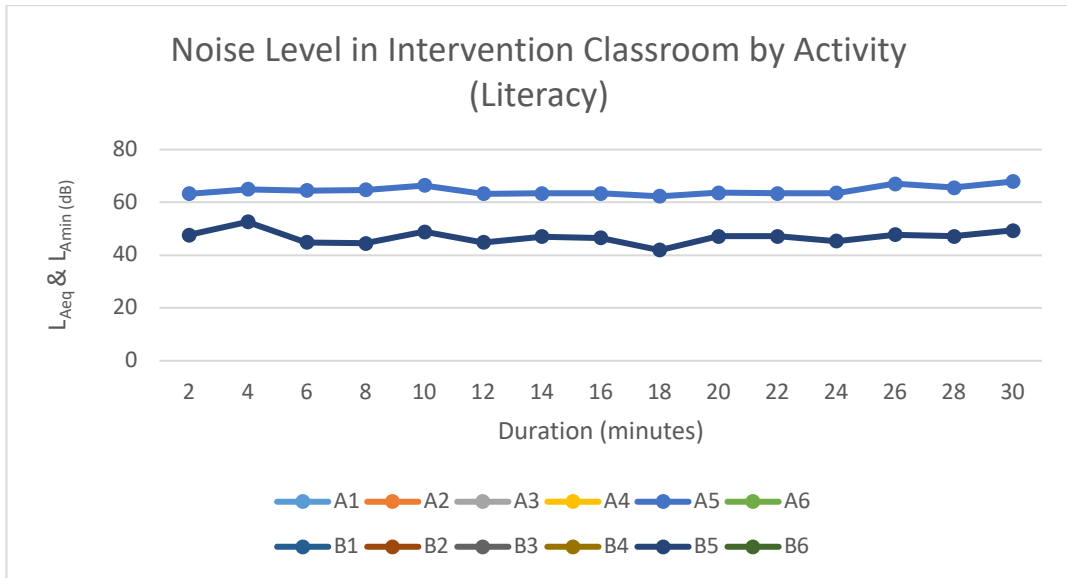


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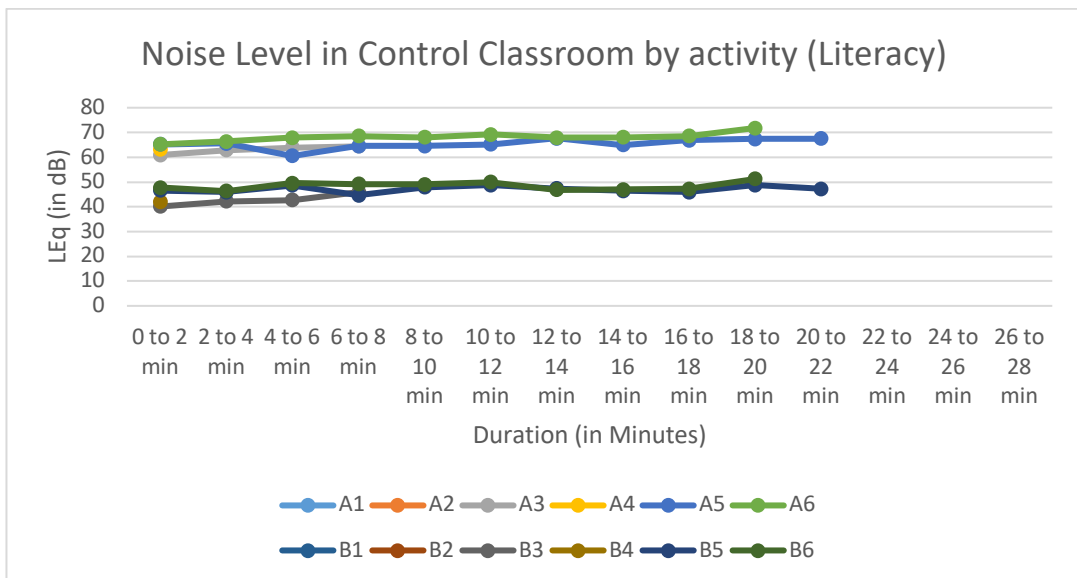
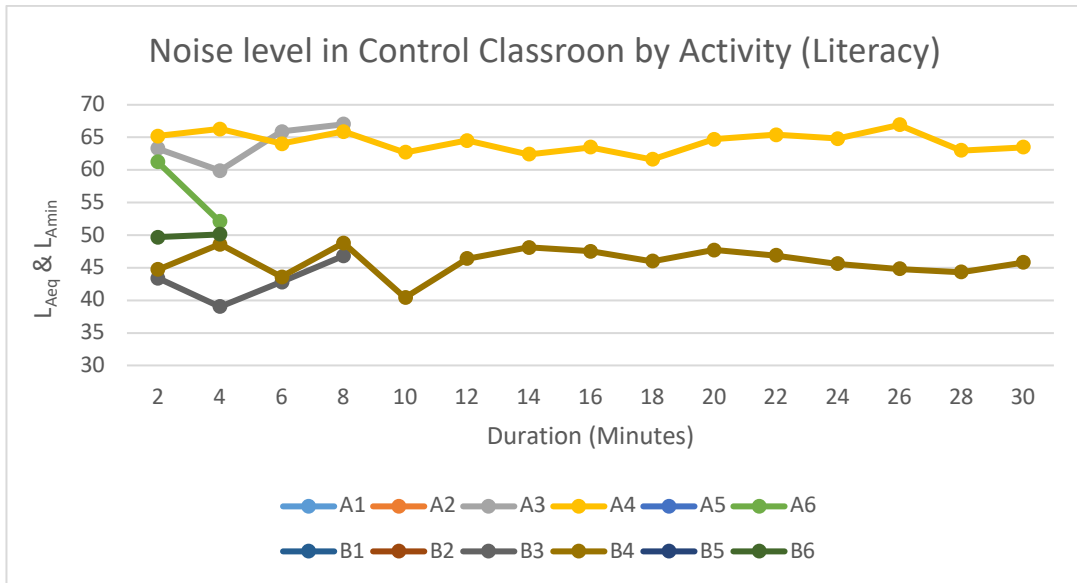


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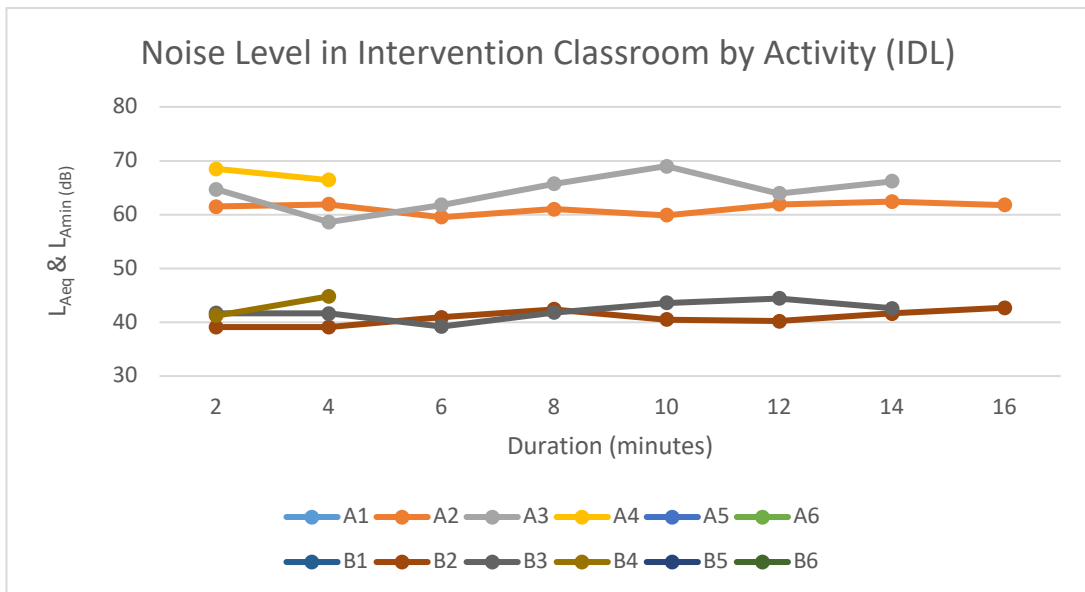
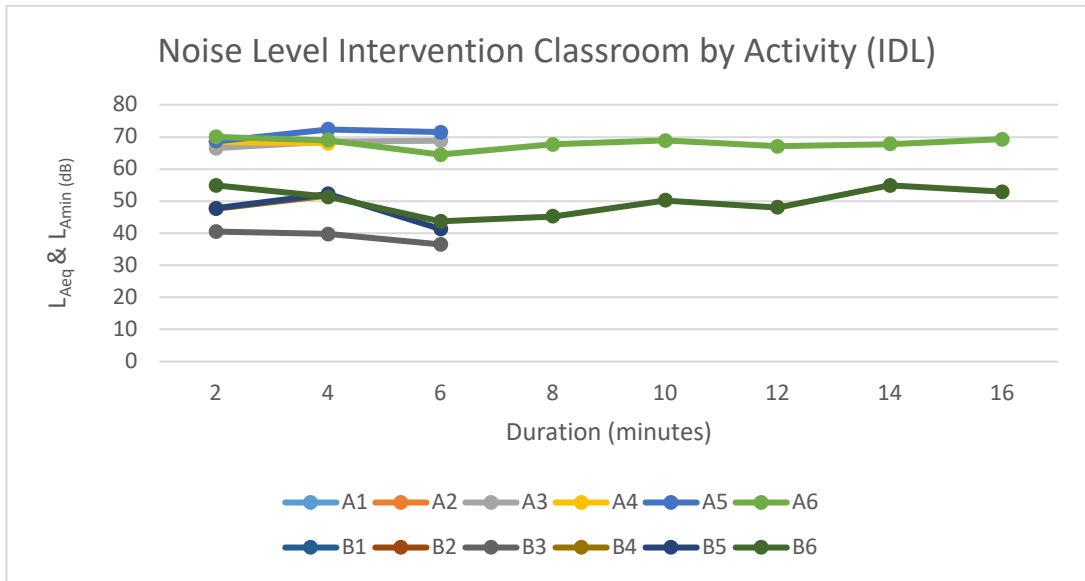
School 2



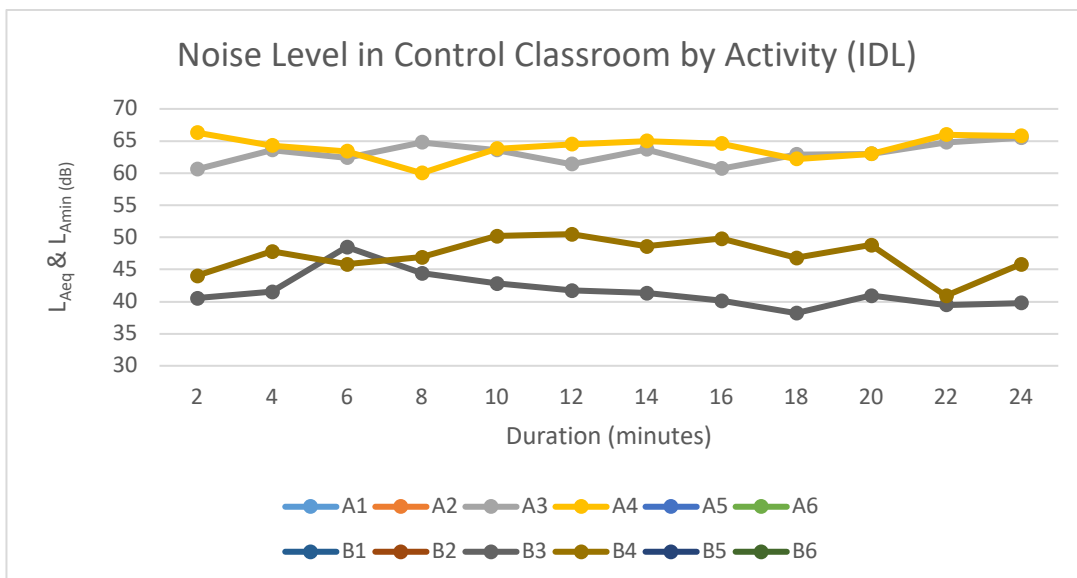
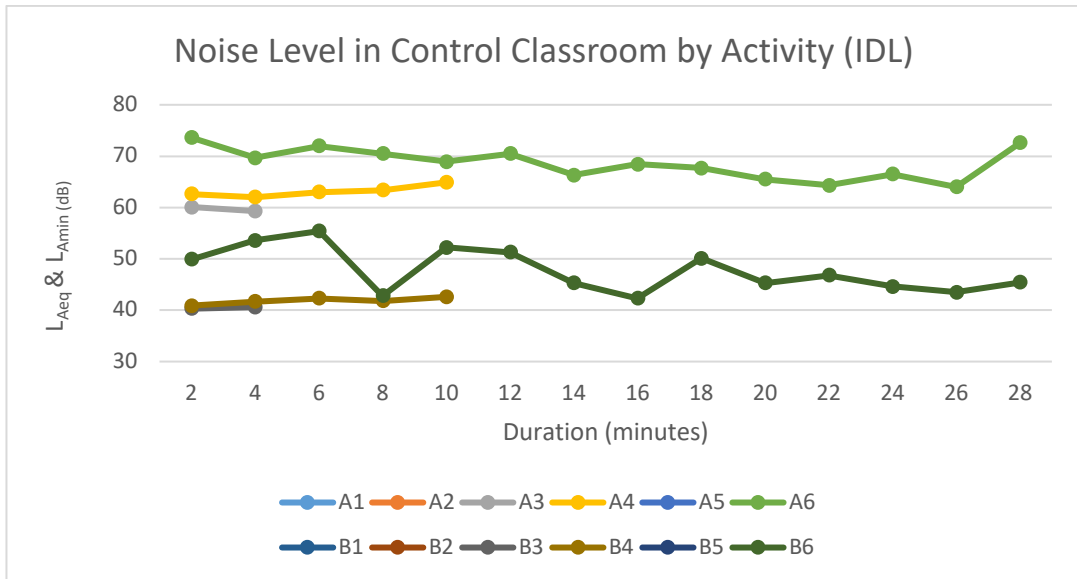
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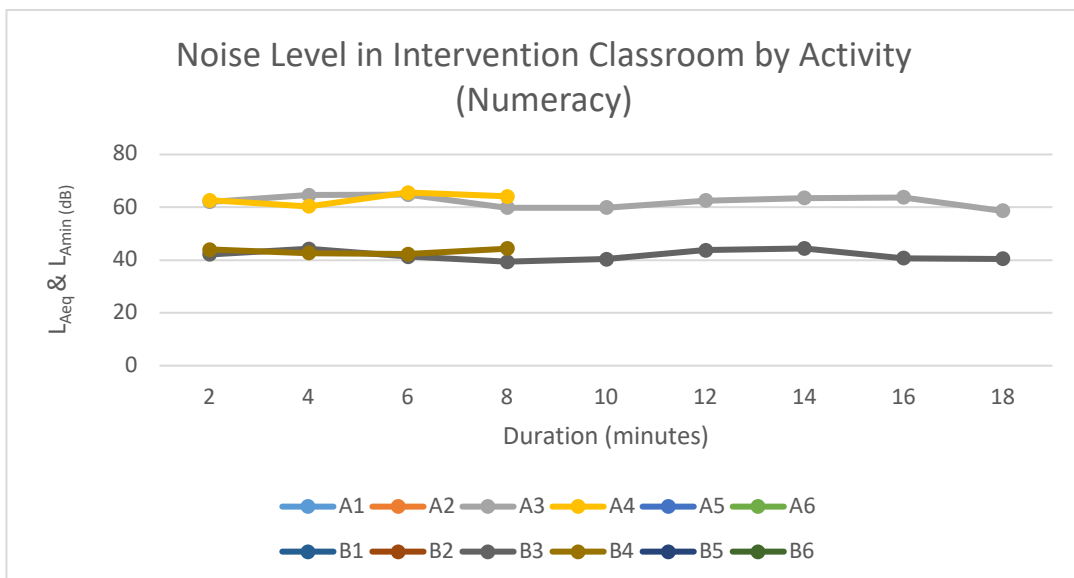
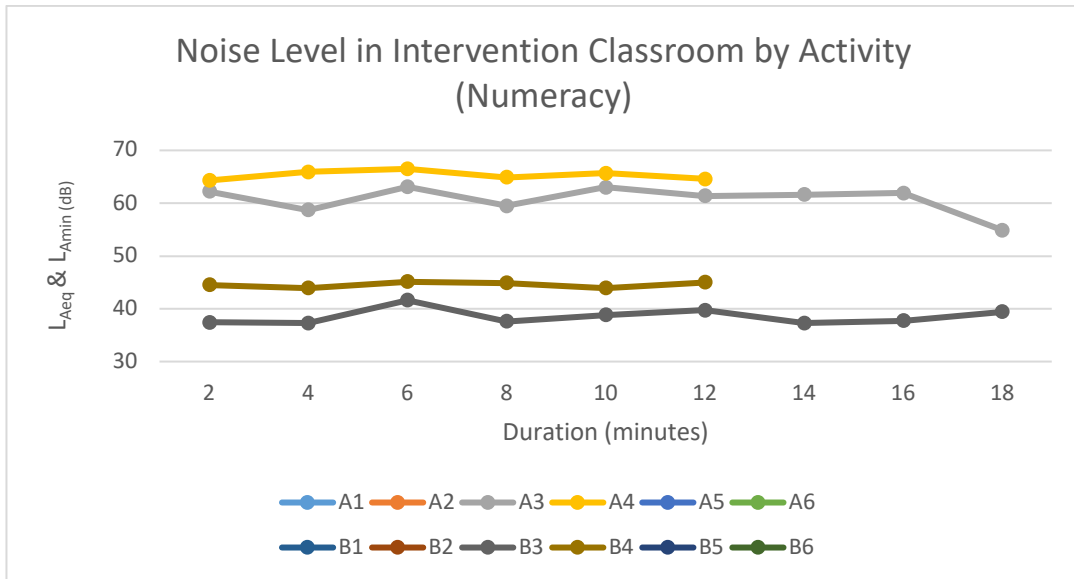
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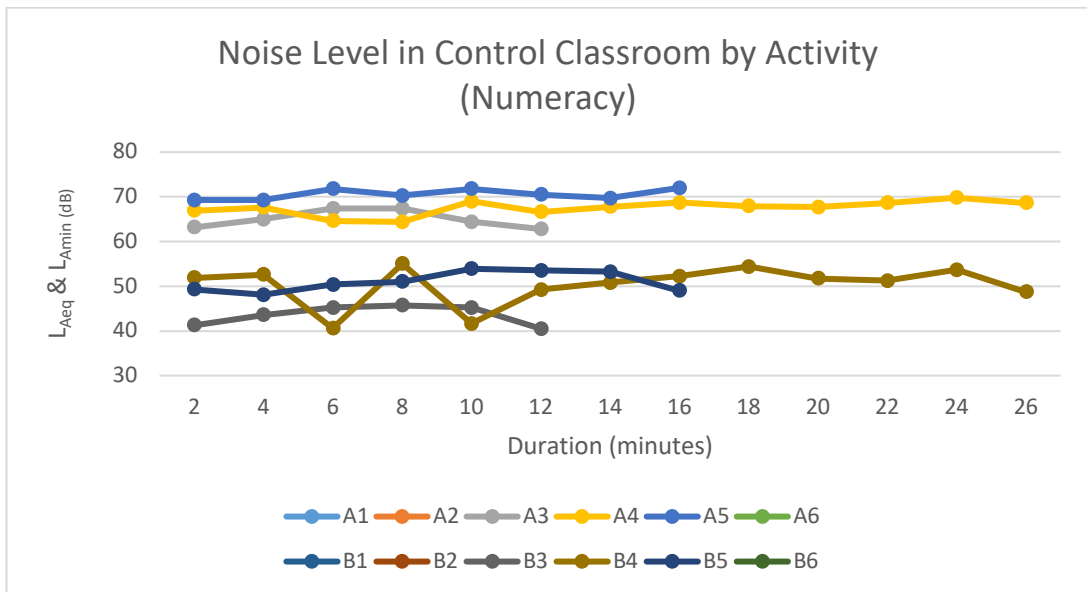
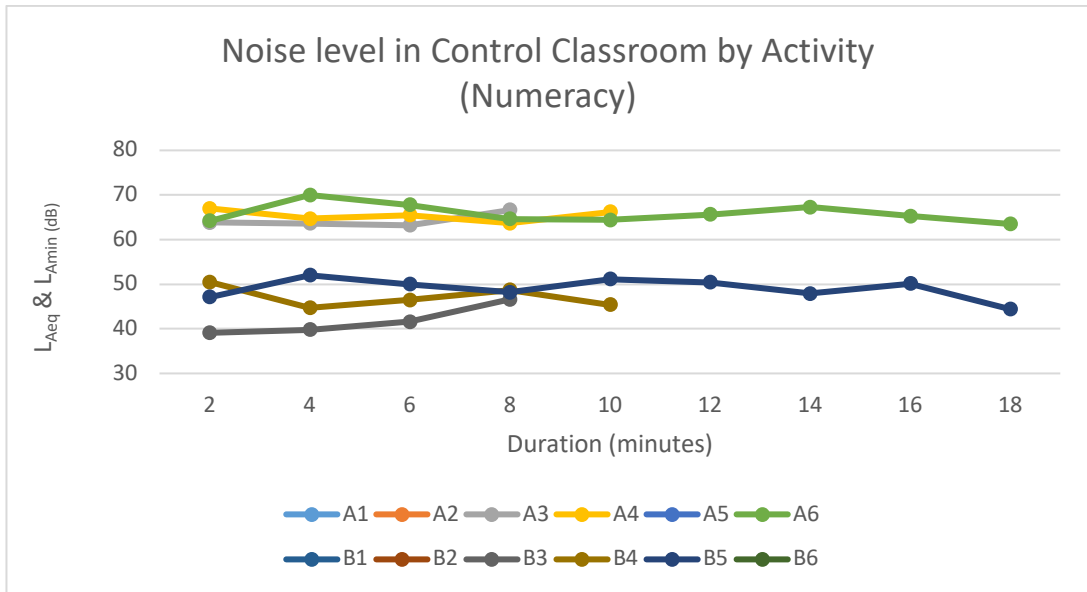
Appendix 15



Appendix 15

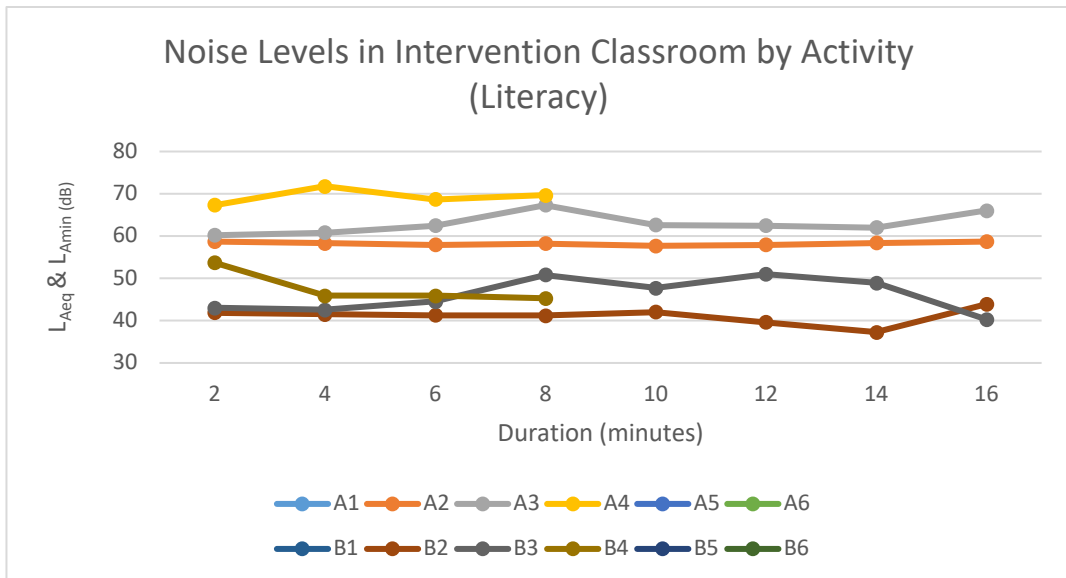
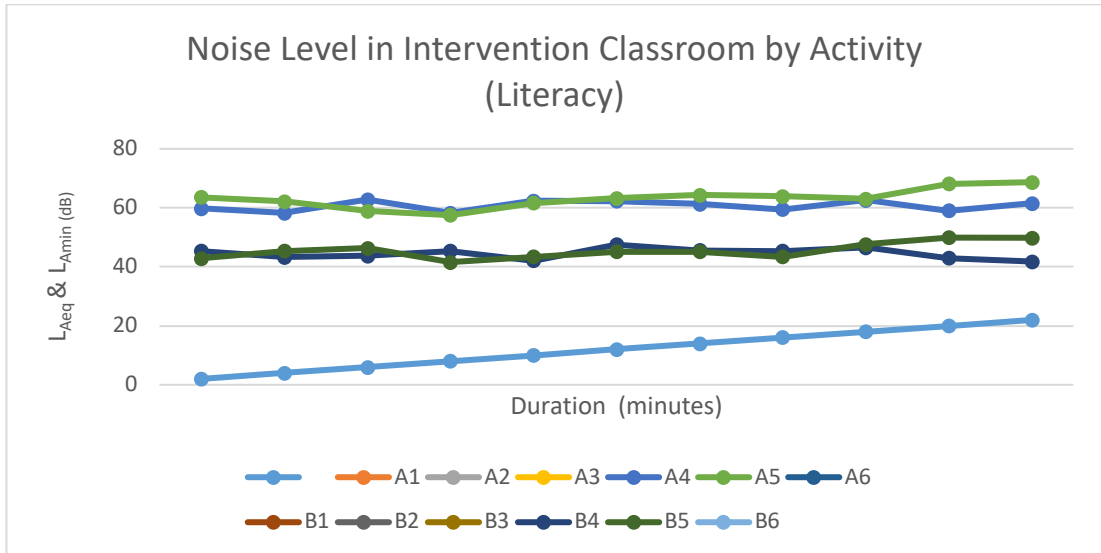


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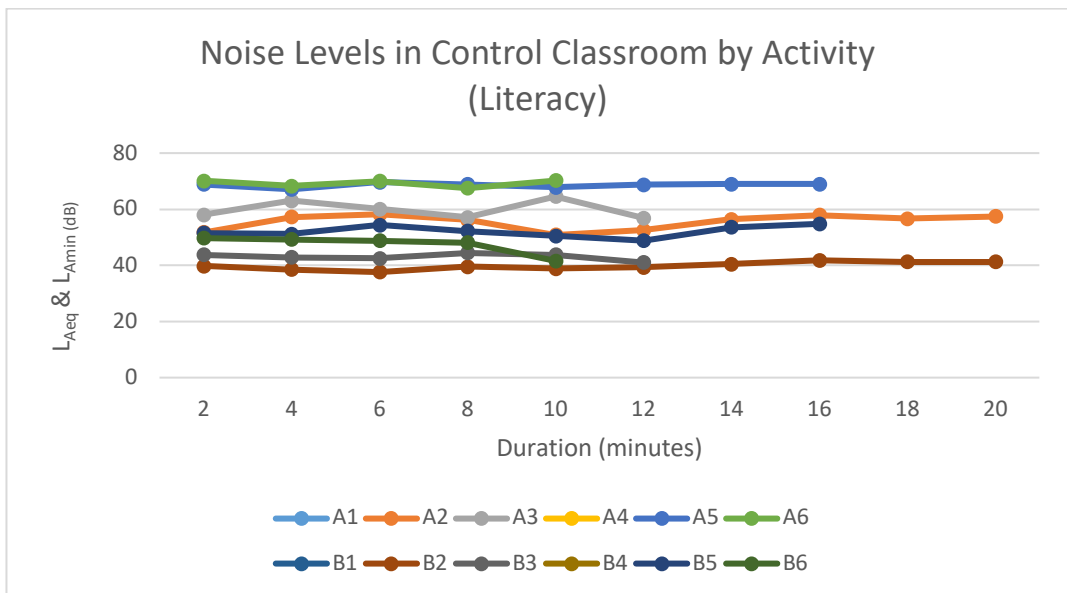
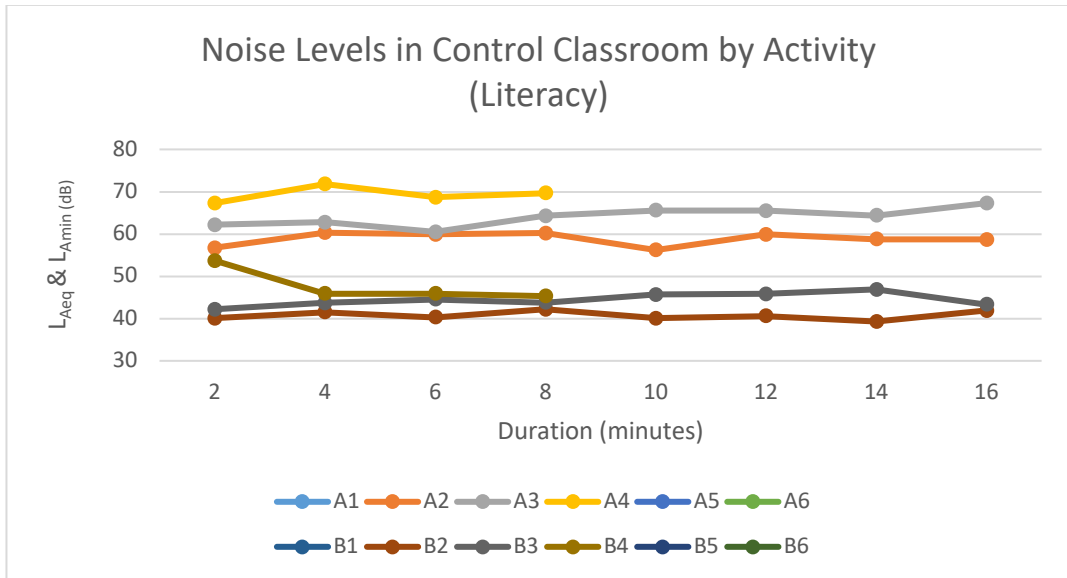


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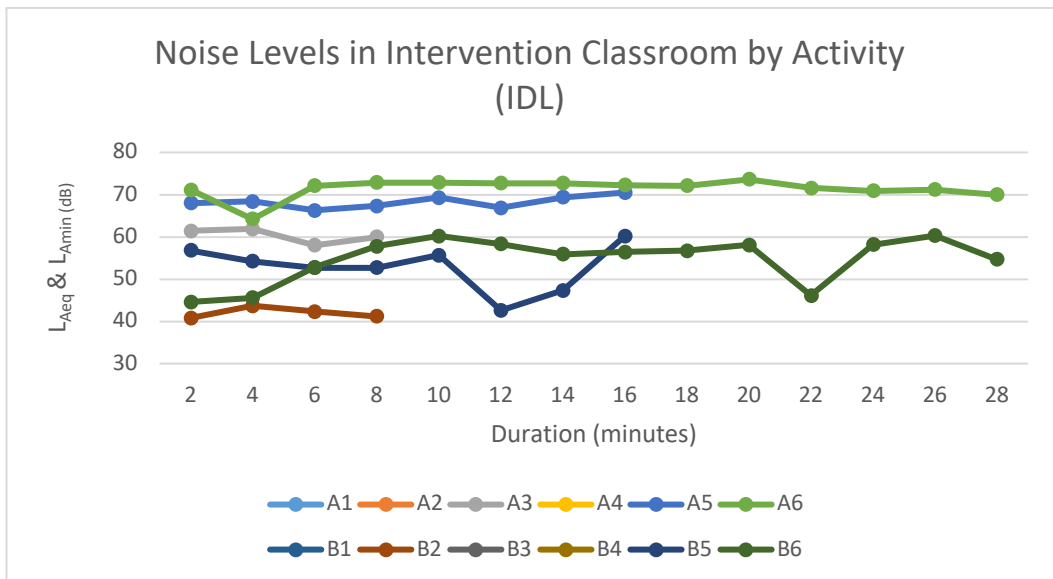
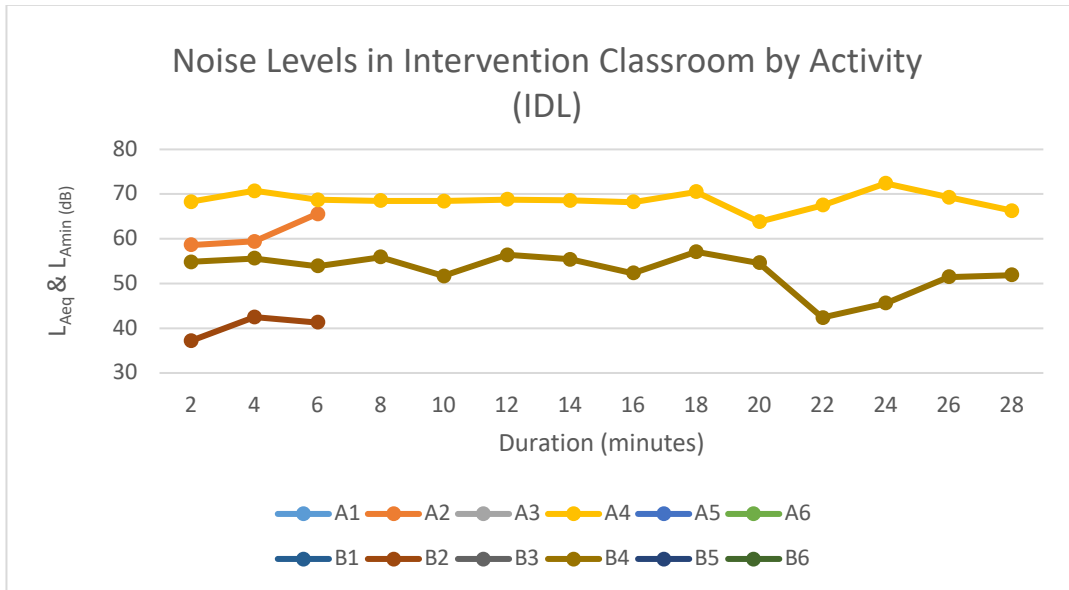
School 3



Appendix 15

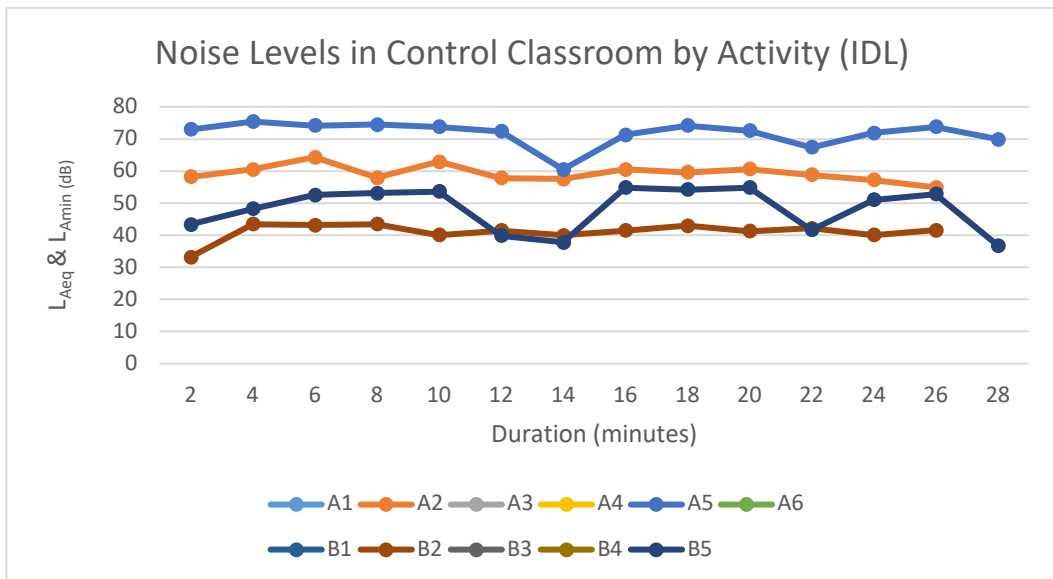
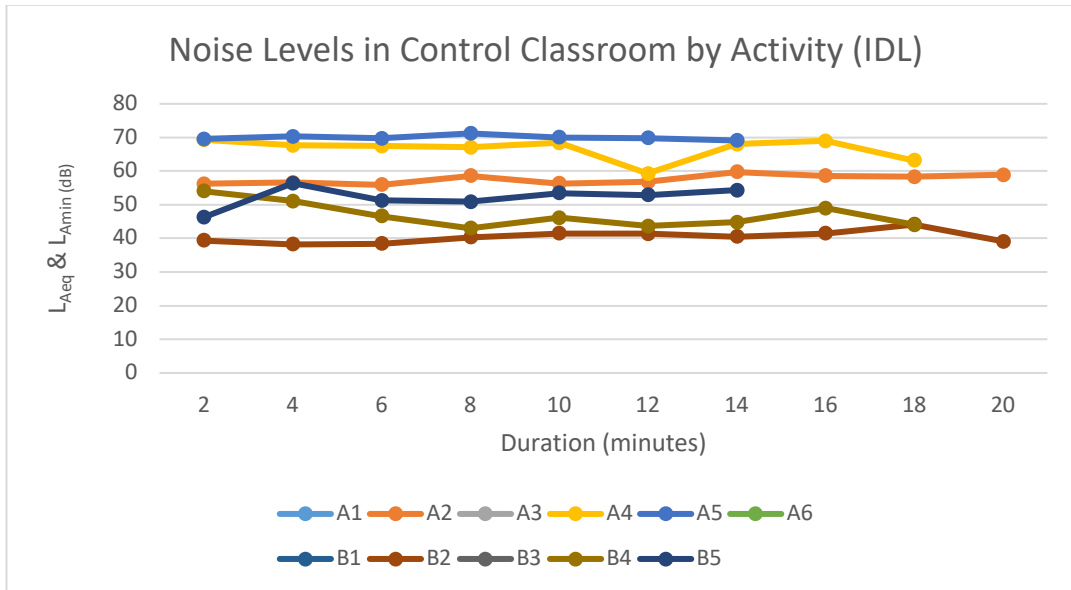


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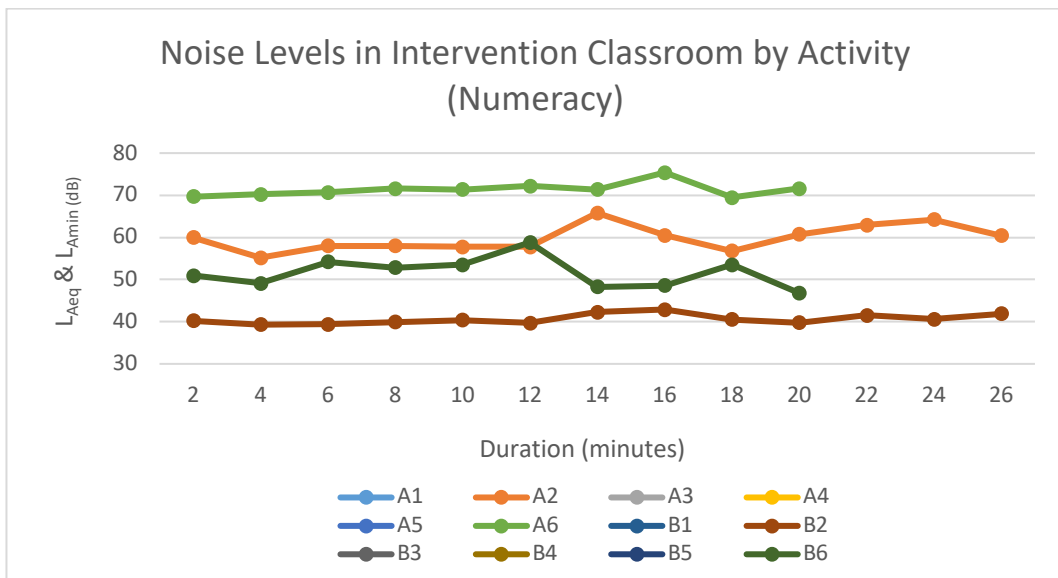
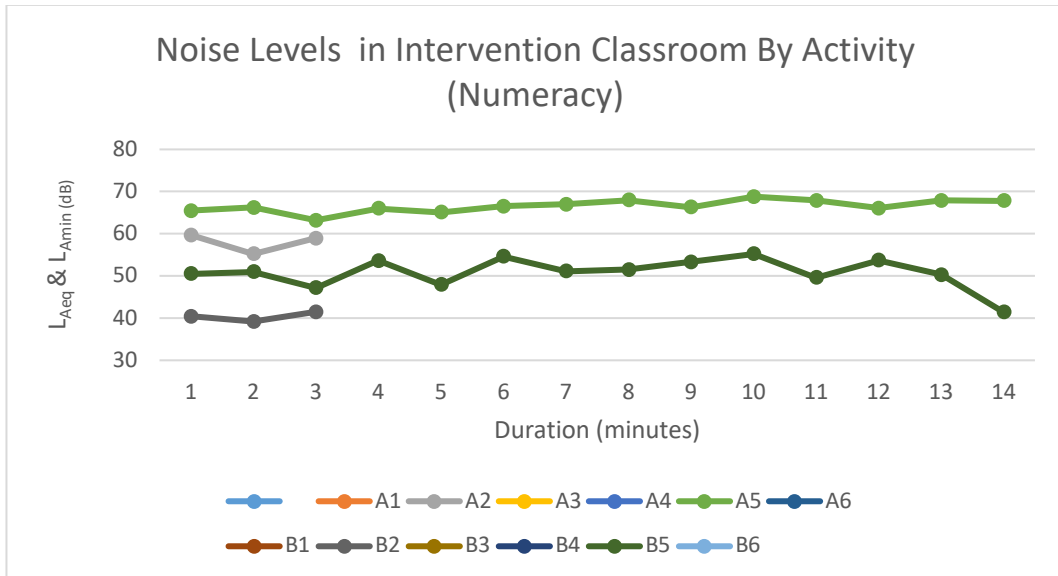


Classroom Noise Survey Results by Activity.

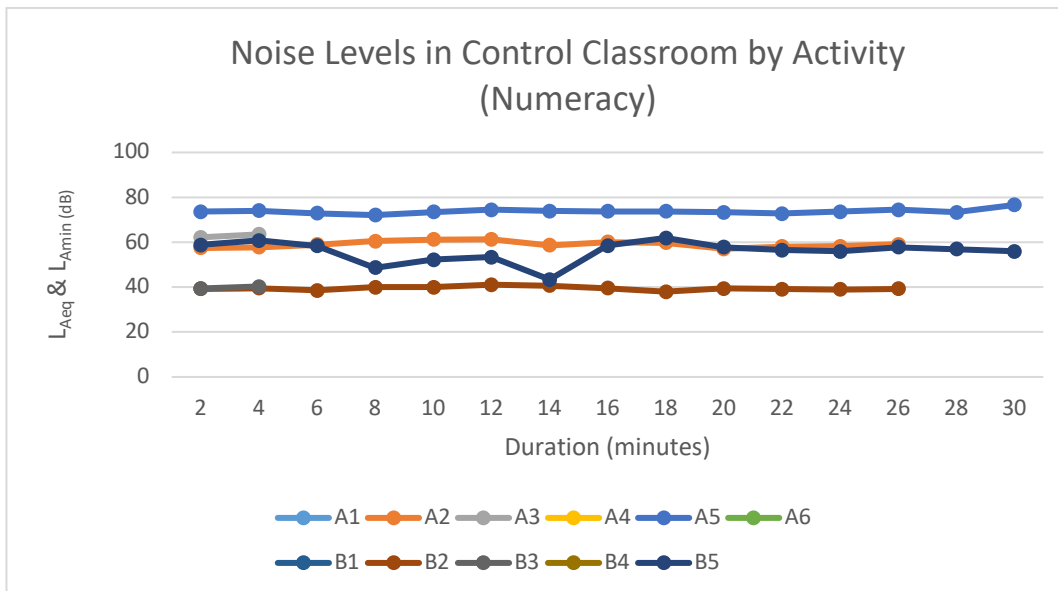
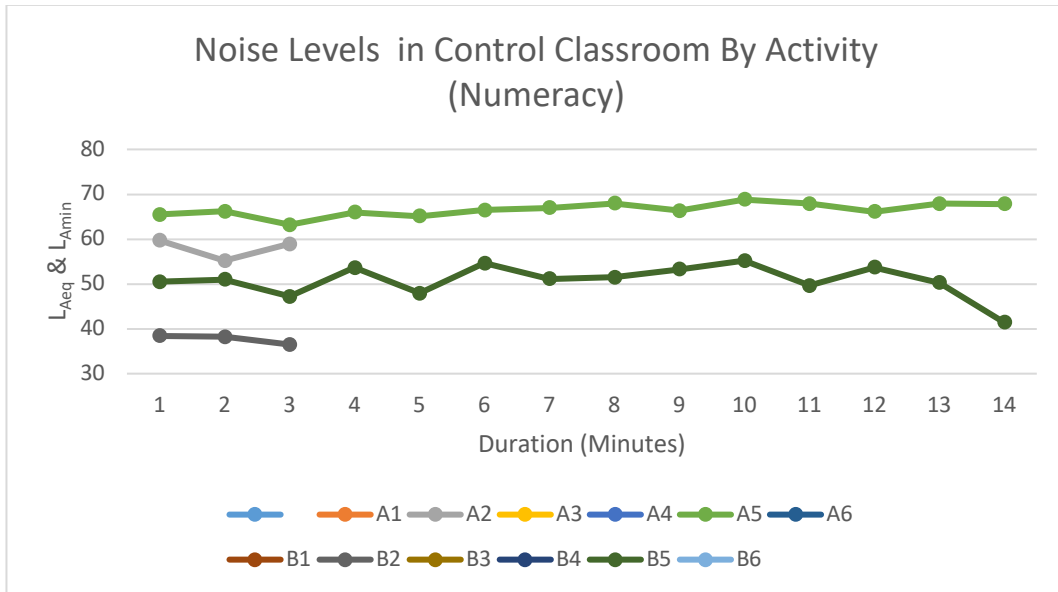
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Appendix 15

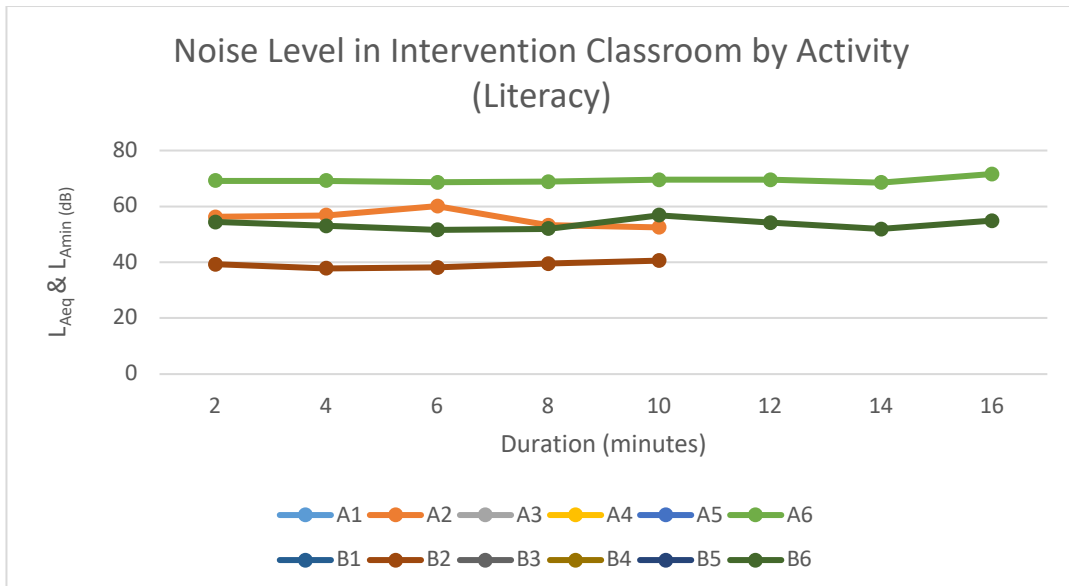
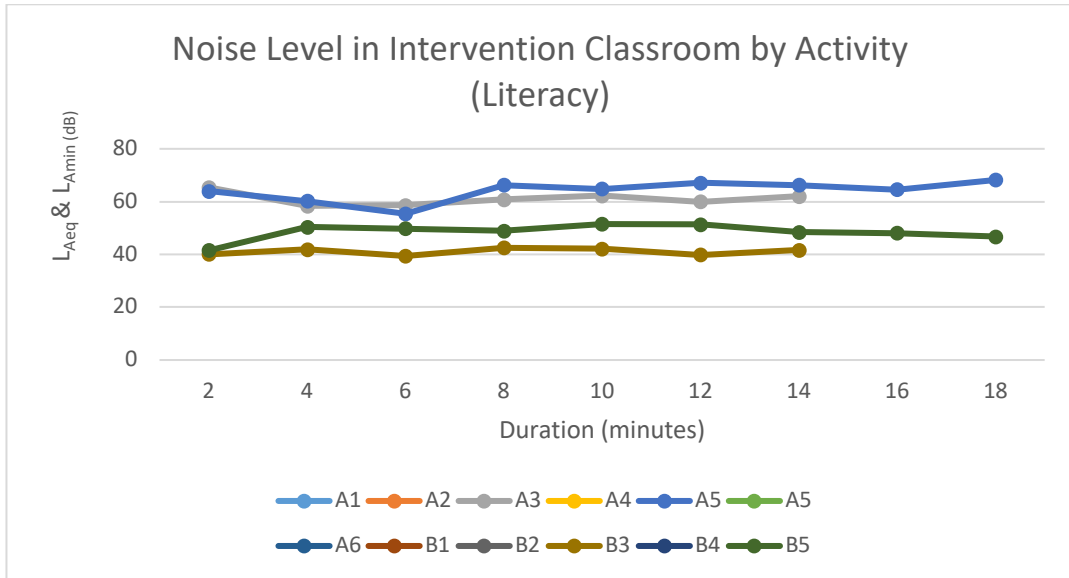


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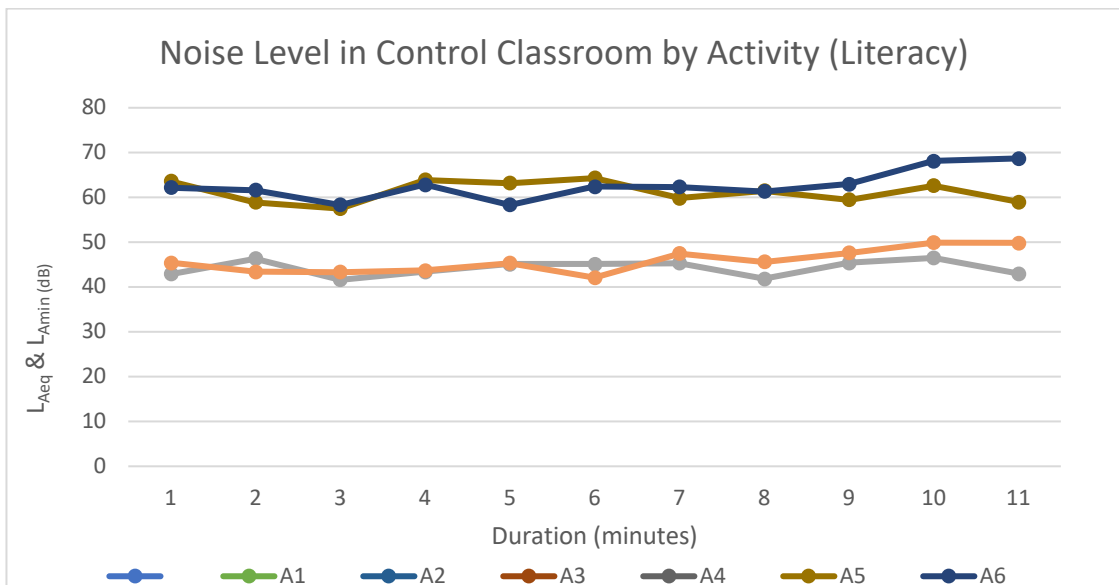
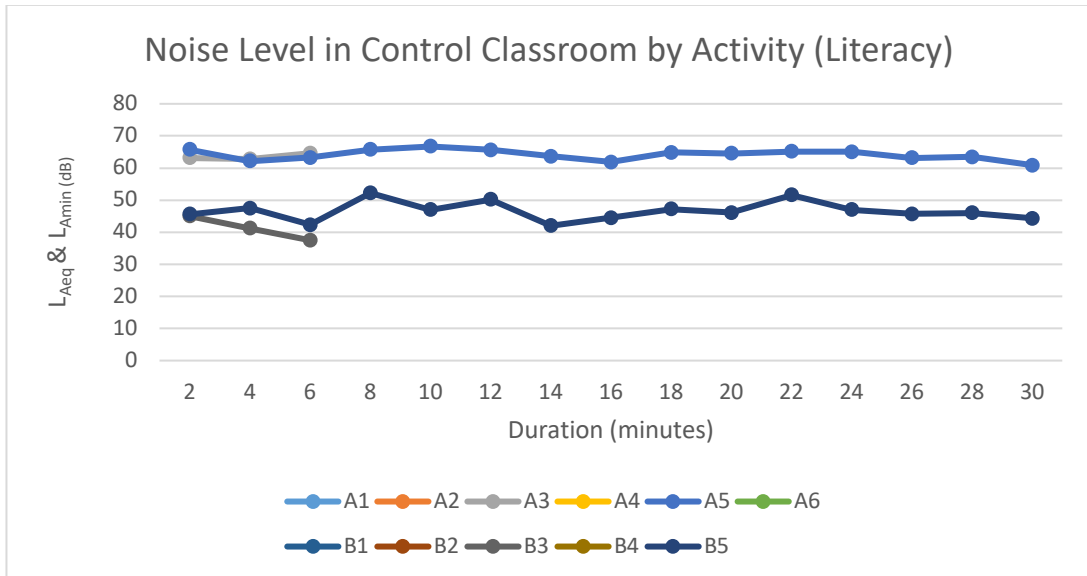


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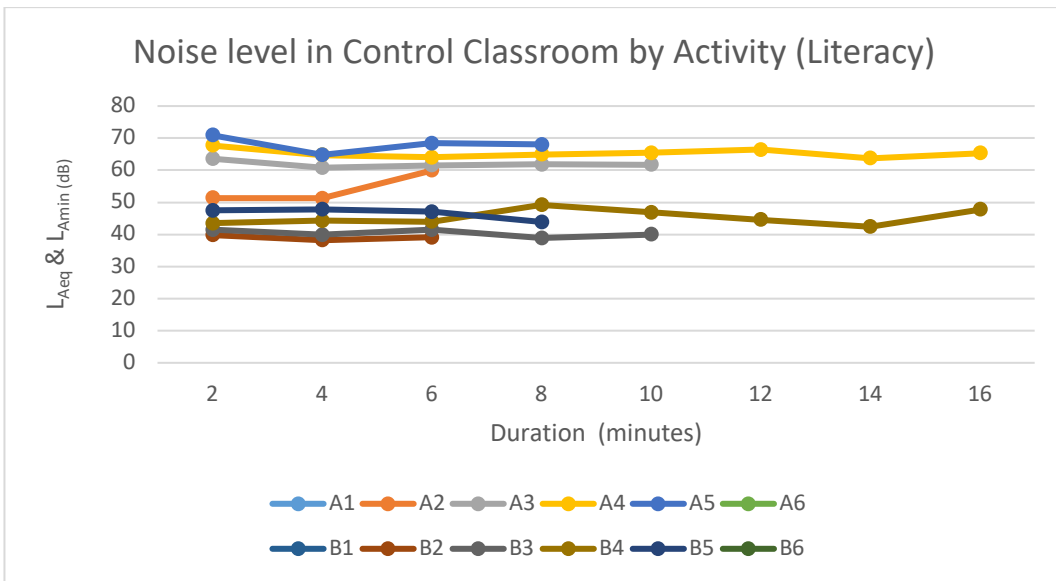
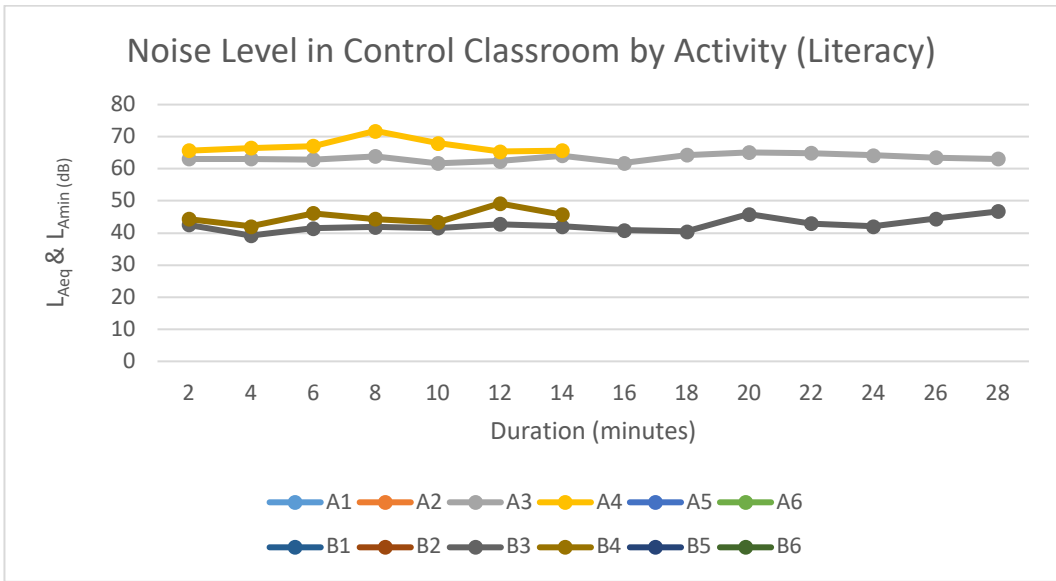


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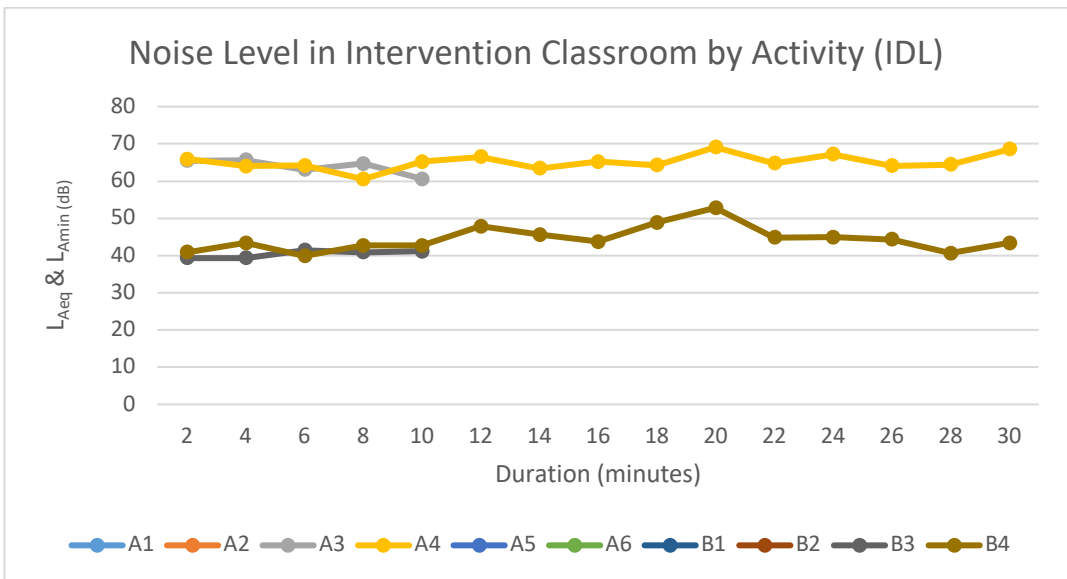
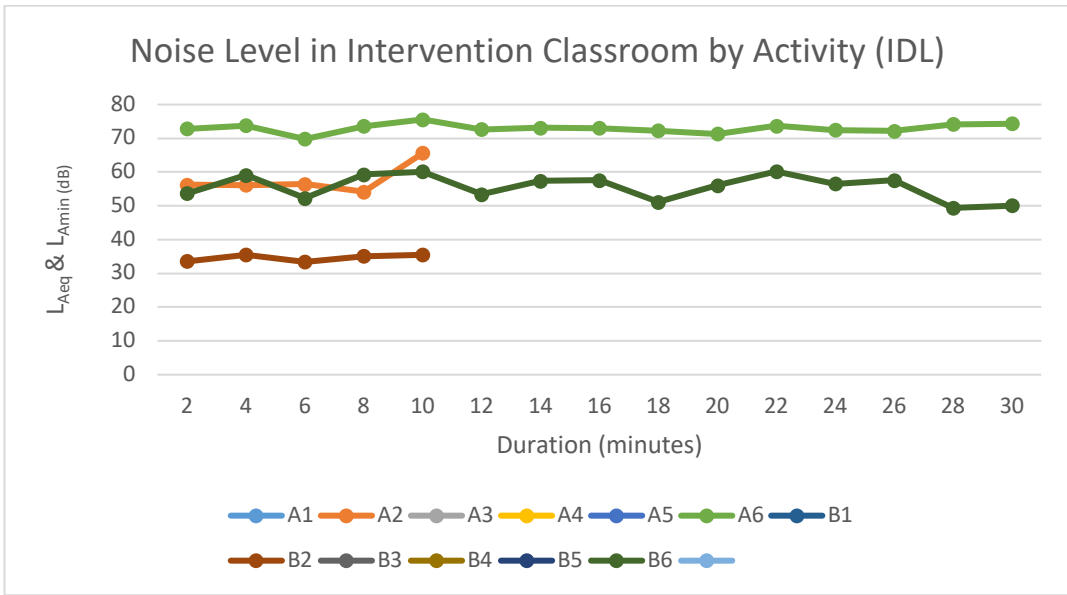
Classroom Noise Survey Results by Activity.

Appendix 15

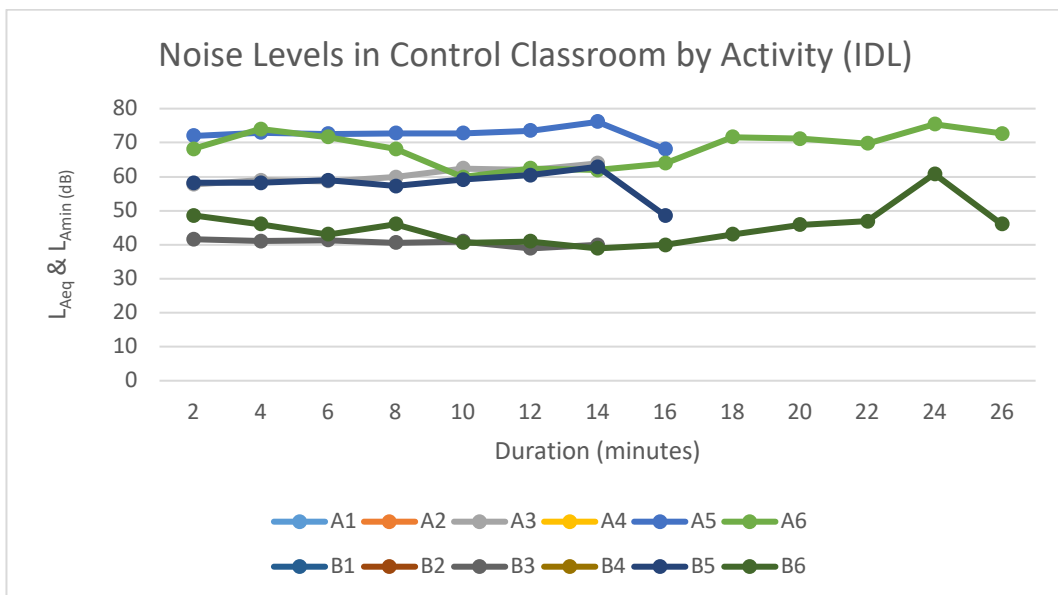
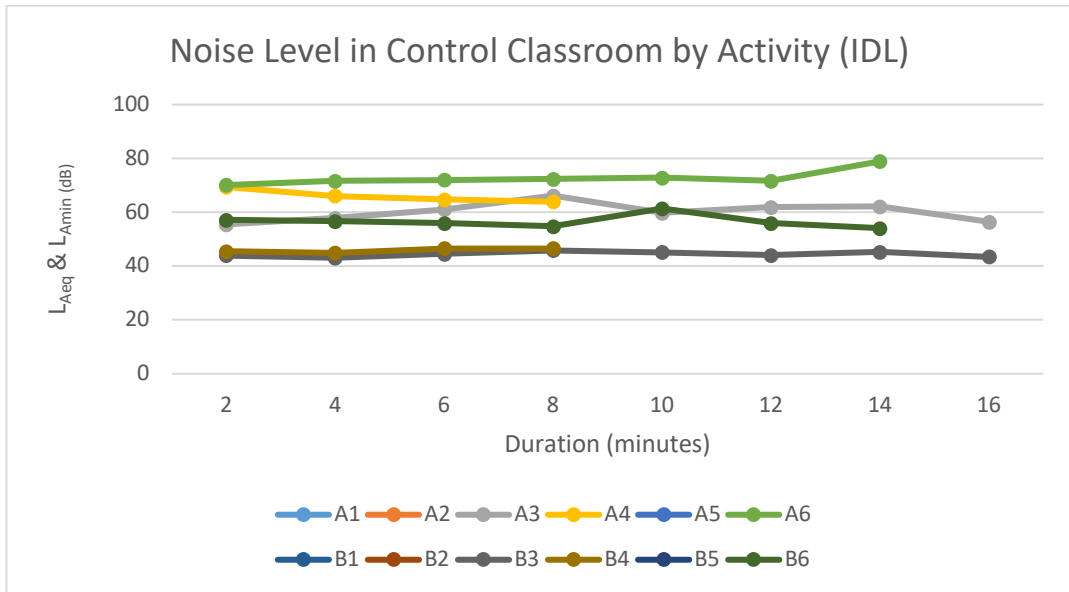


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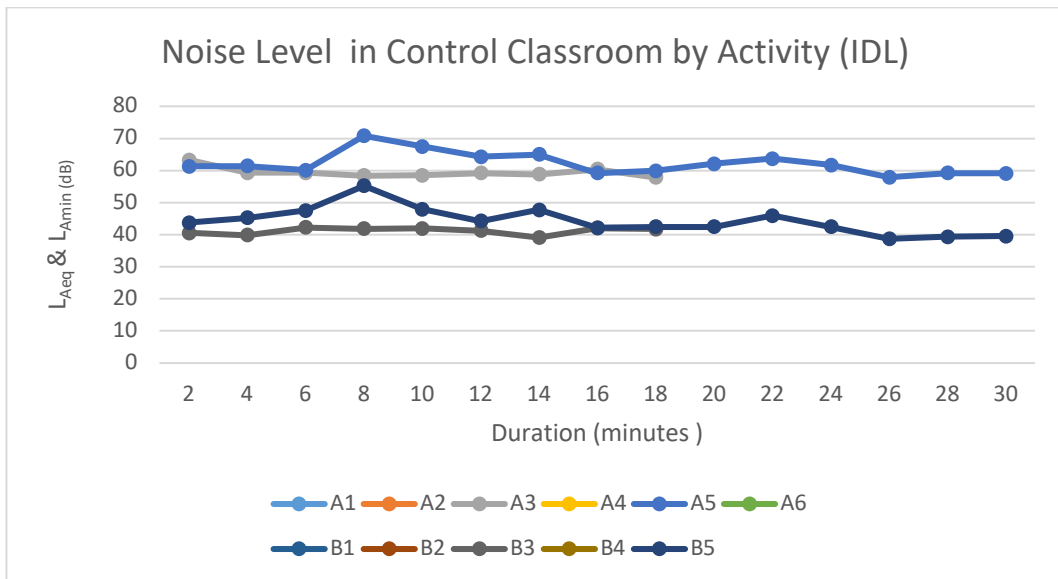
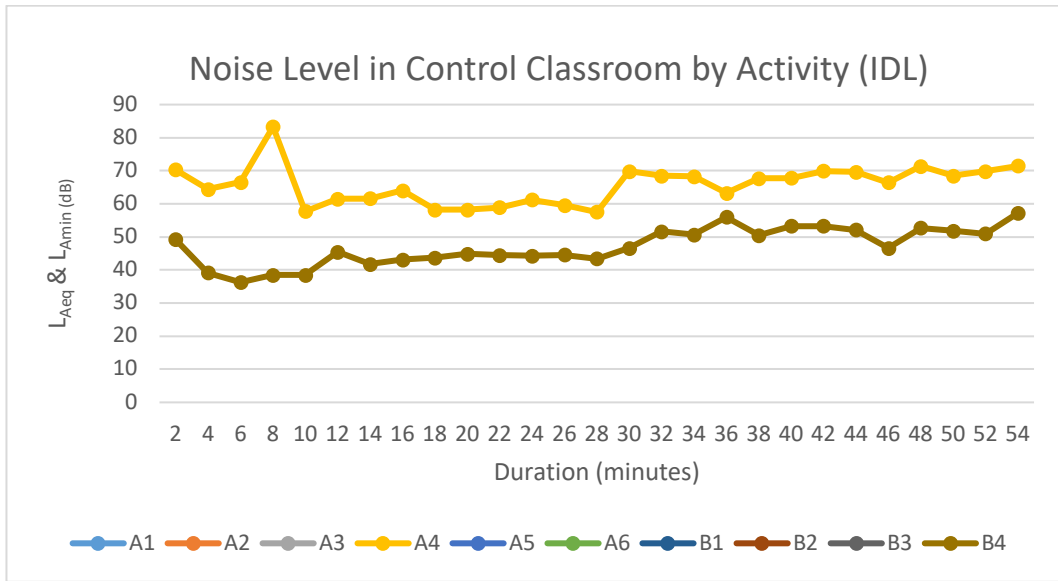
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Appendix 15

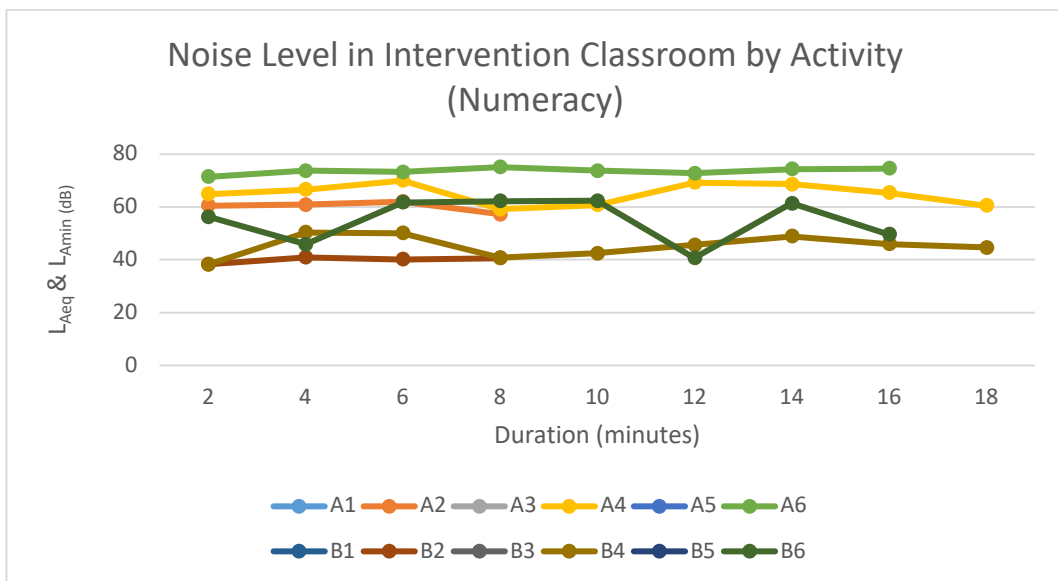
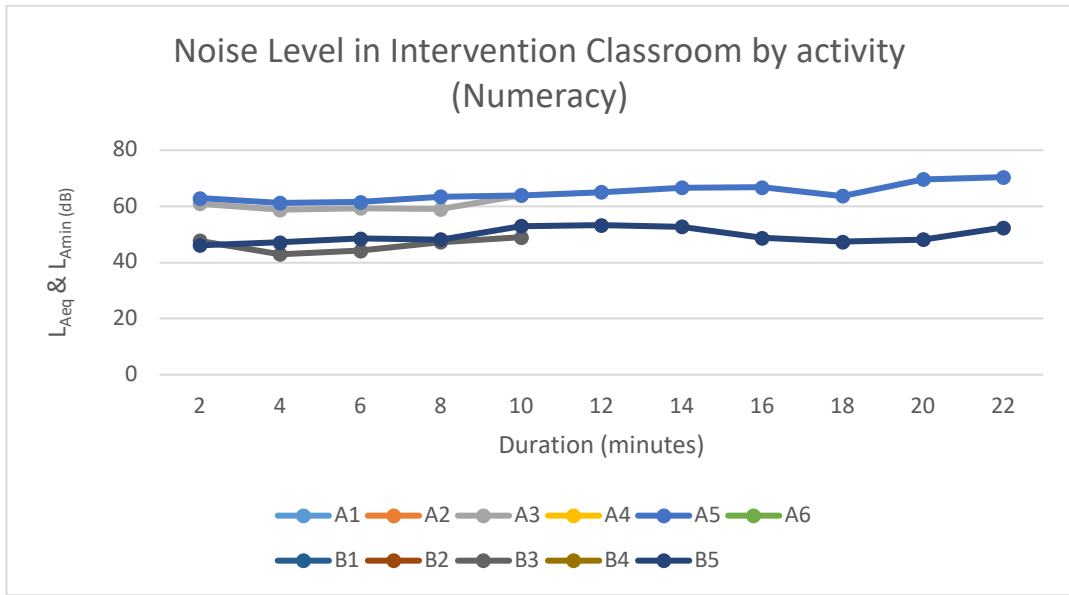


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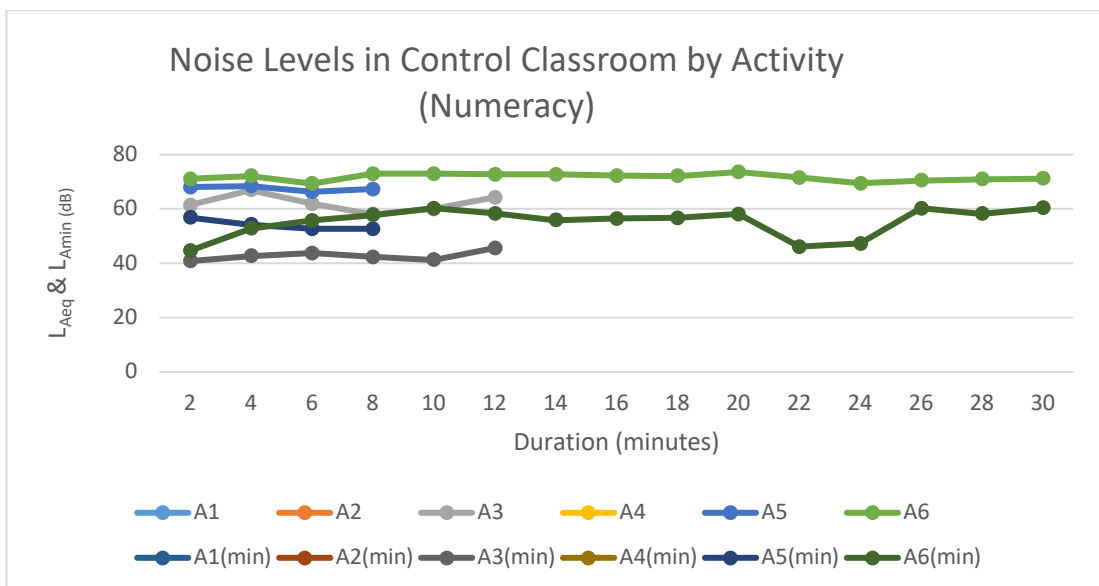
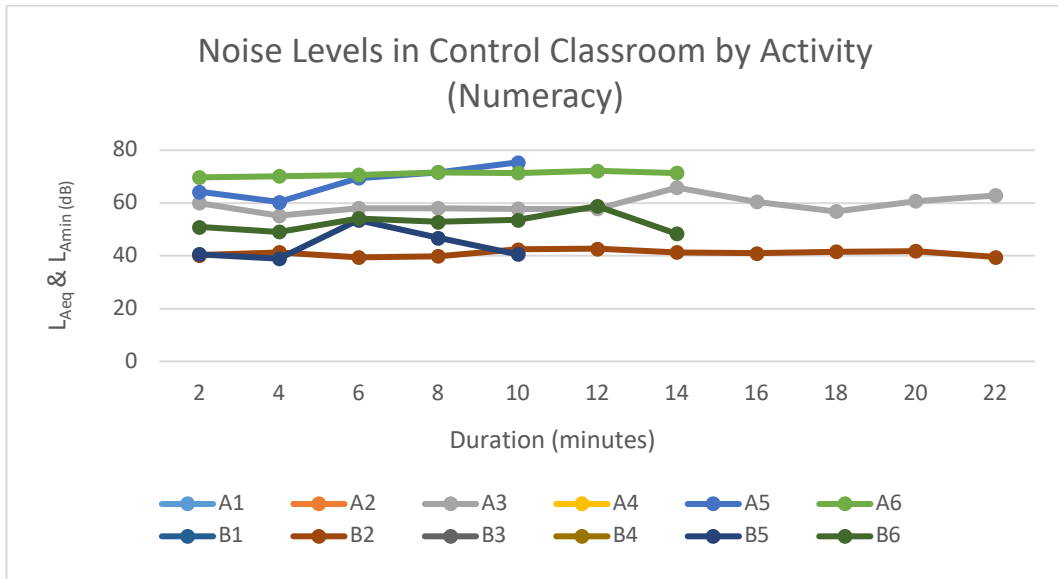


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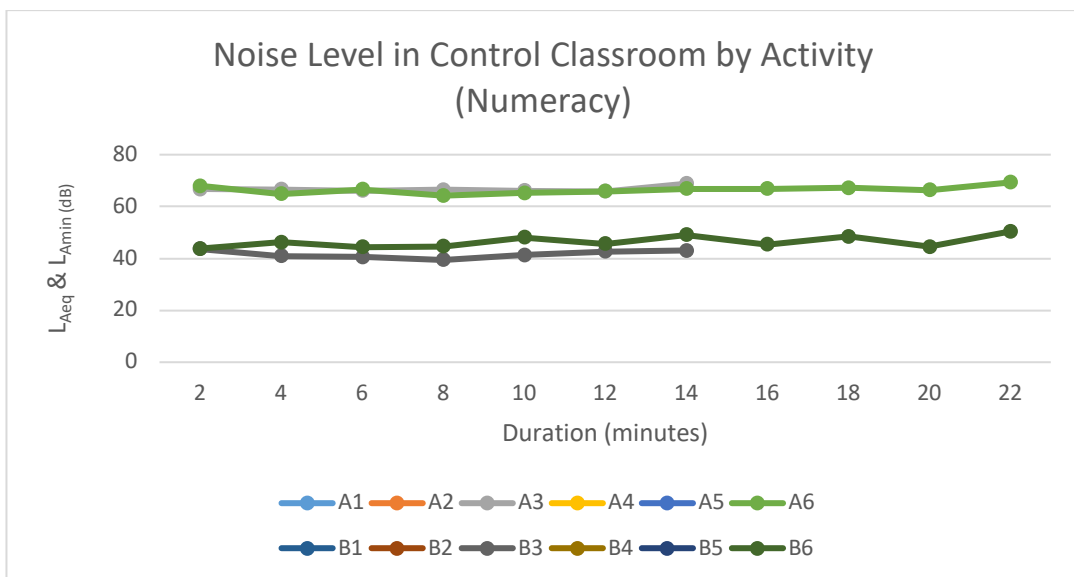
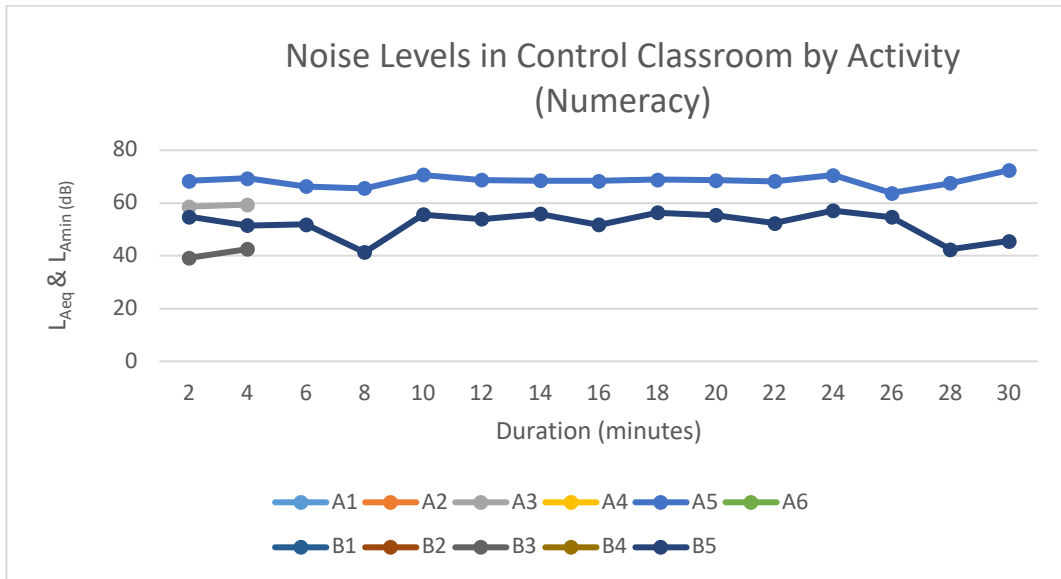
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Appendix 15

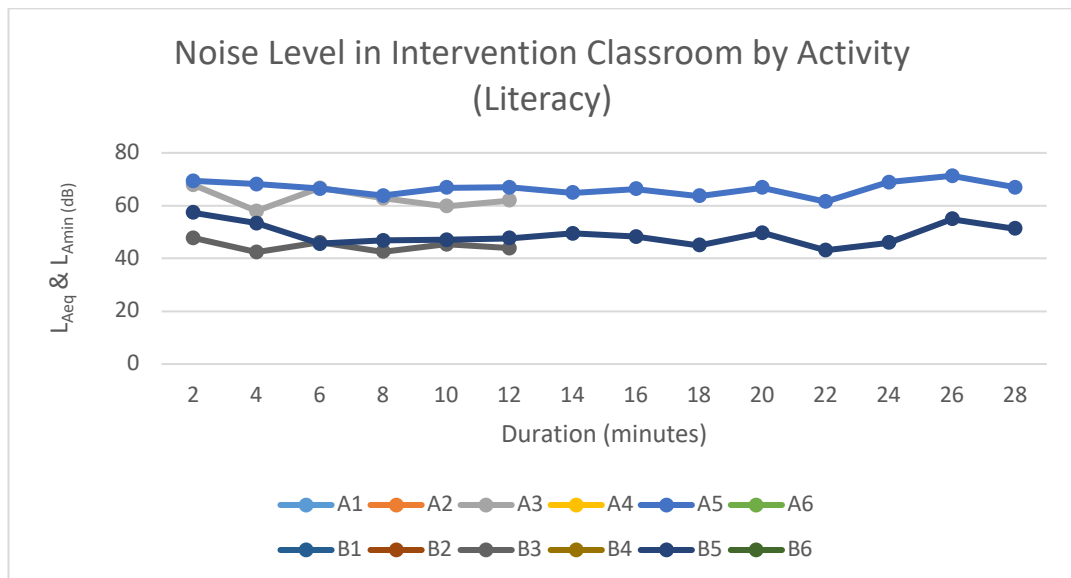
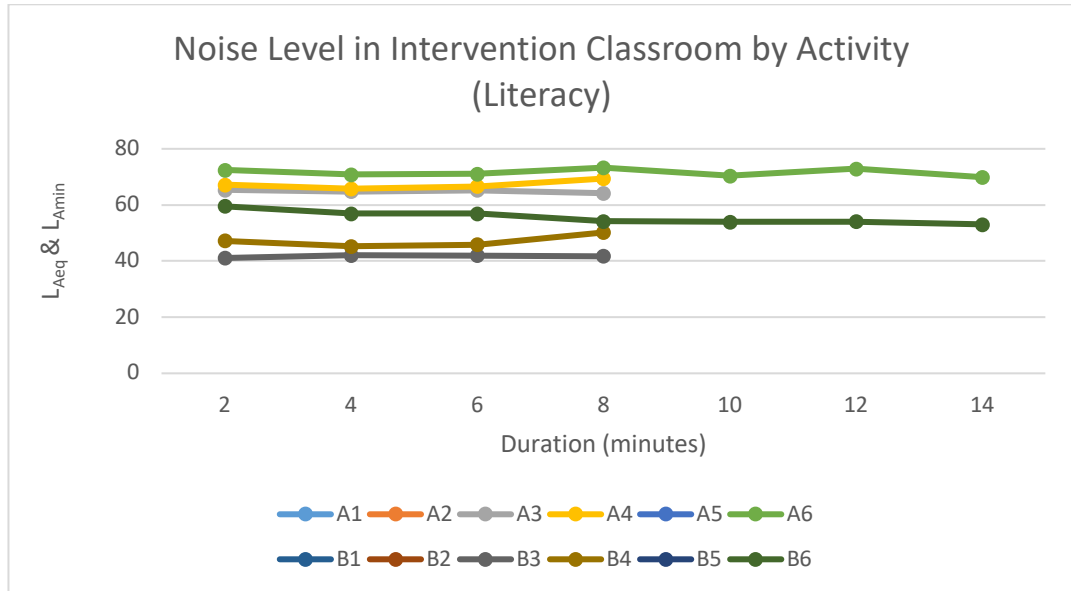


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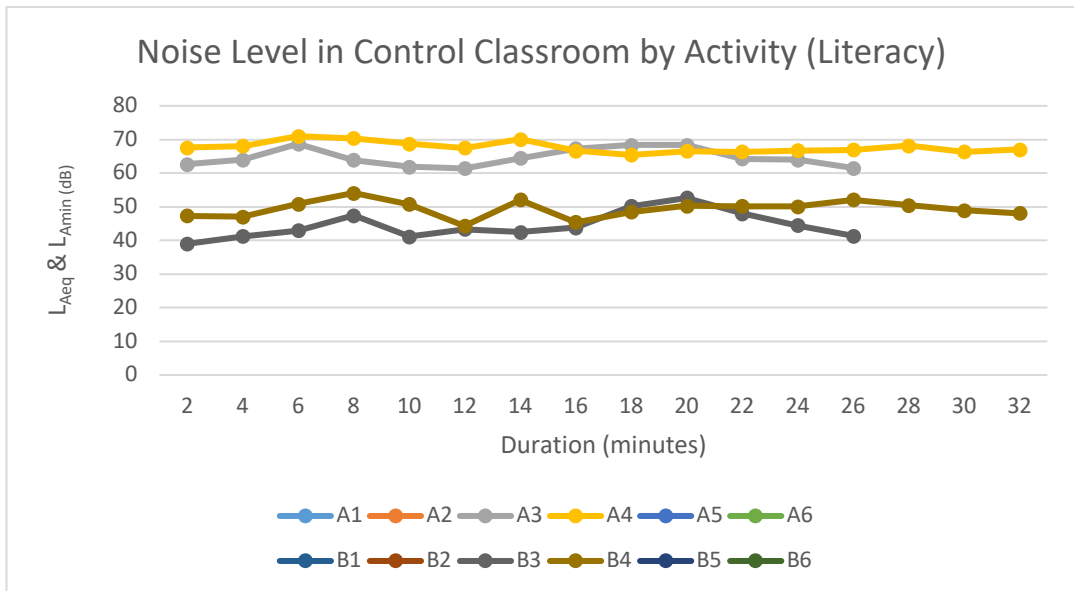
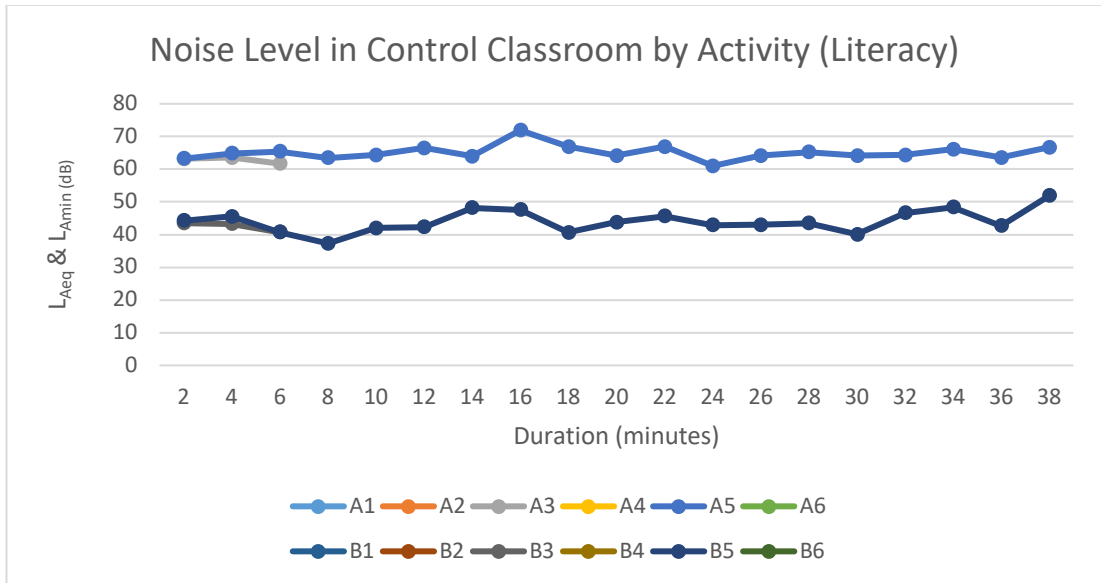


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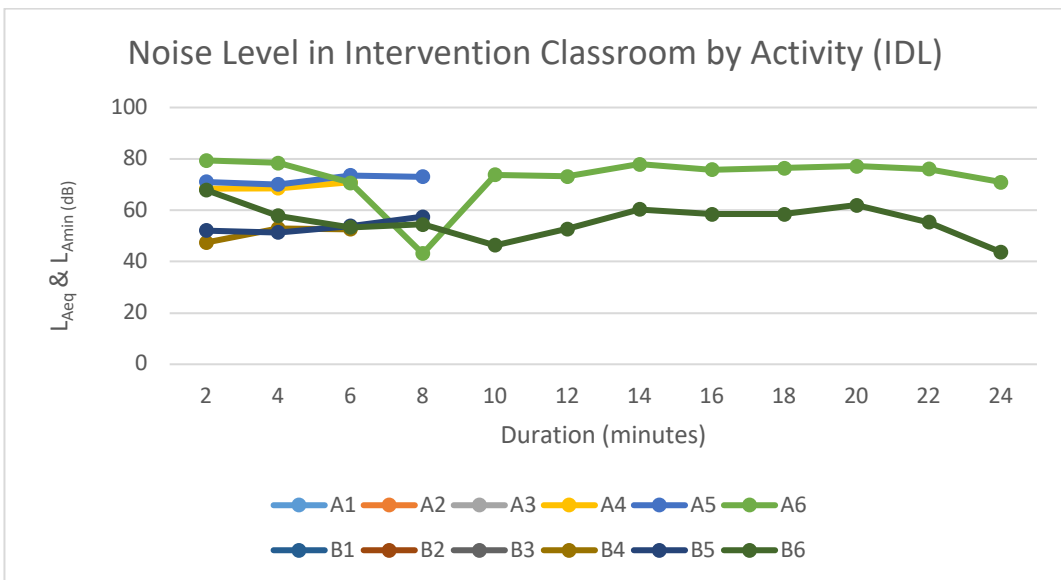
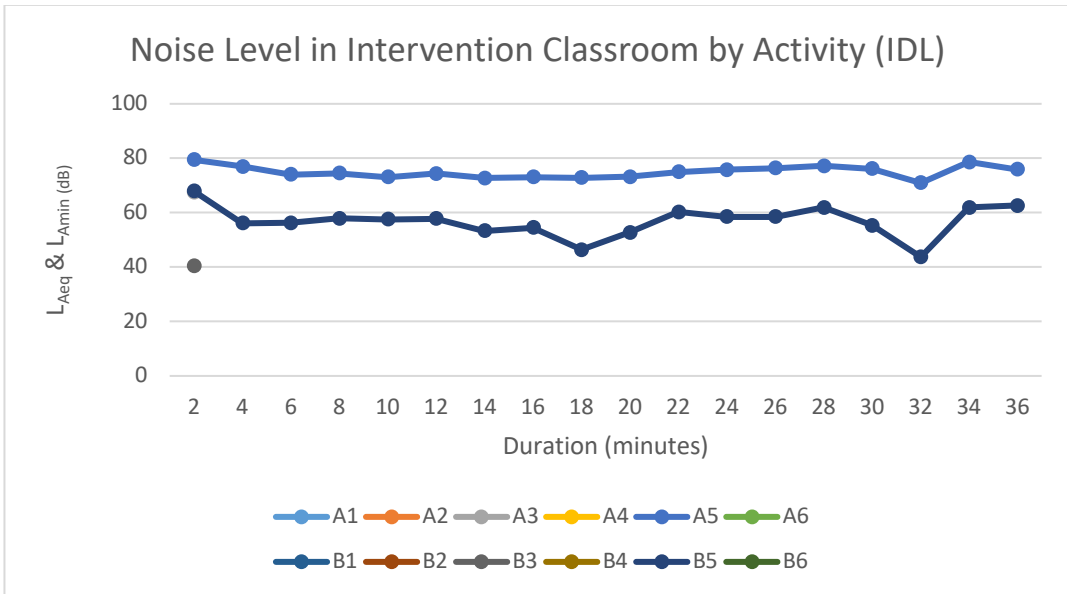
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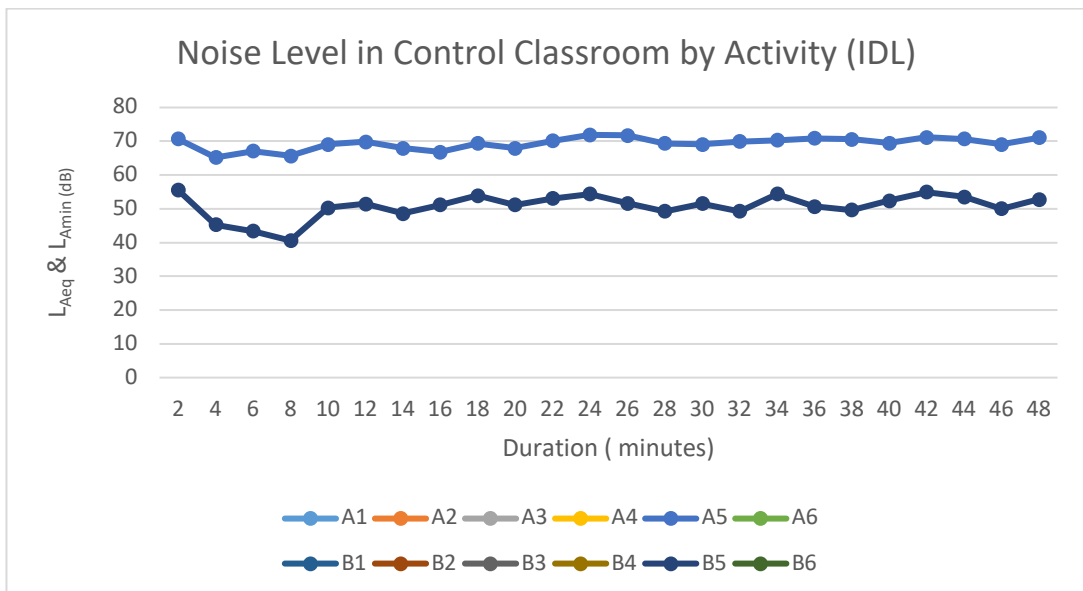
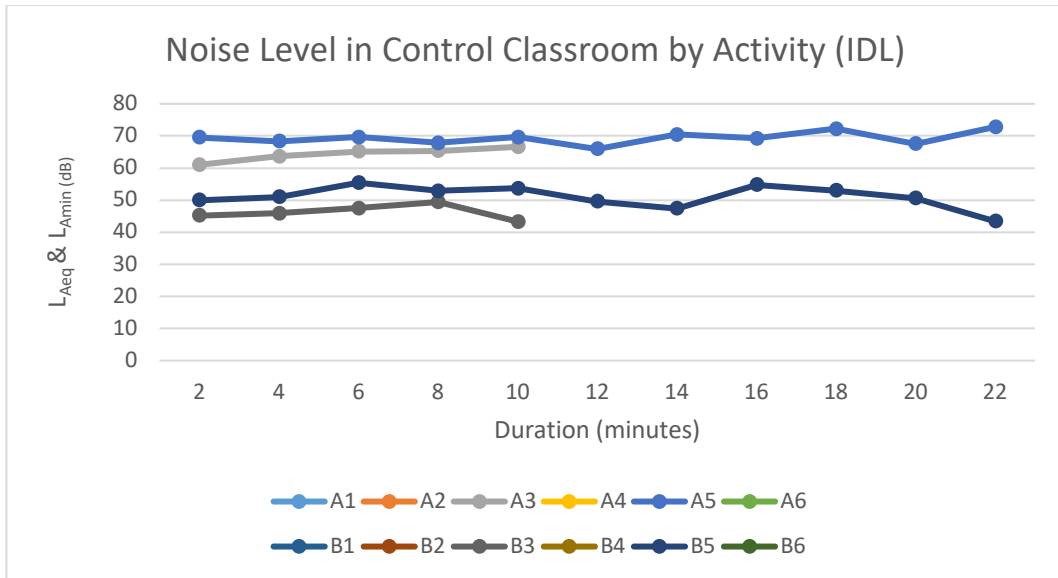
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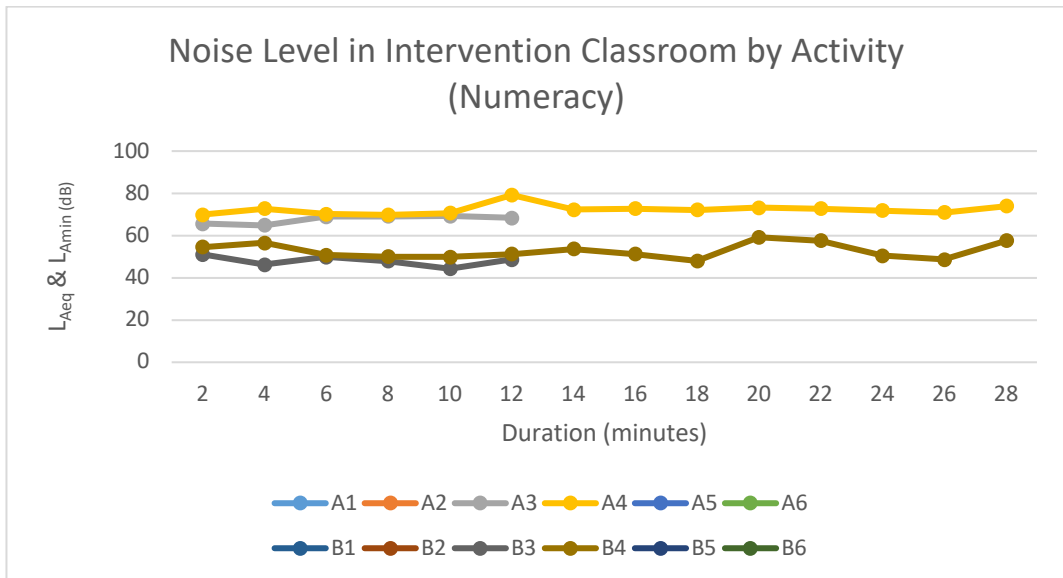
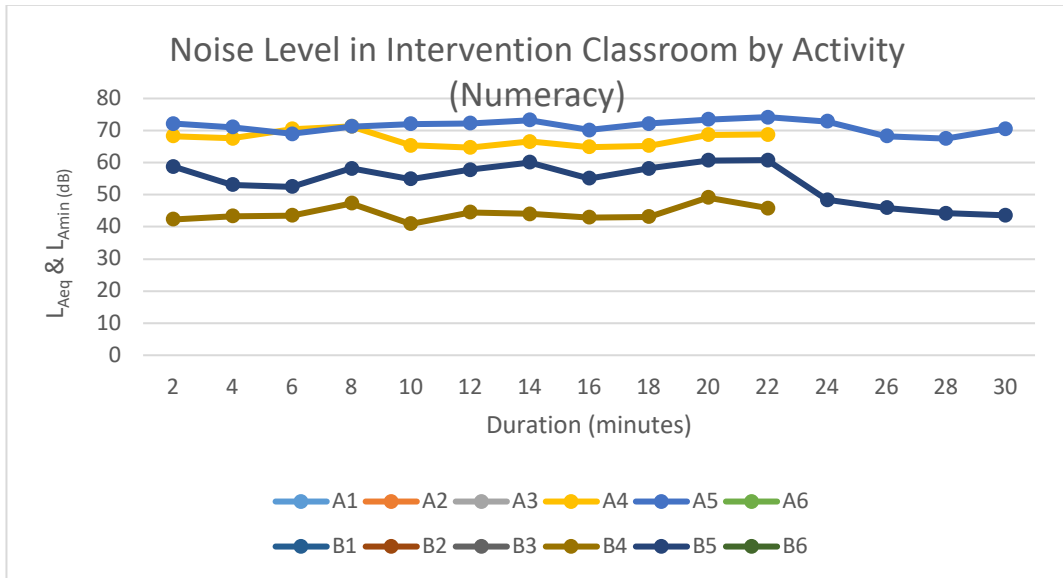
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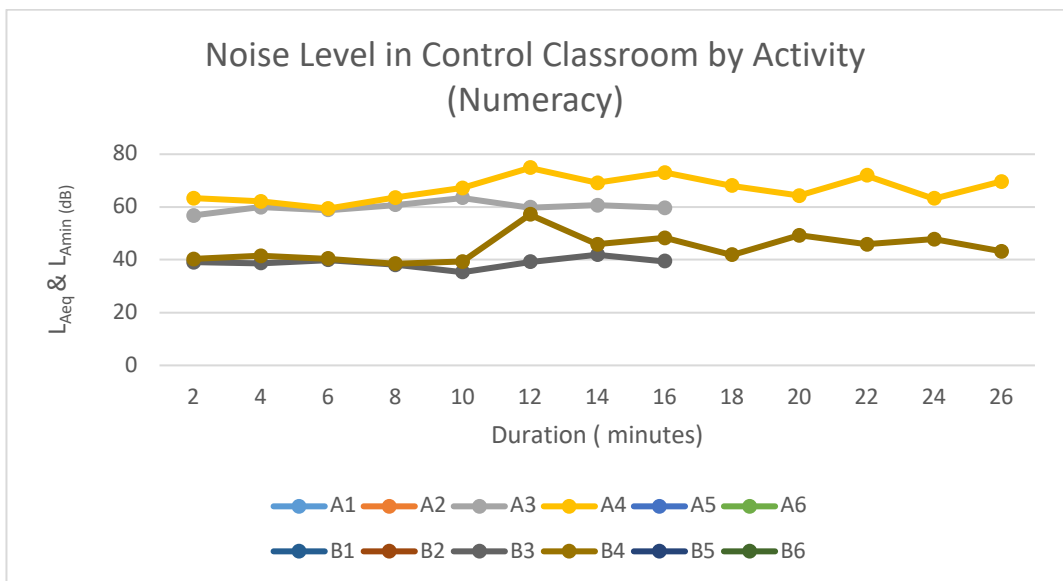
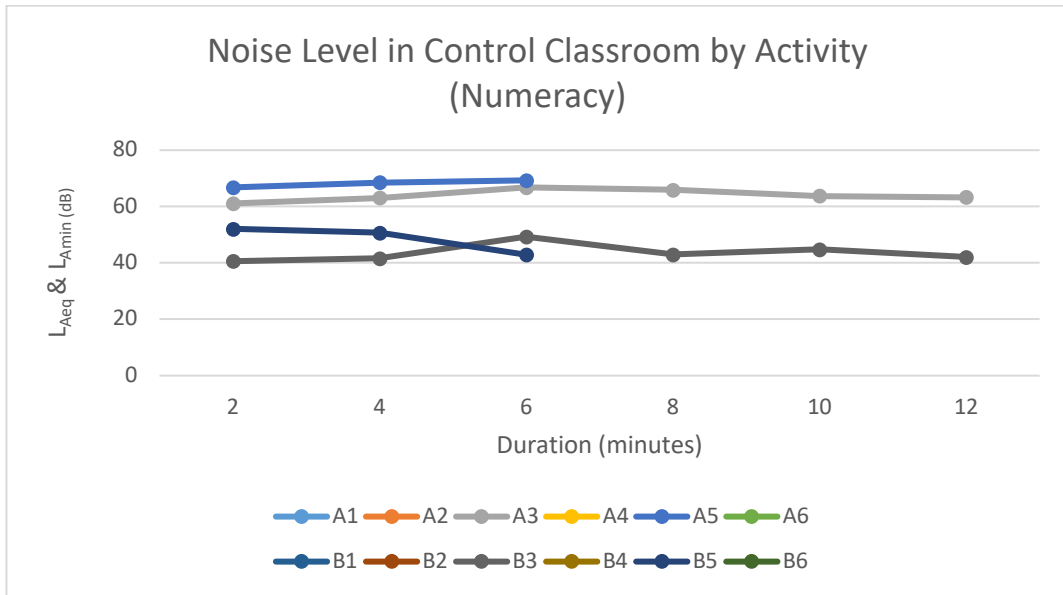
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Appendix 15

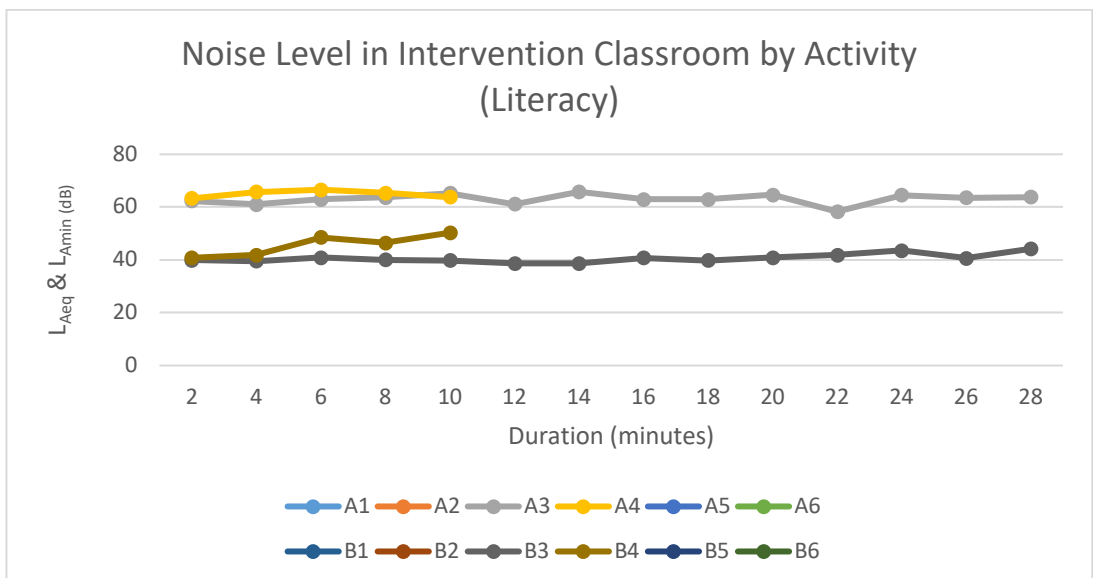
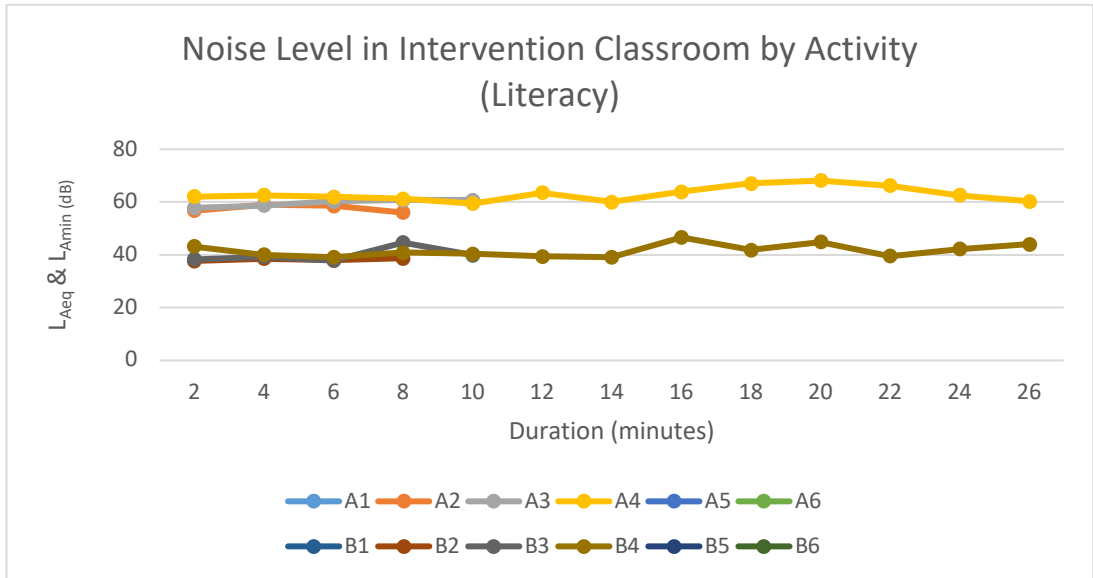


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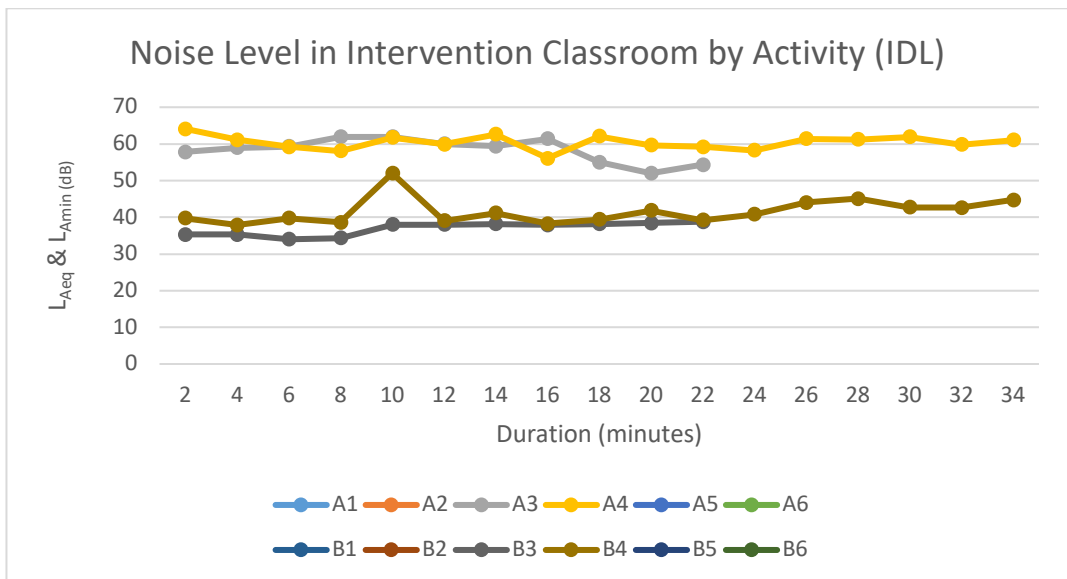
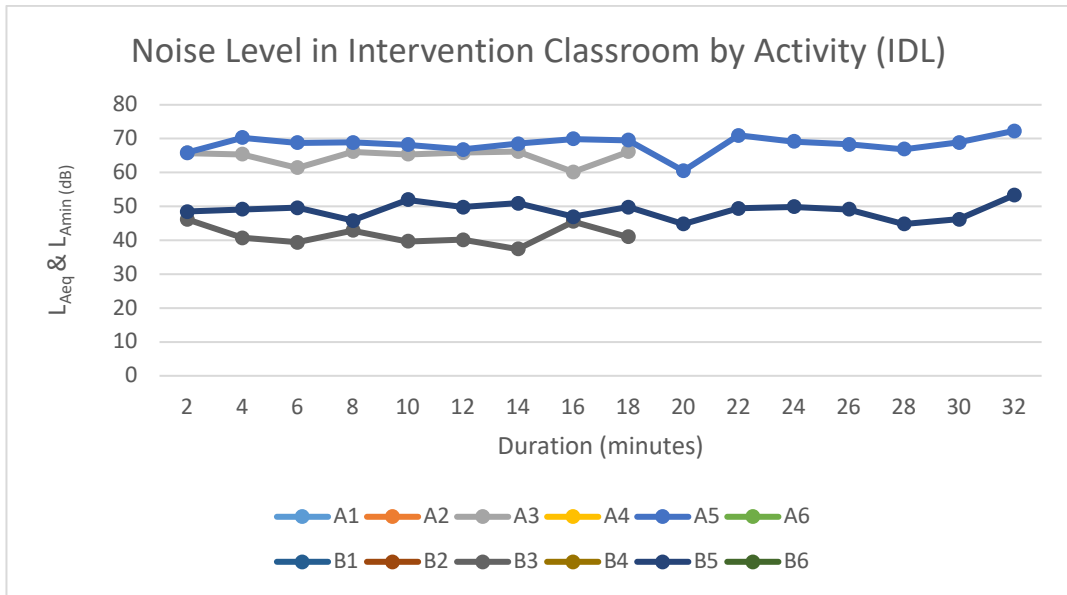


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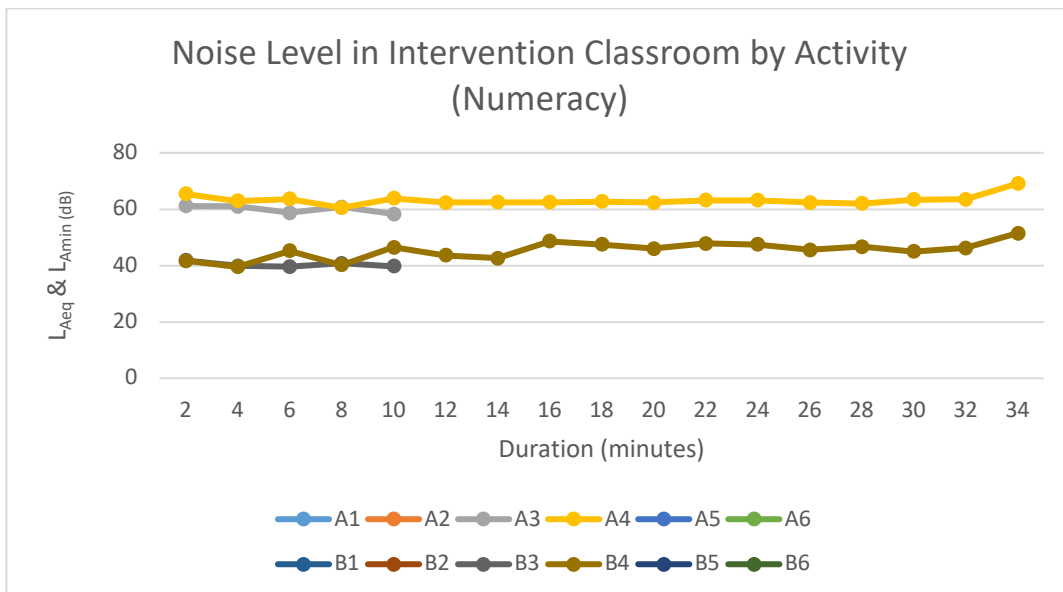
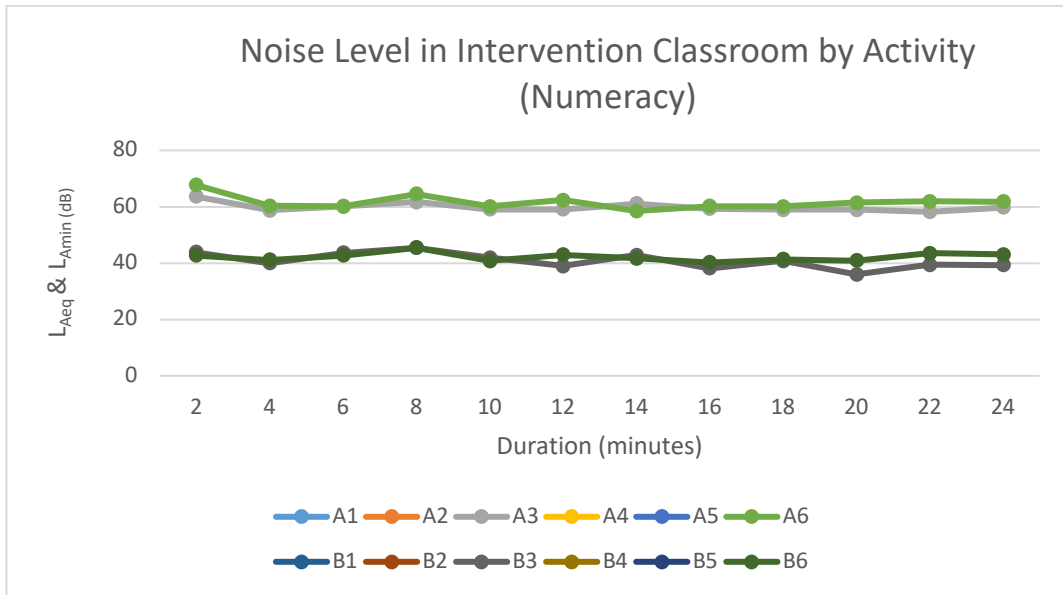
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Appendix 15

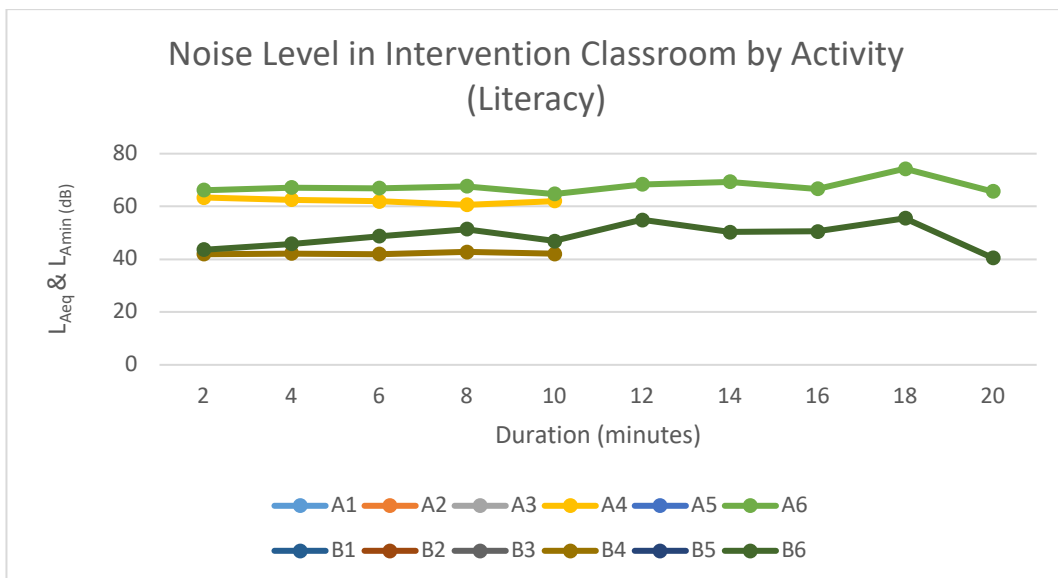
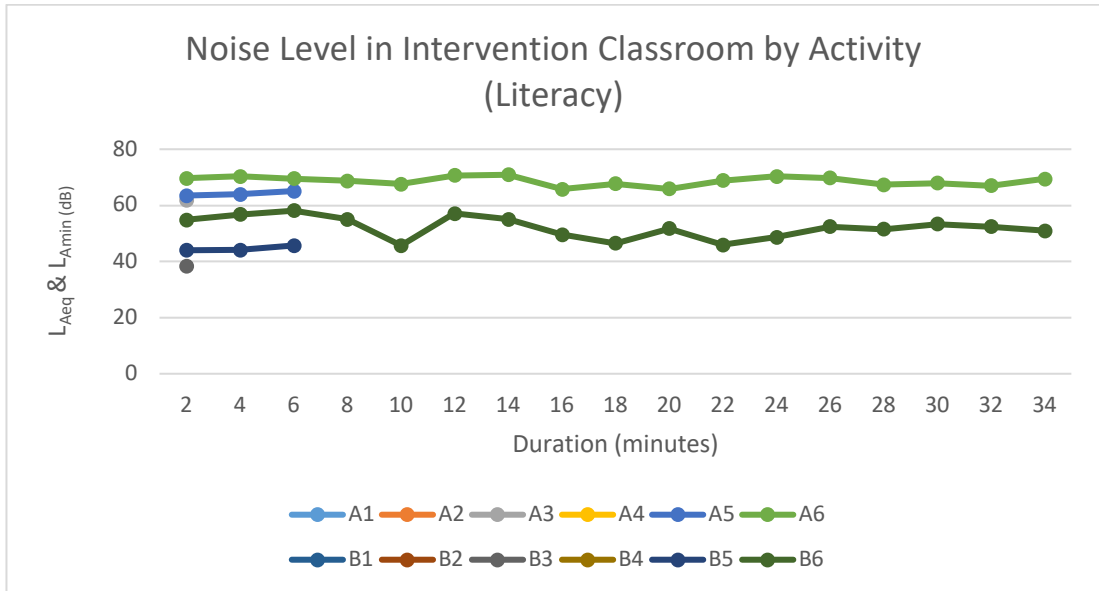


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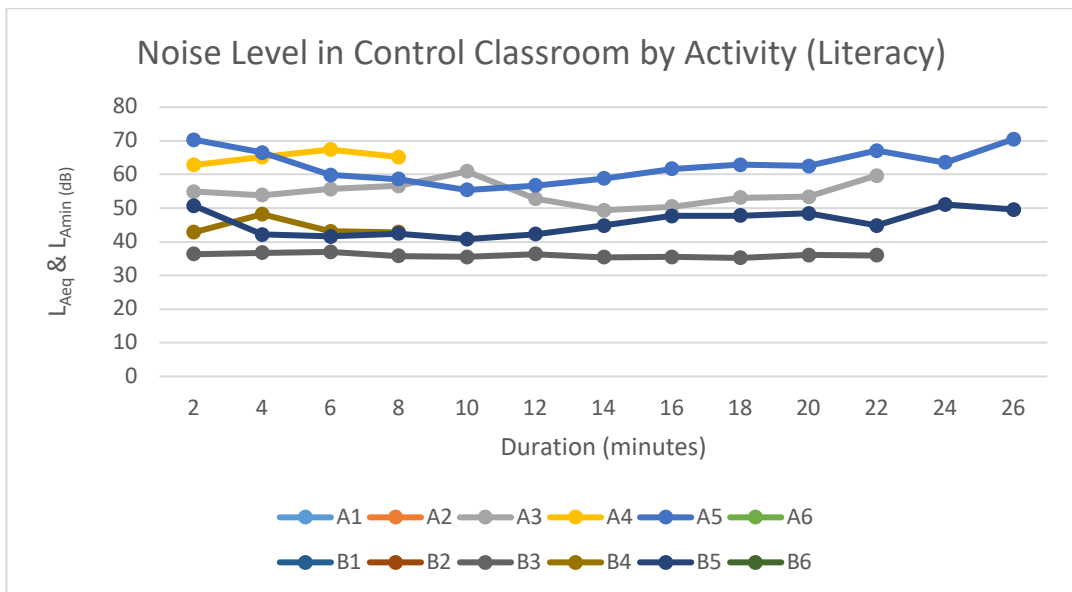
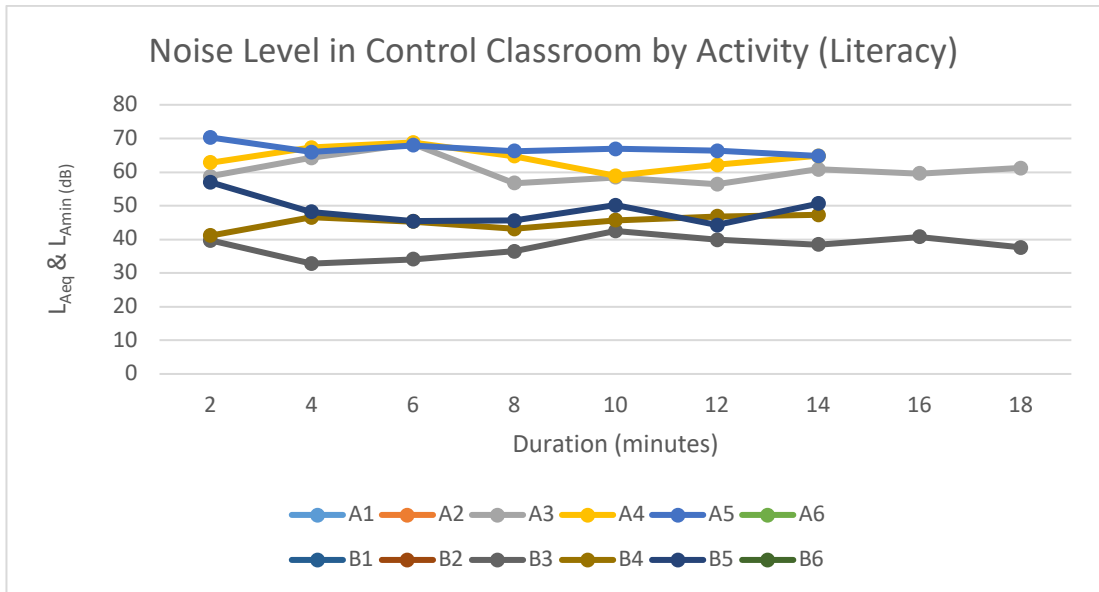
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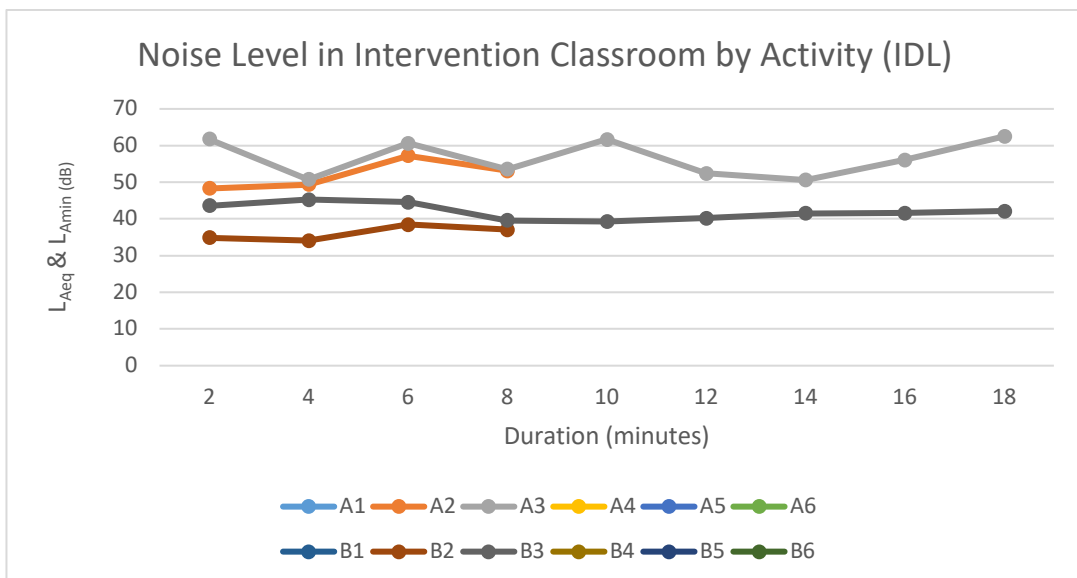
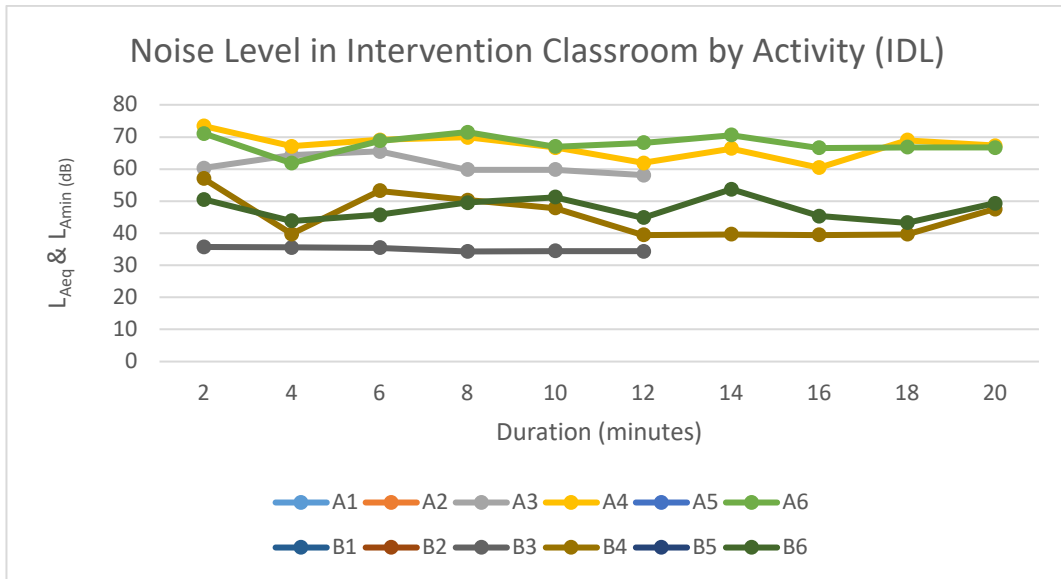


Classroom Noise Survey Results by Activity.

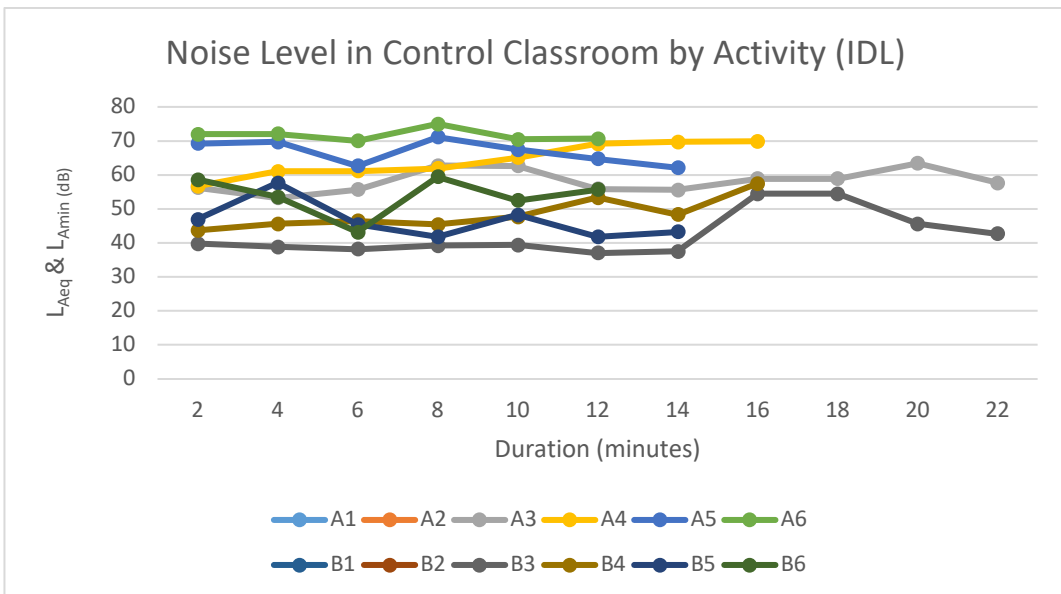
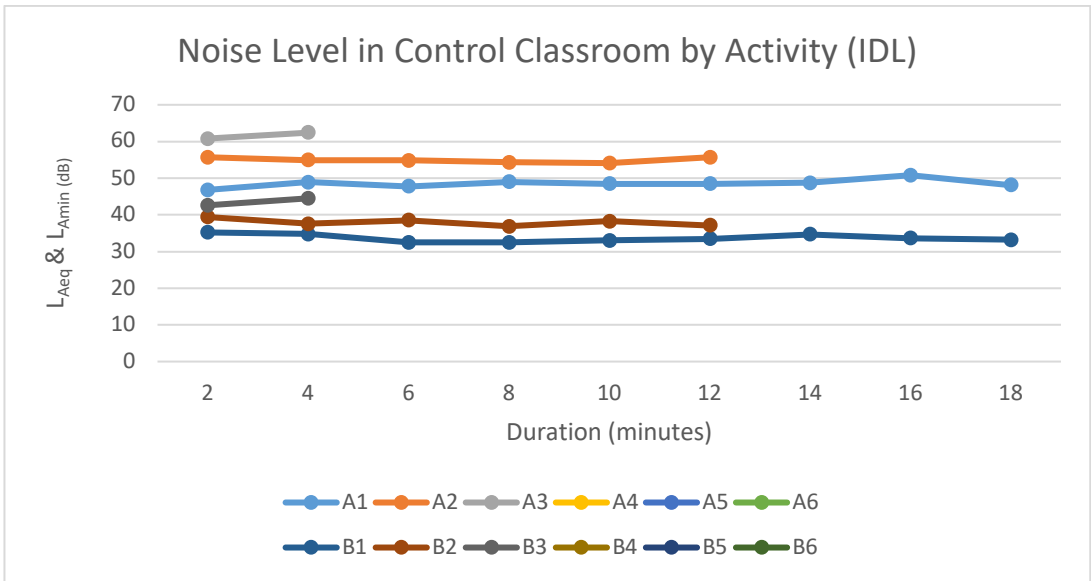
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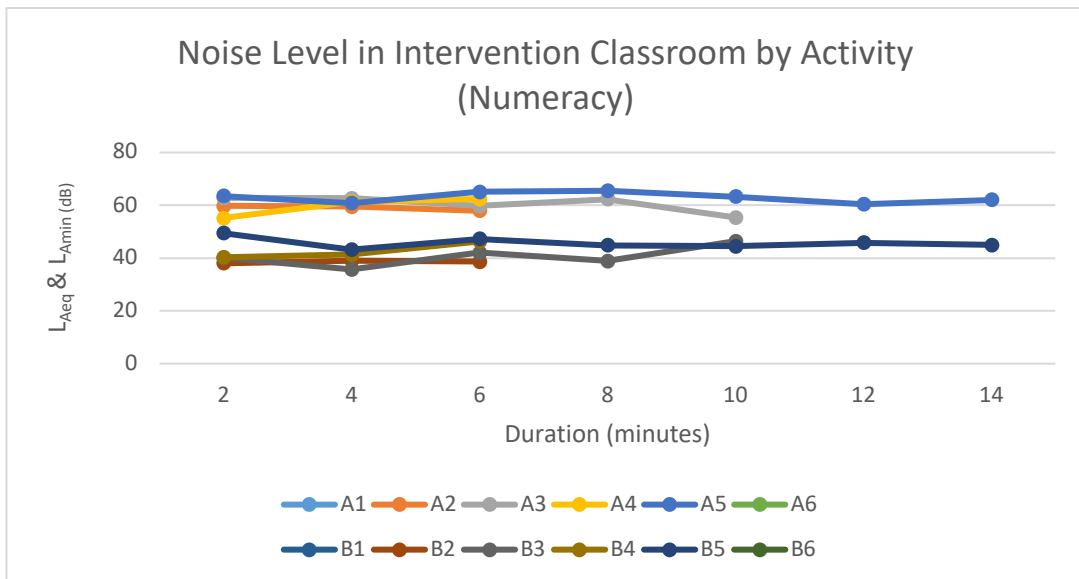
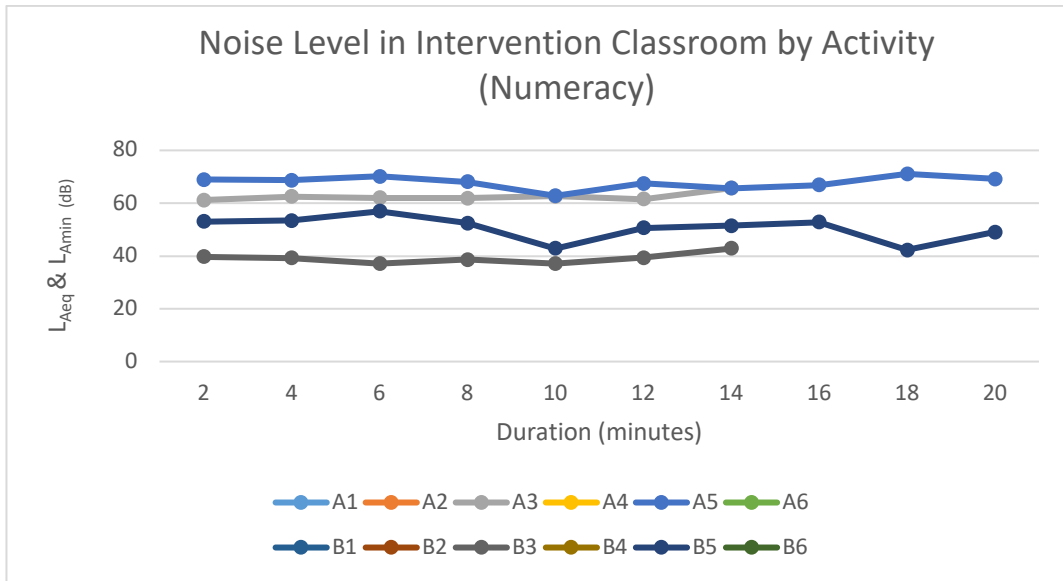
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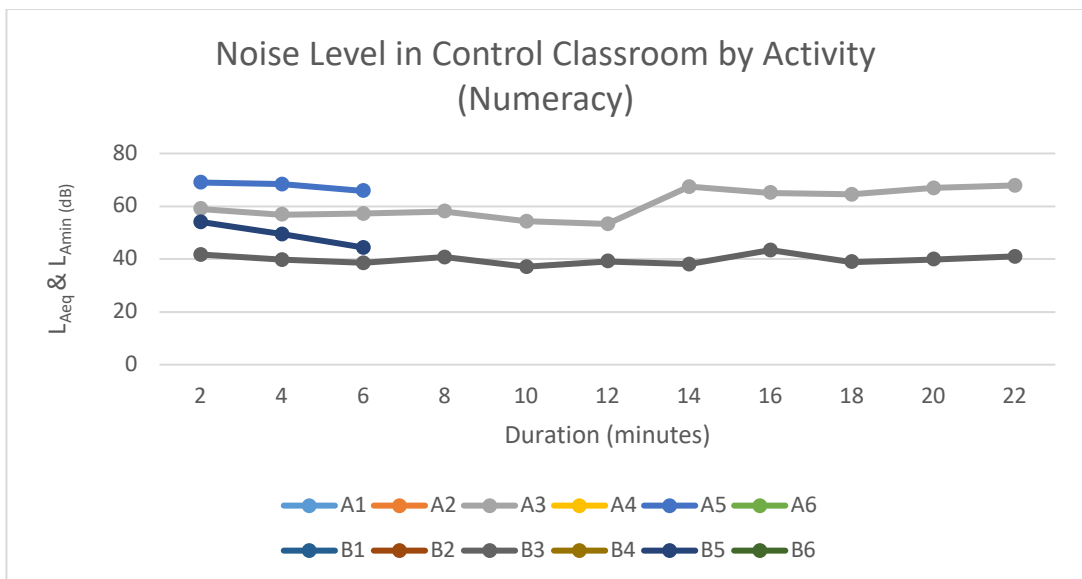
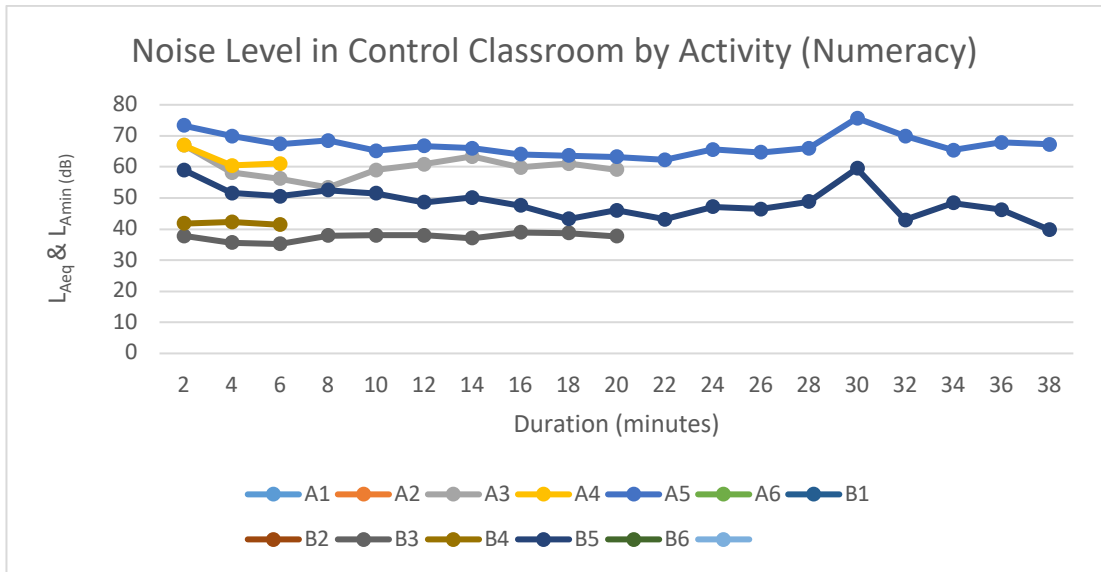
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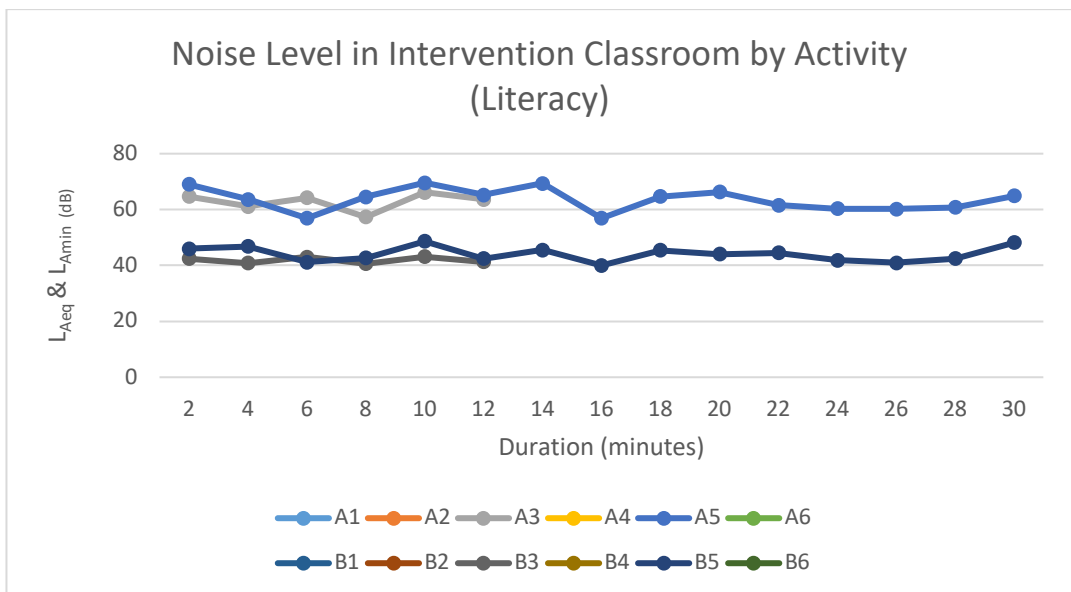
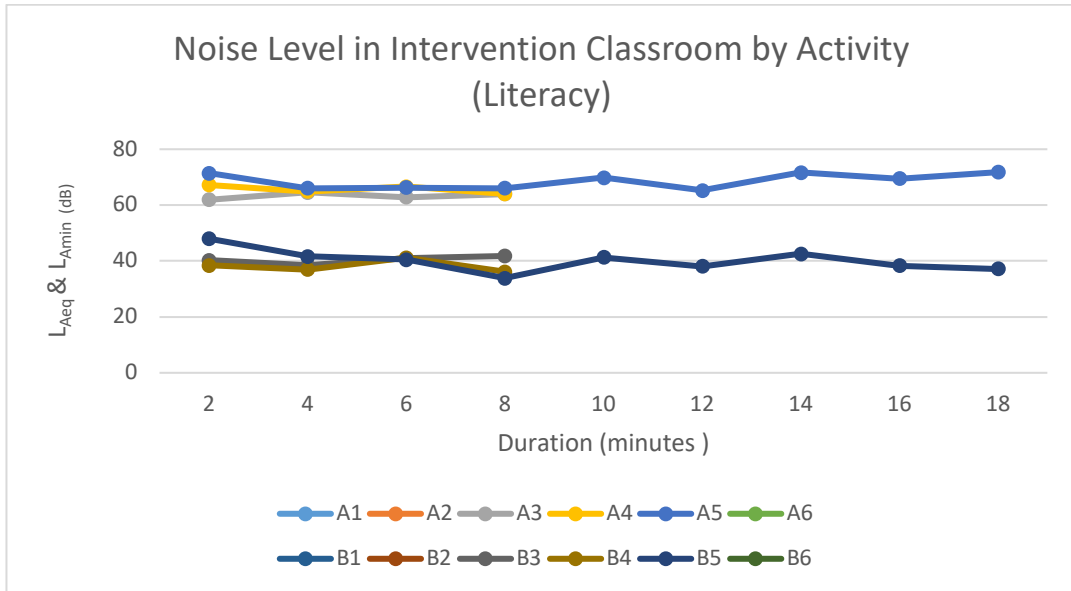


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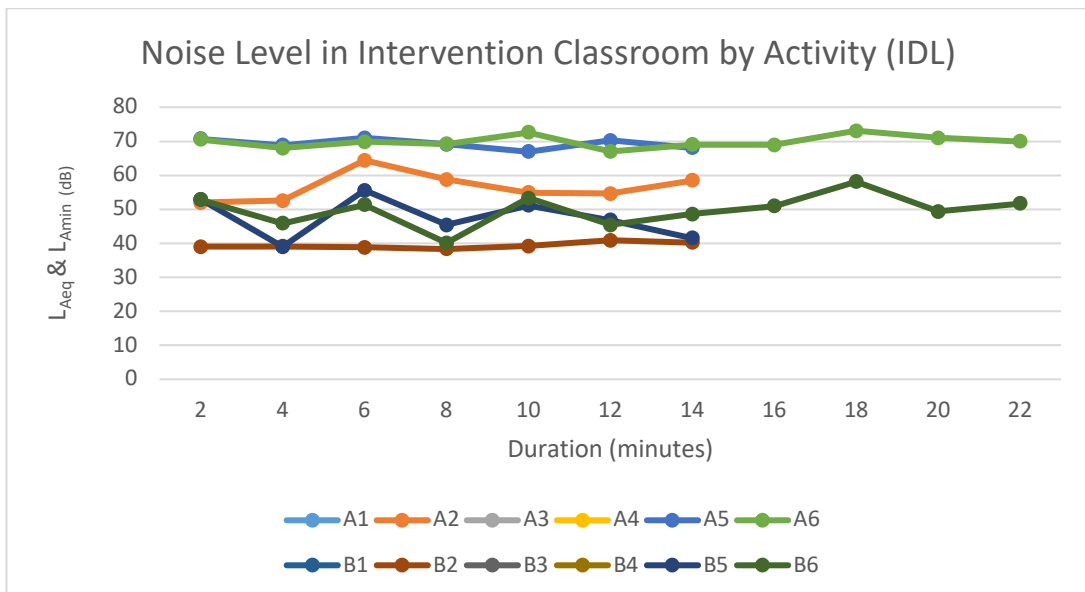
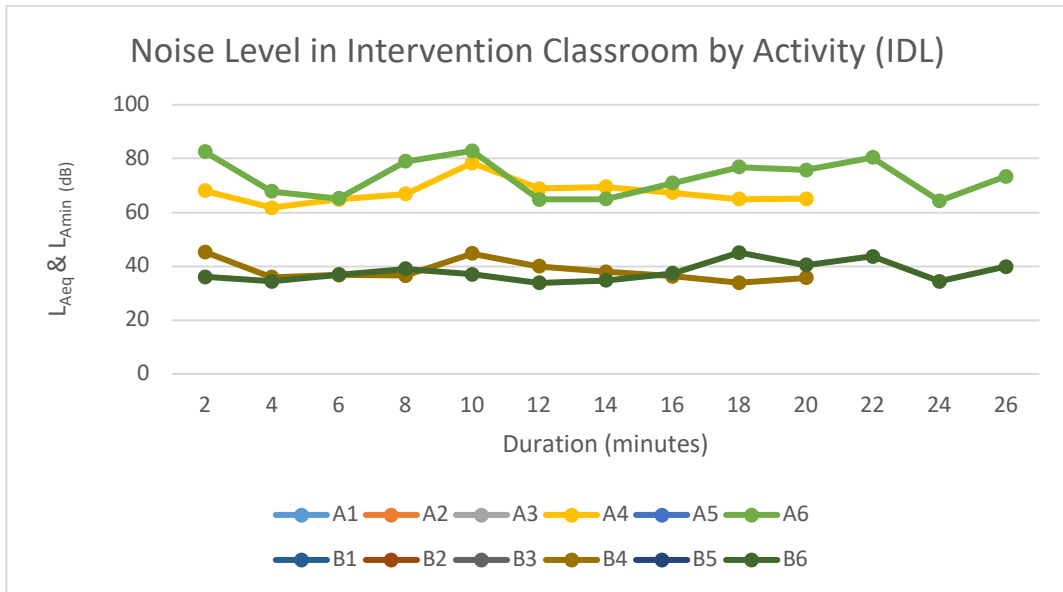
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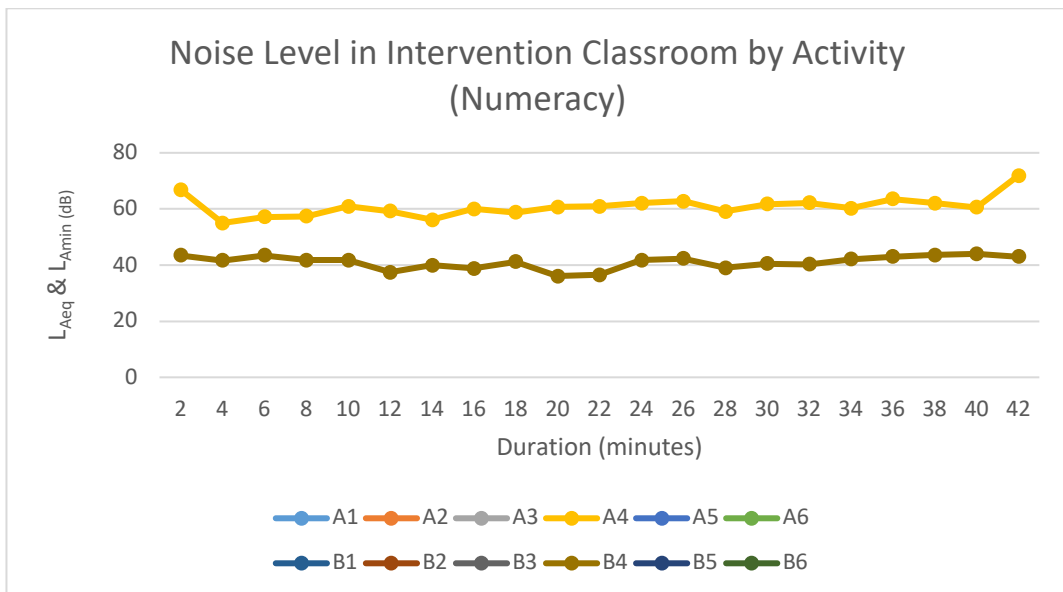
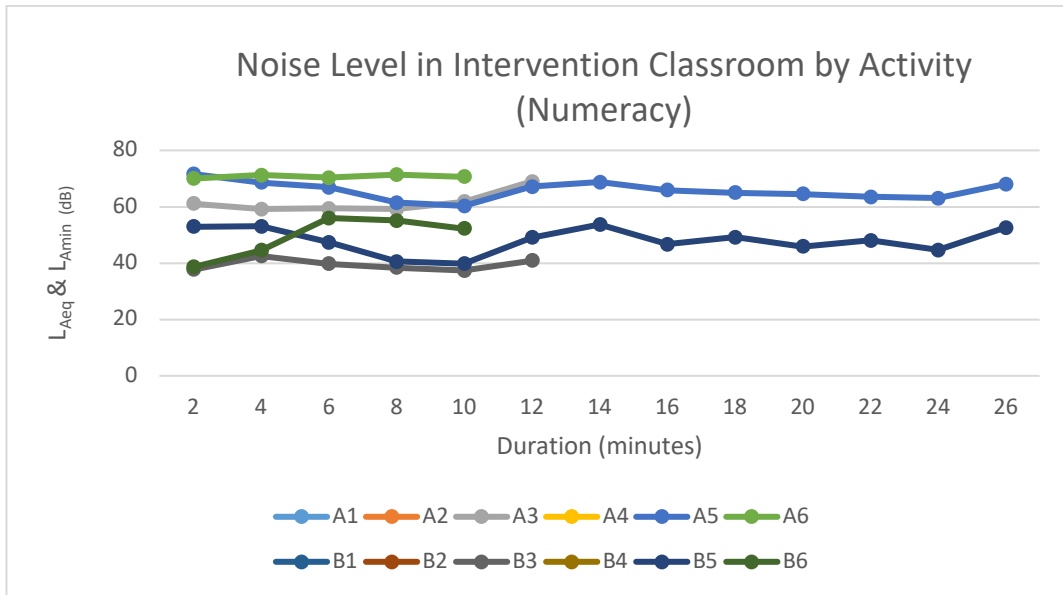


Classroom Noise Survey Results by Activity.

Appendix 15

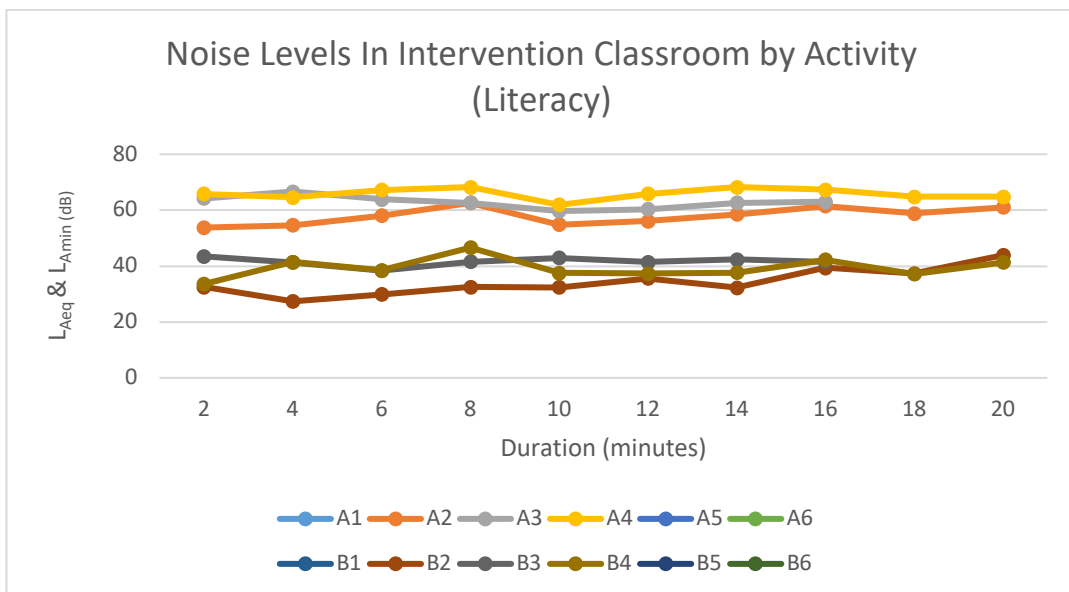
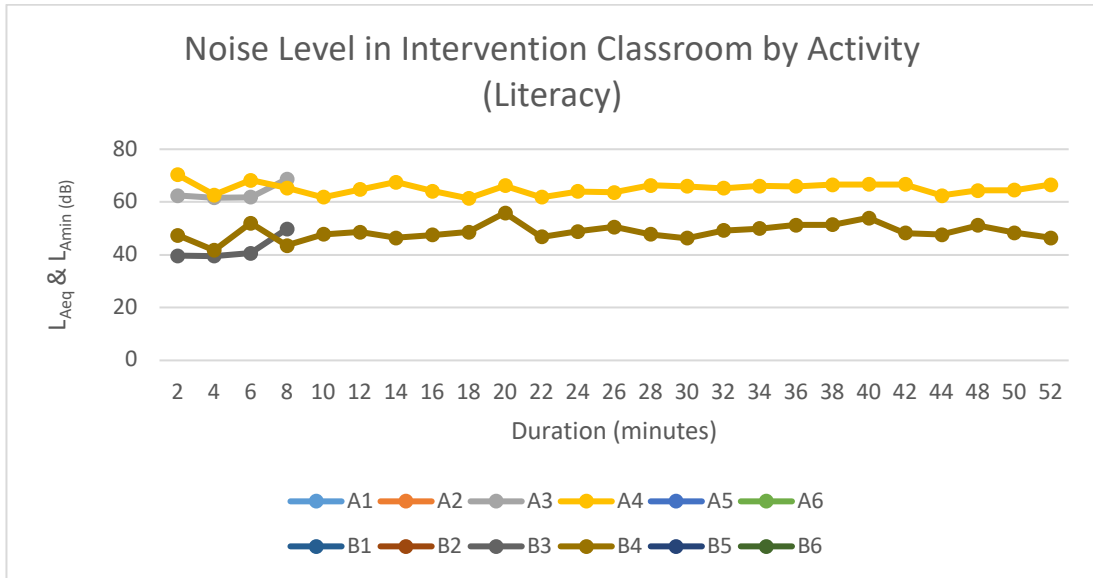


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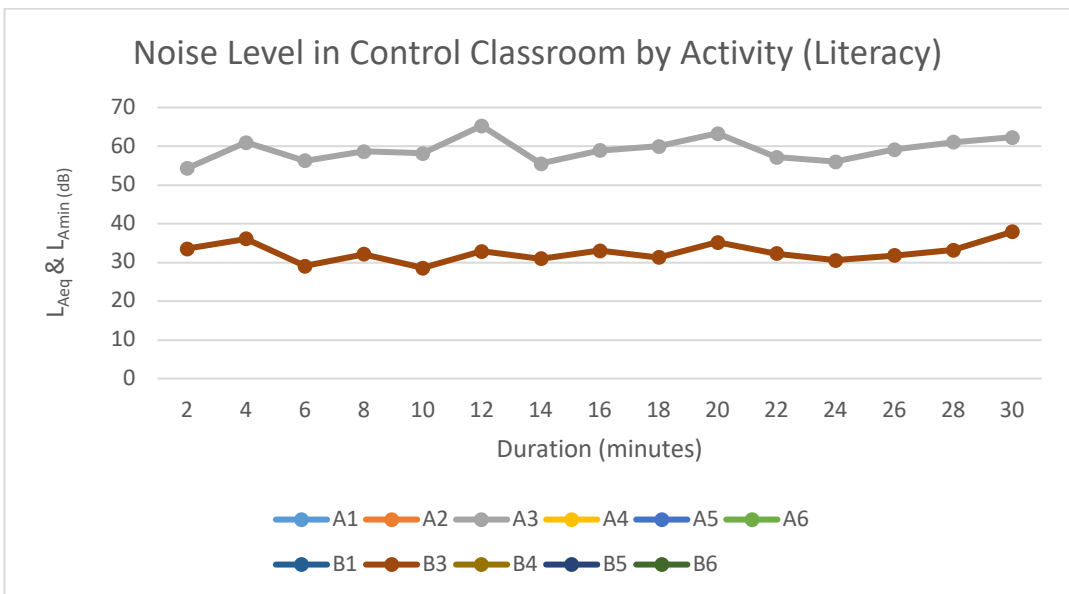
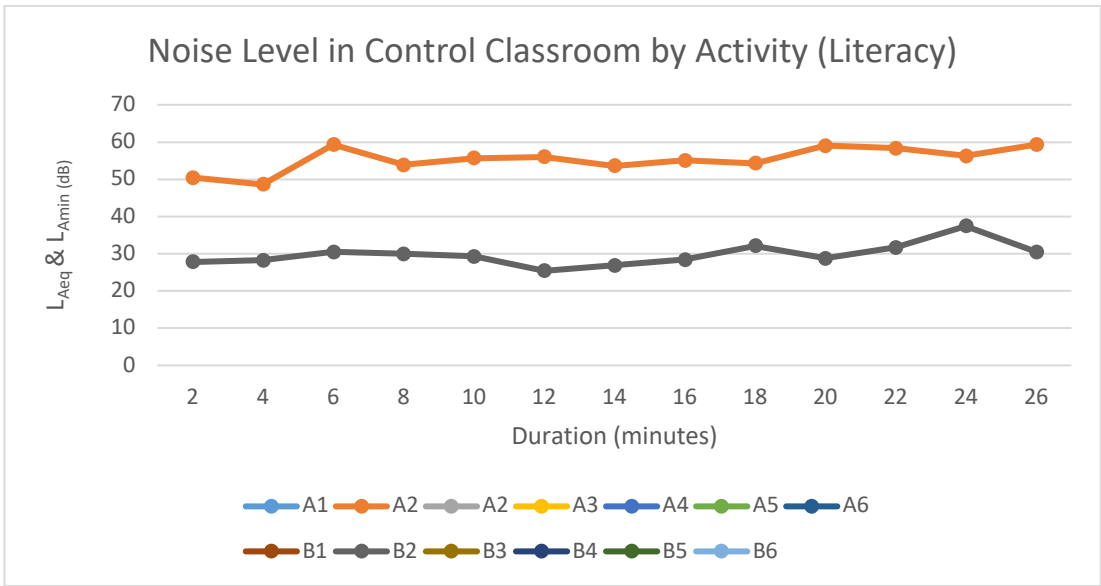
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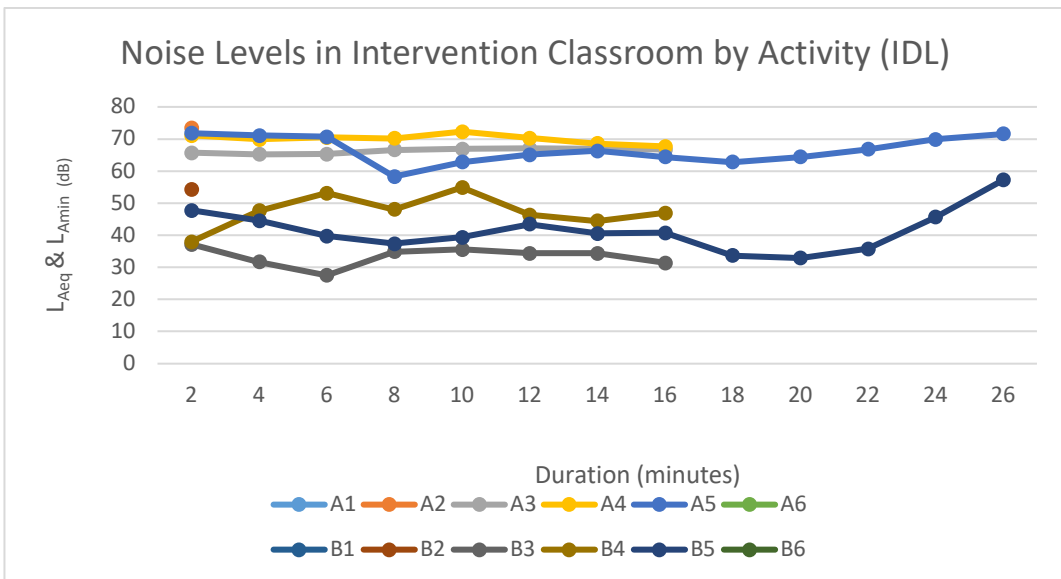
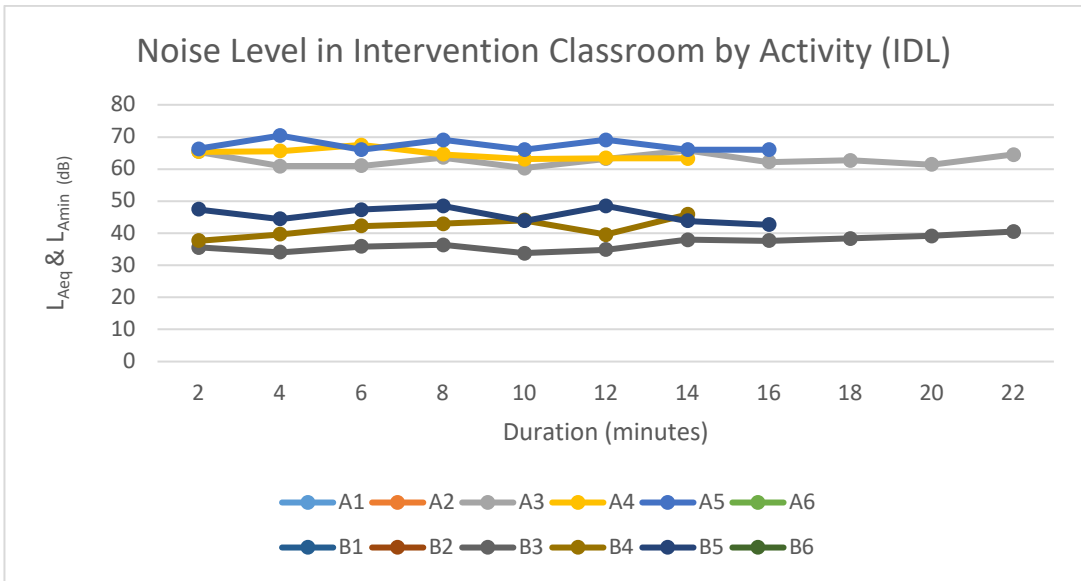


Classroom Noise Survey Results by Activity.

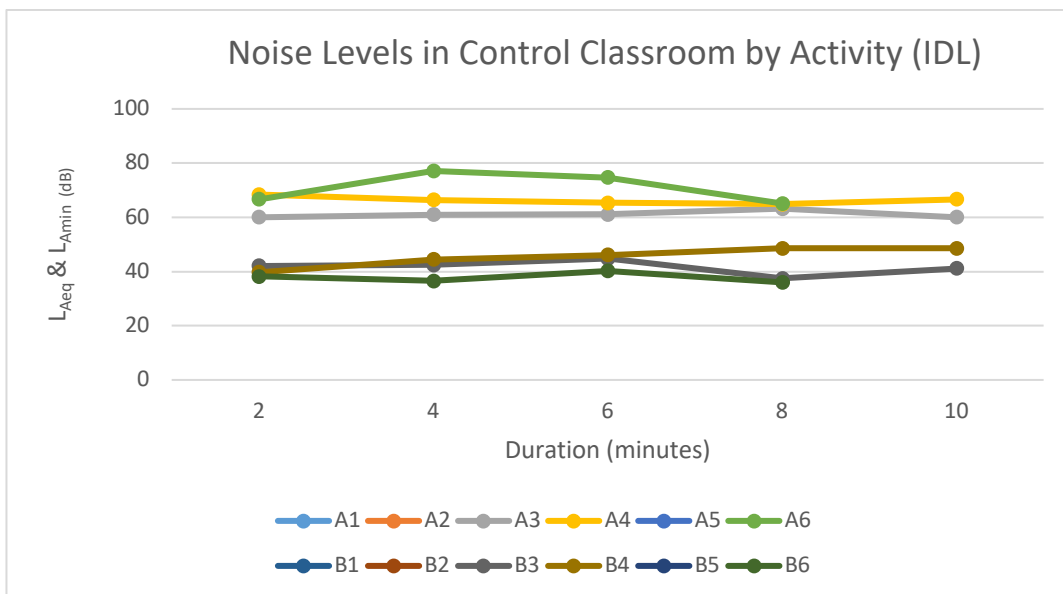
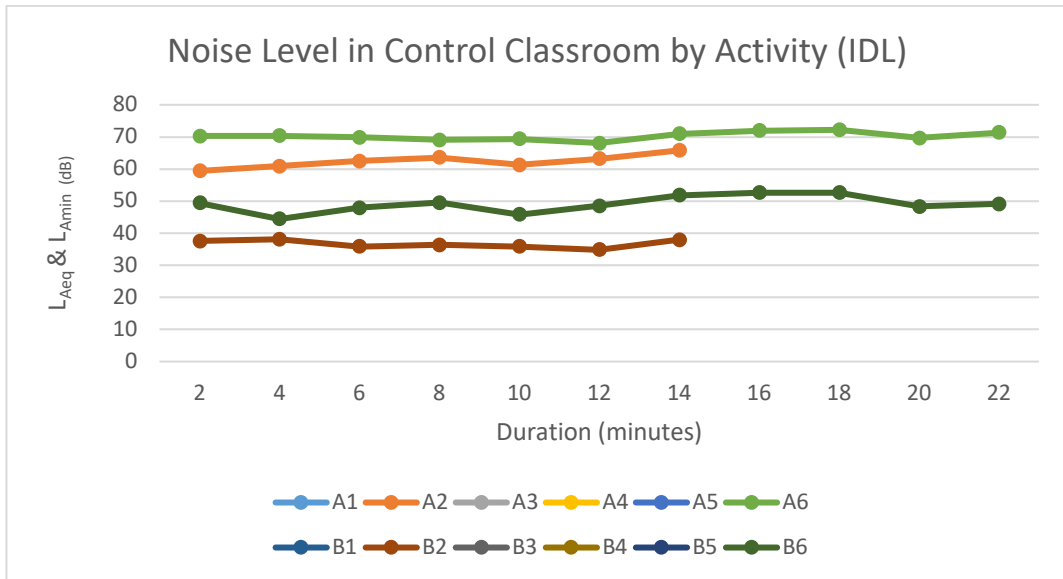
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Appendix 15

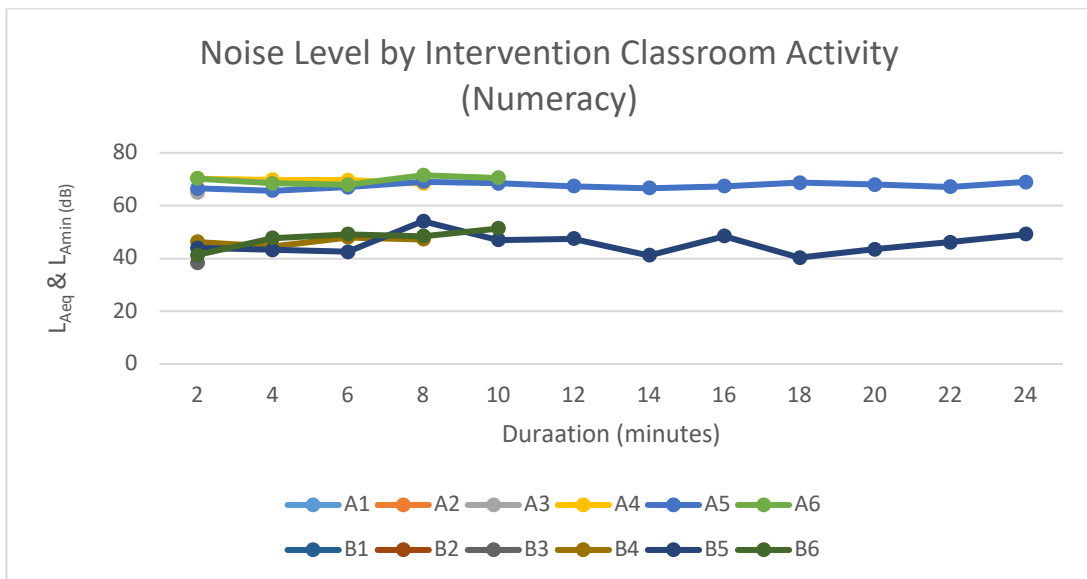
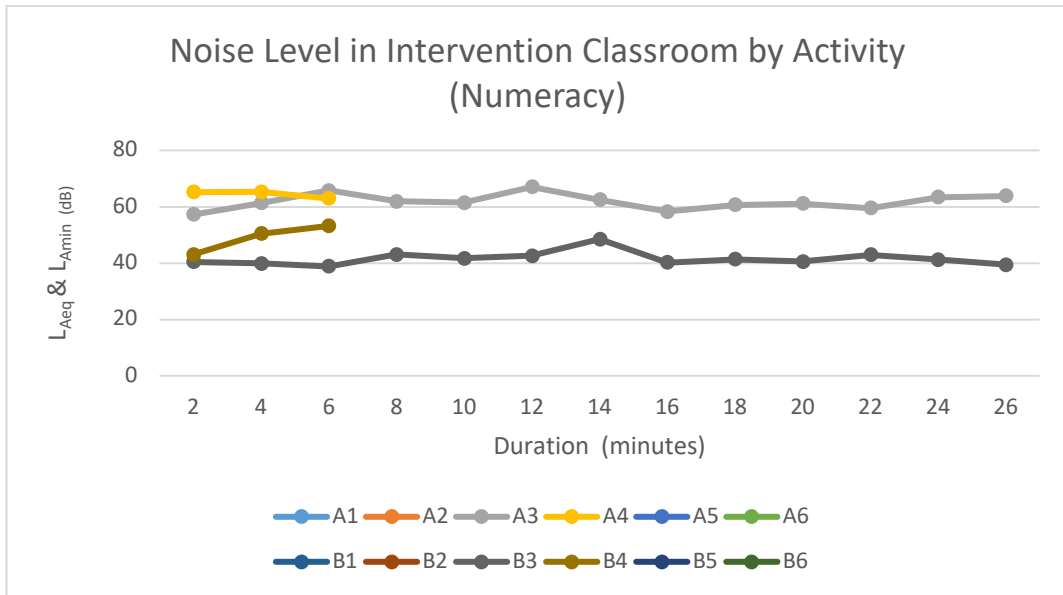


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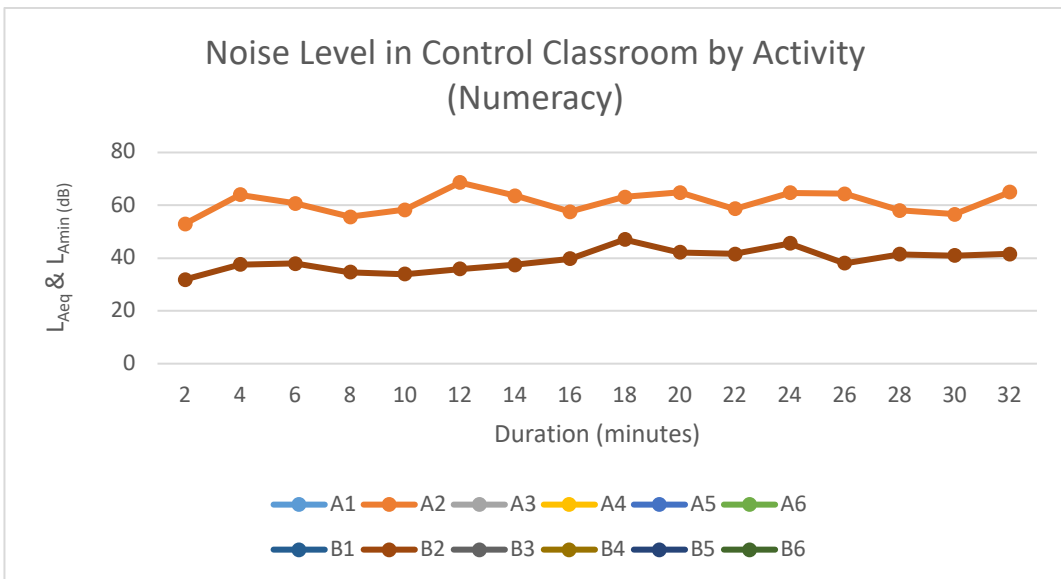
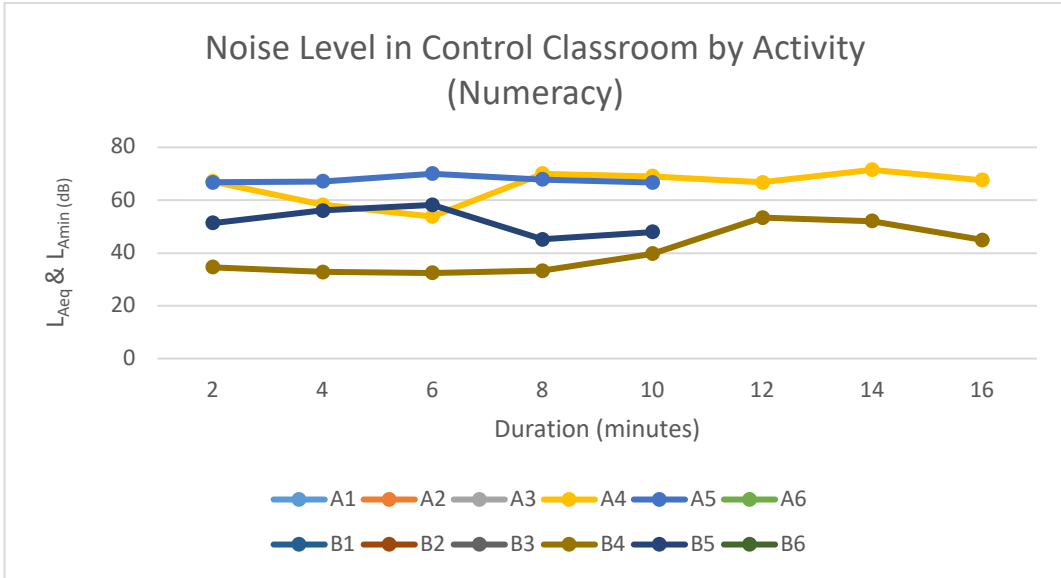


Classroom Noise Survey Results by Activity.

Appendix 15

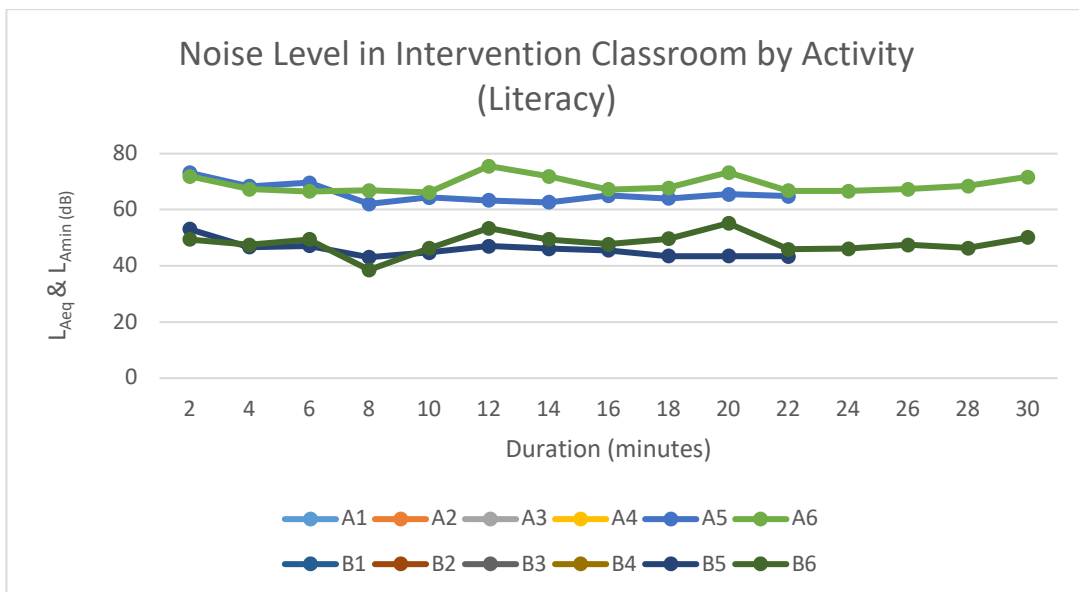
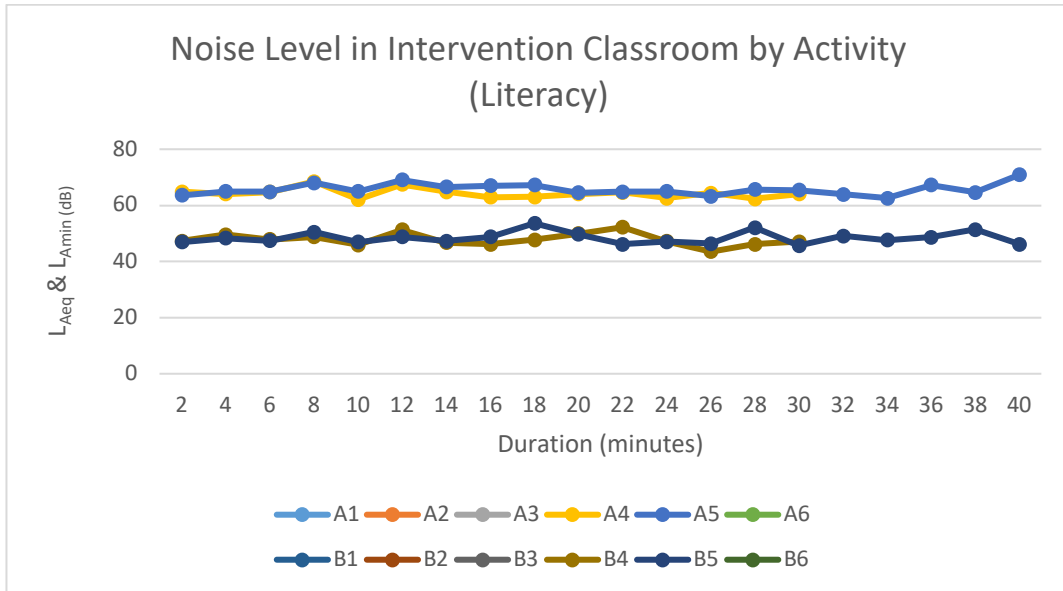


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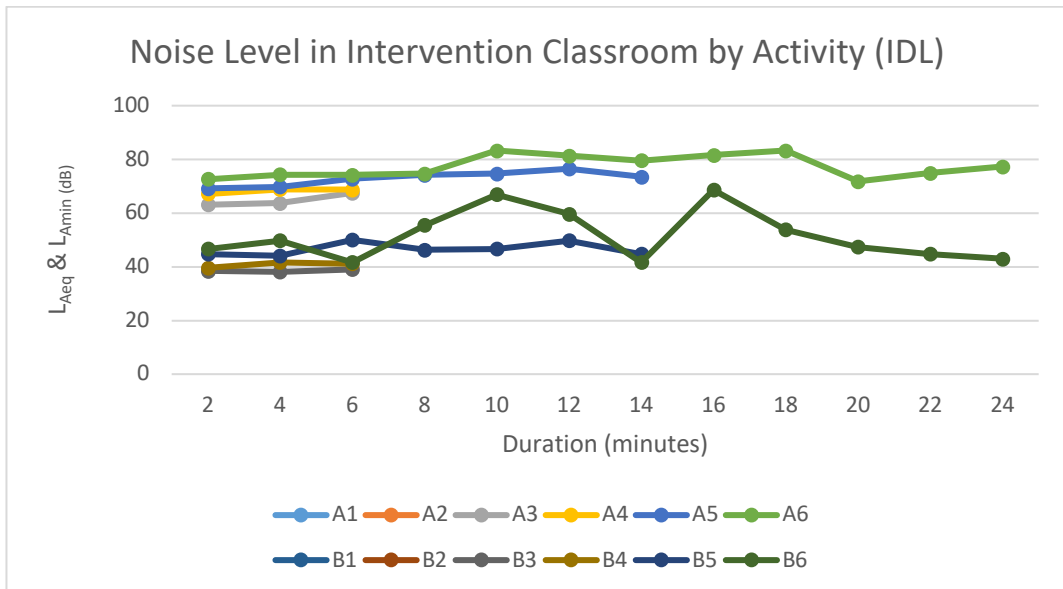
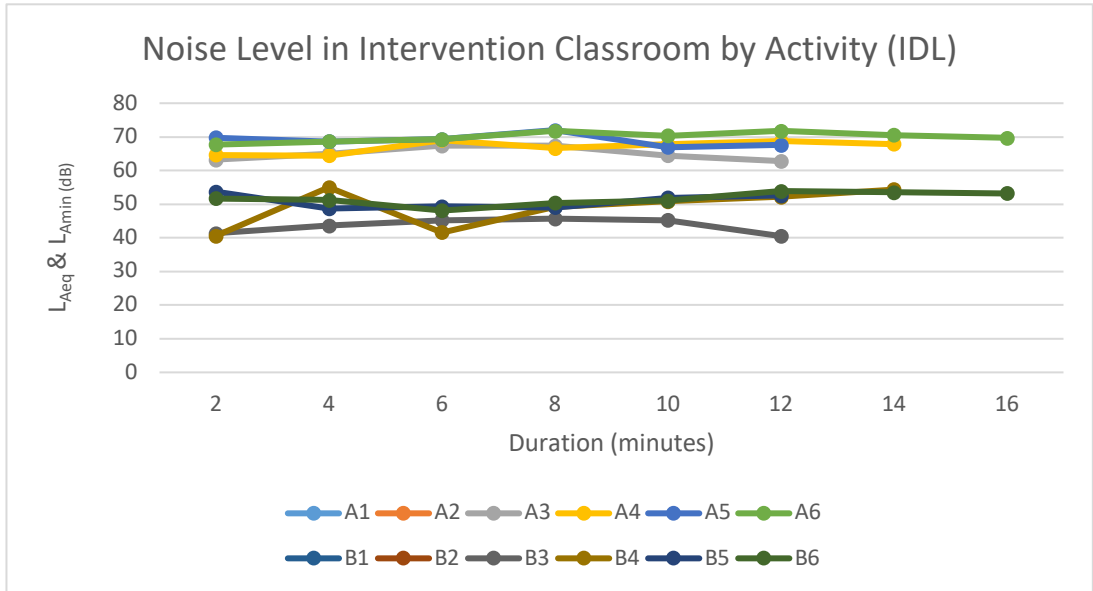
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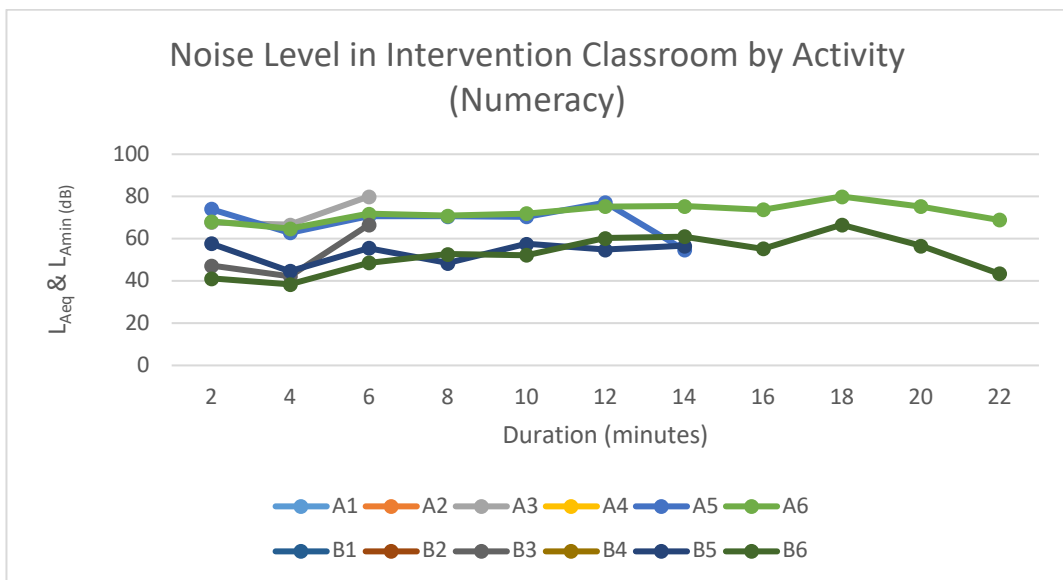
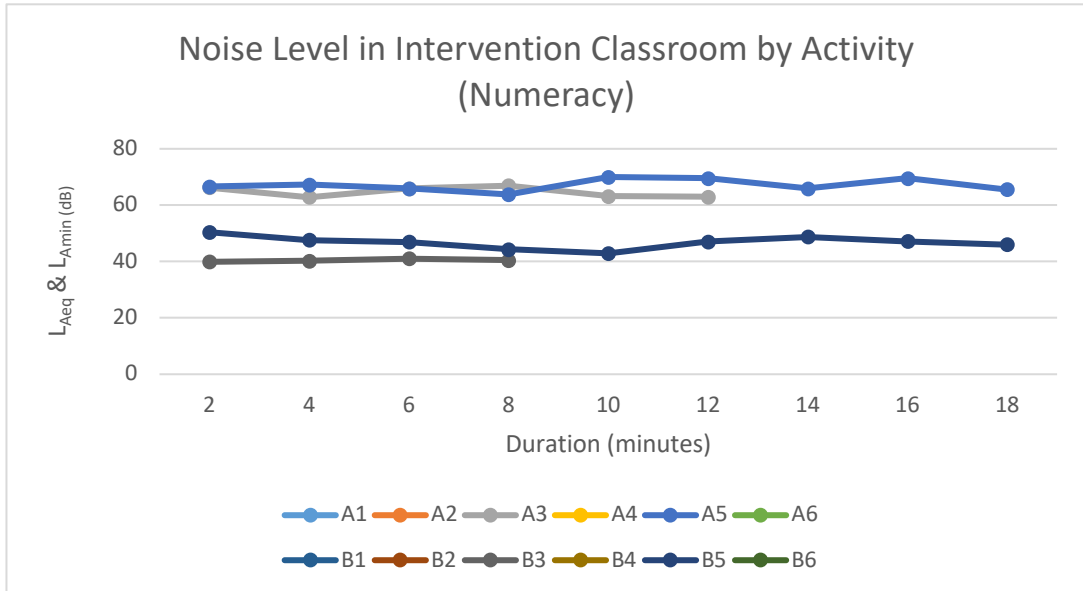


Classroom Noise Survey Results by Activity.

Appendix 15

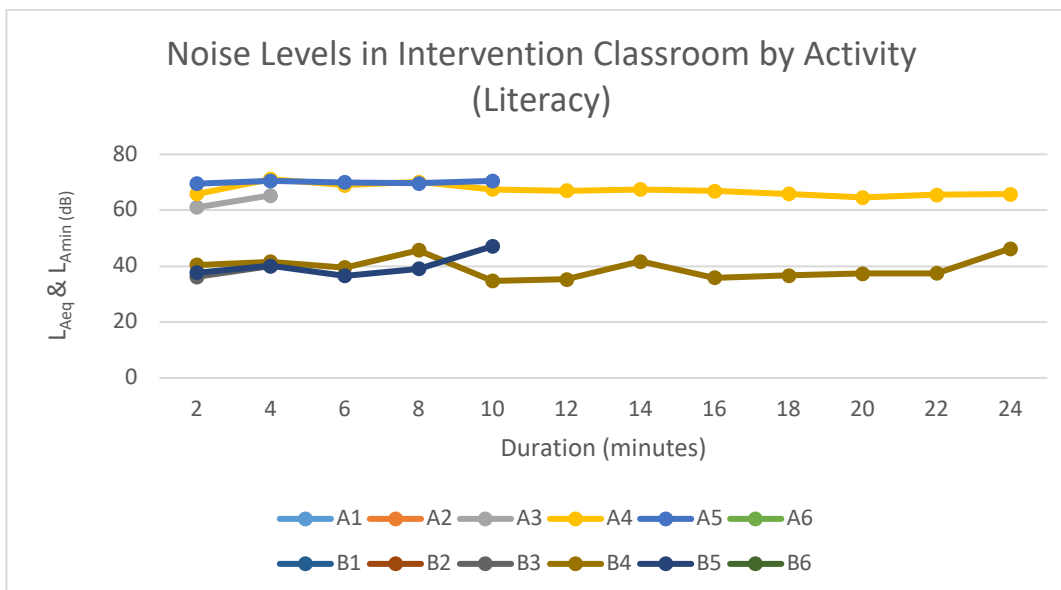
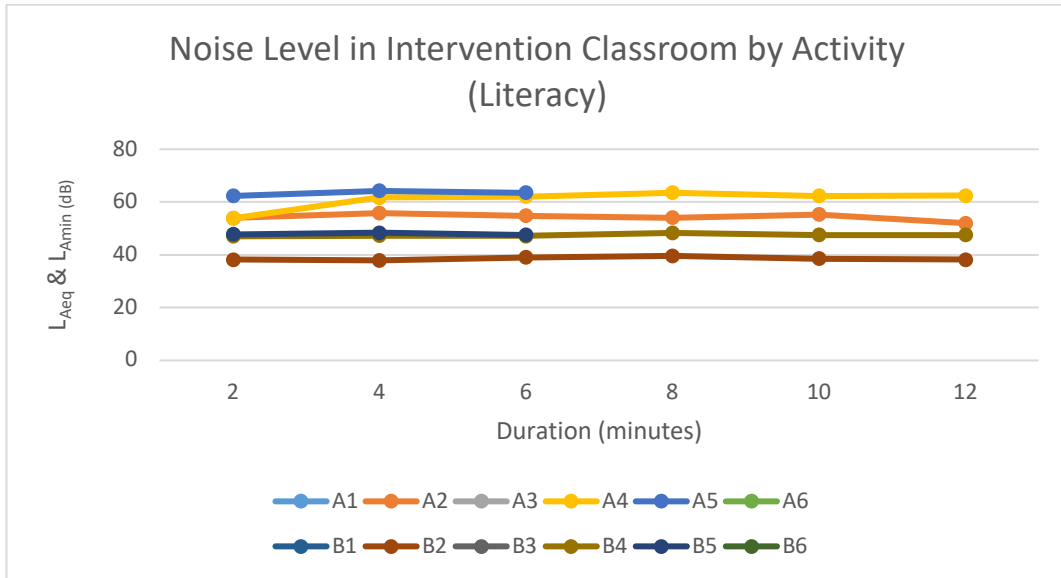


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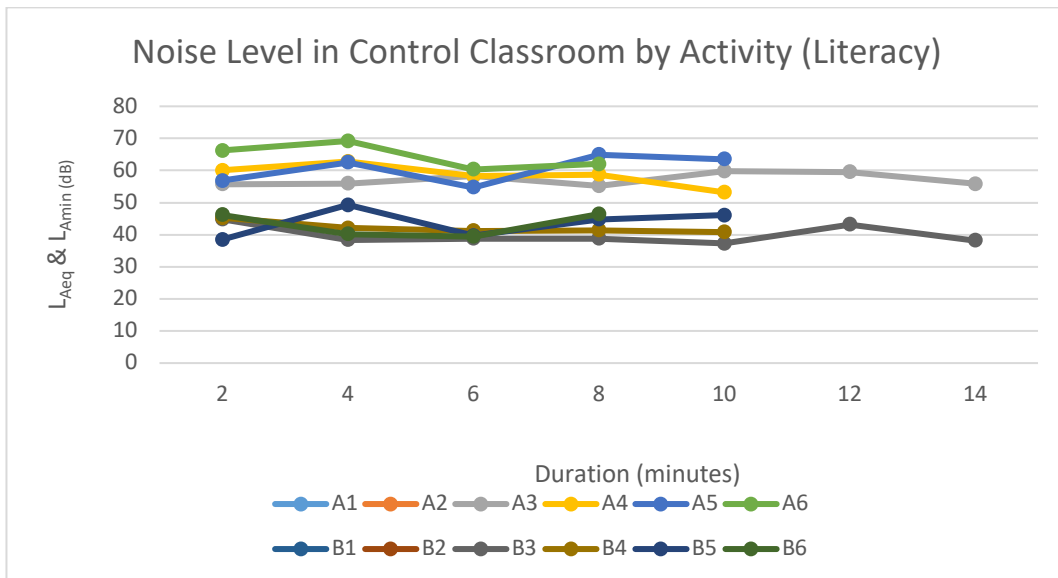
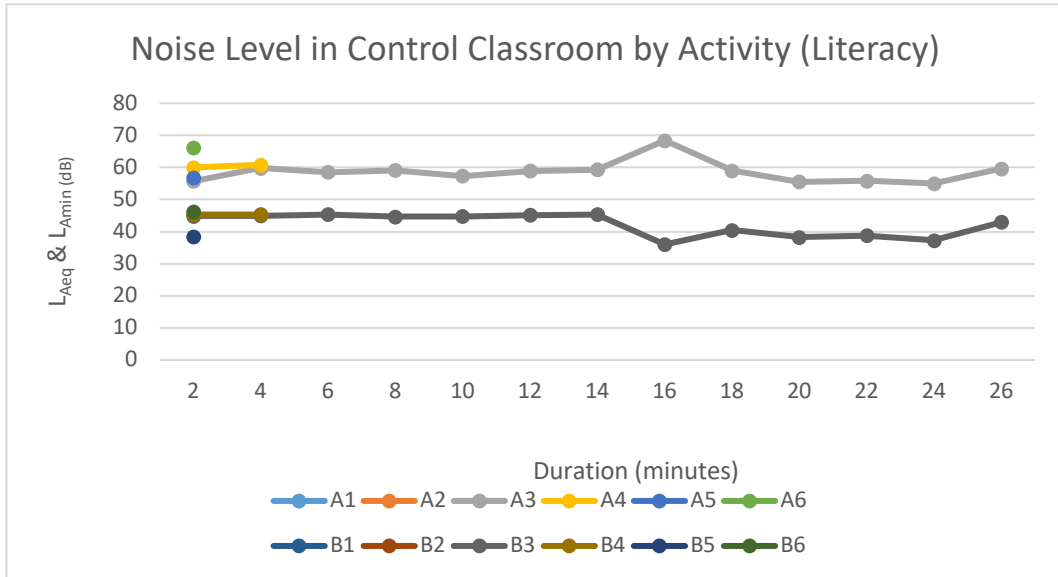


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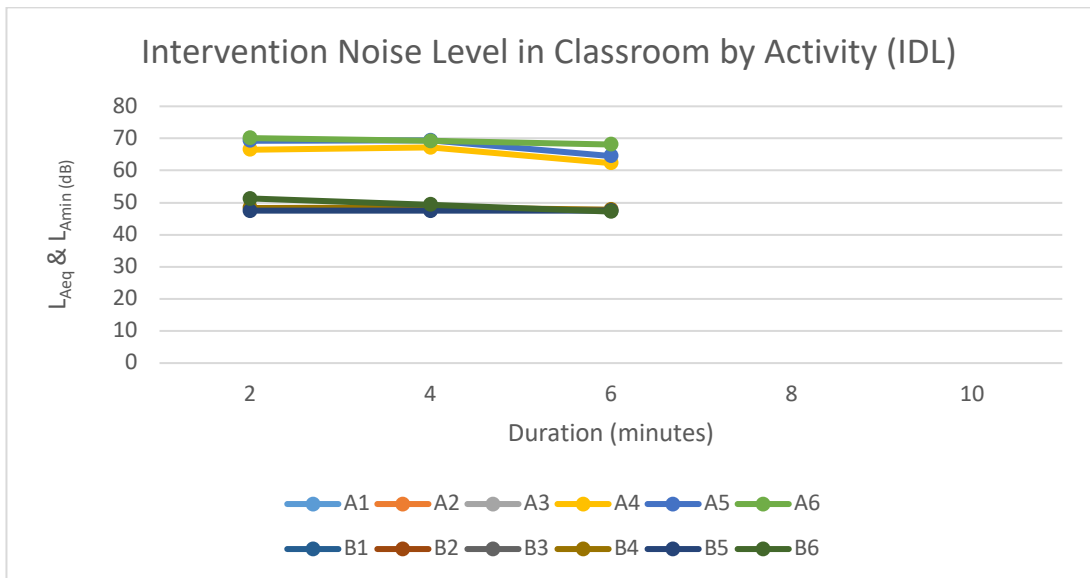
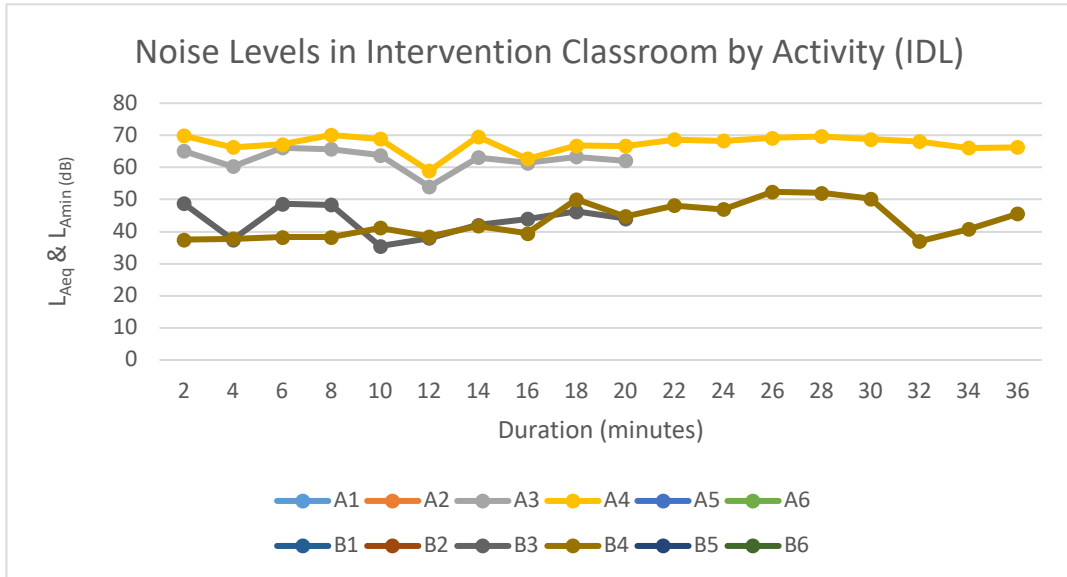
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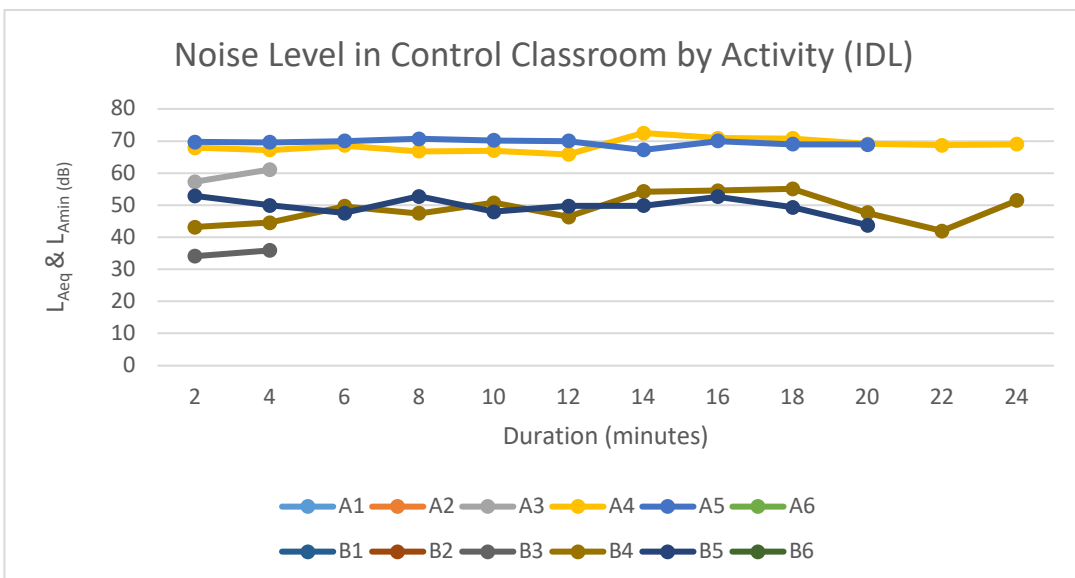
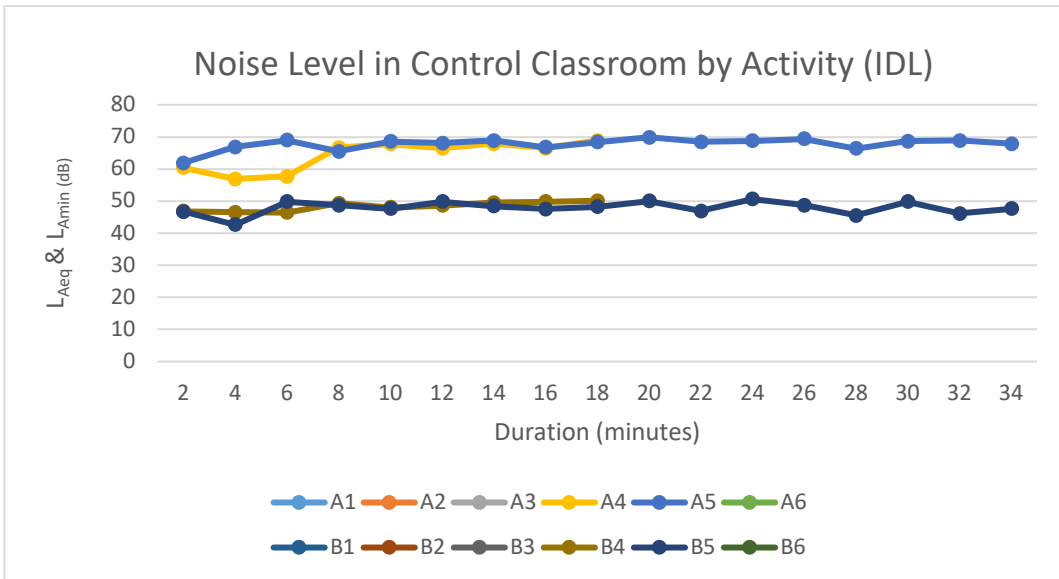
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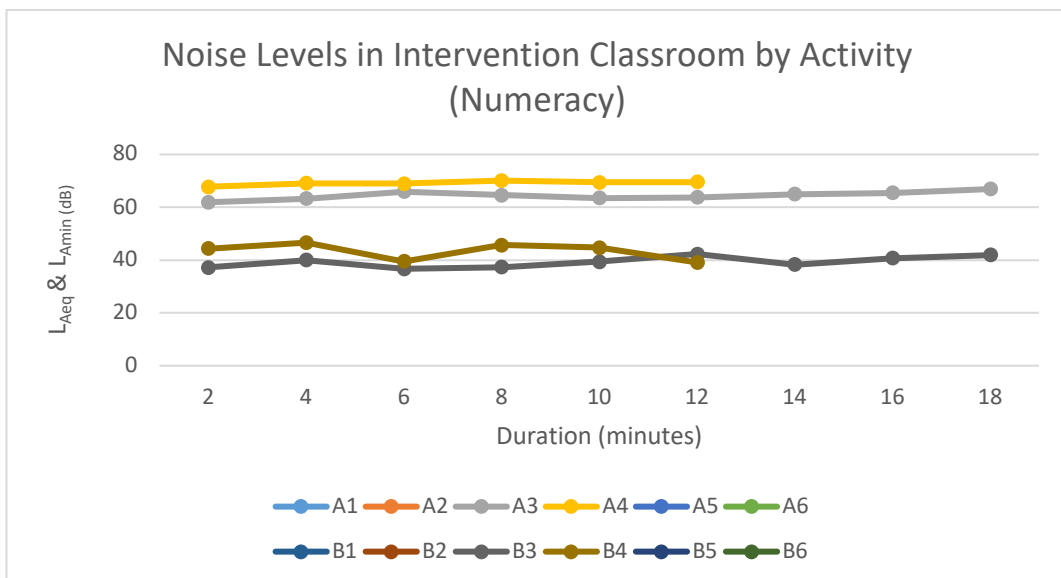
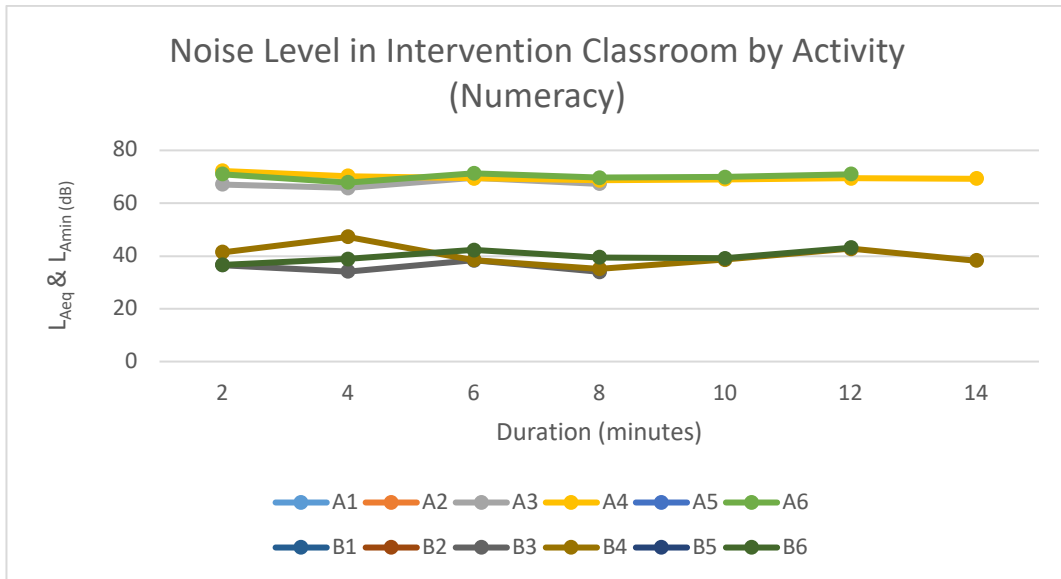
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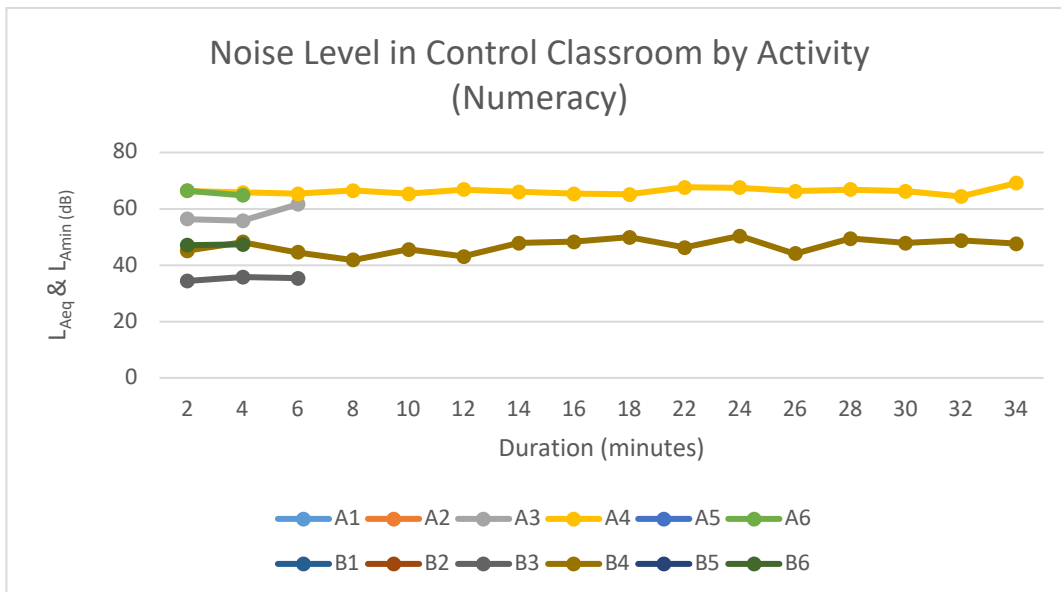
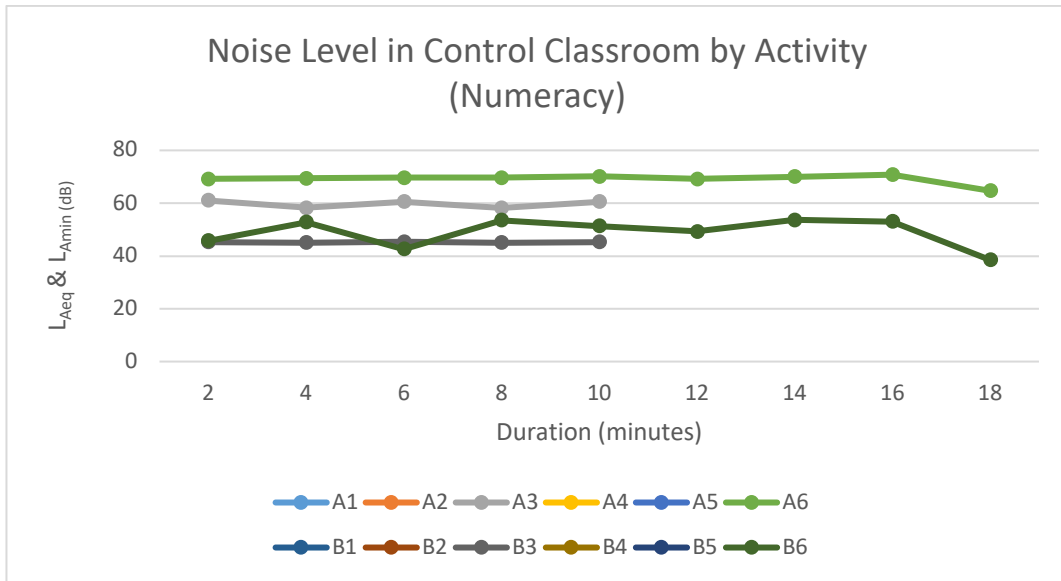
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Appendix 15

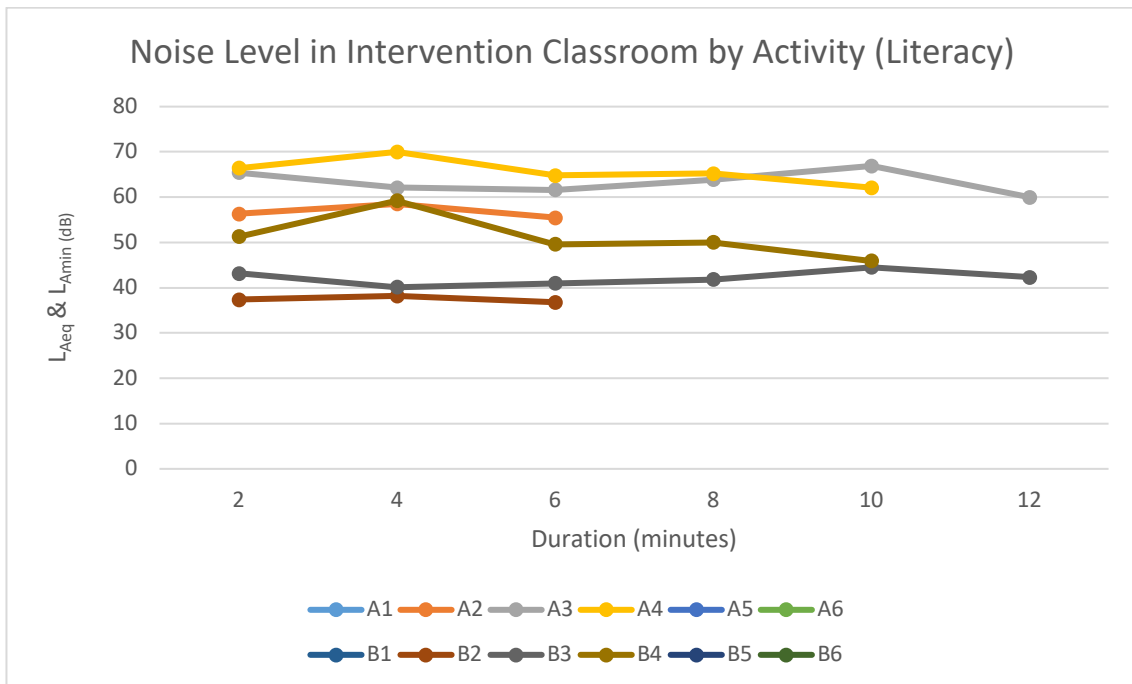
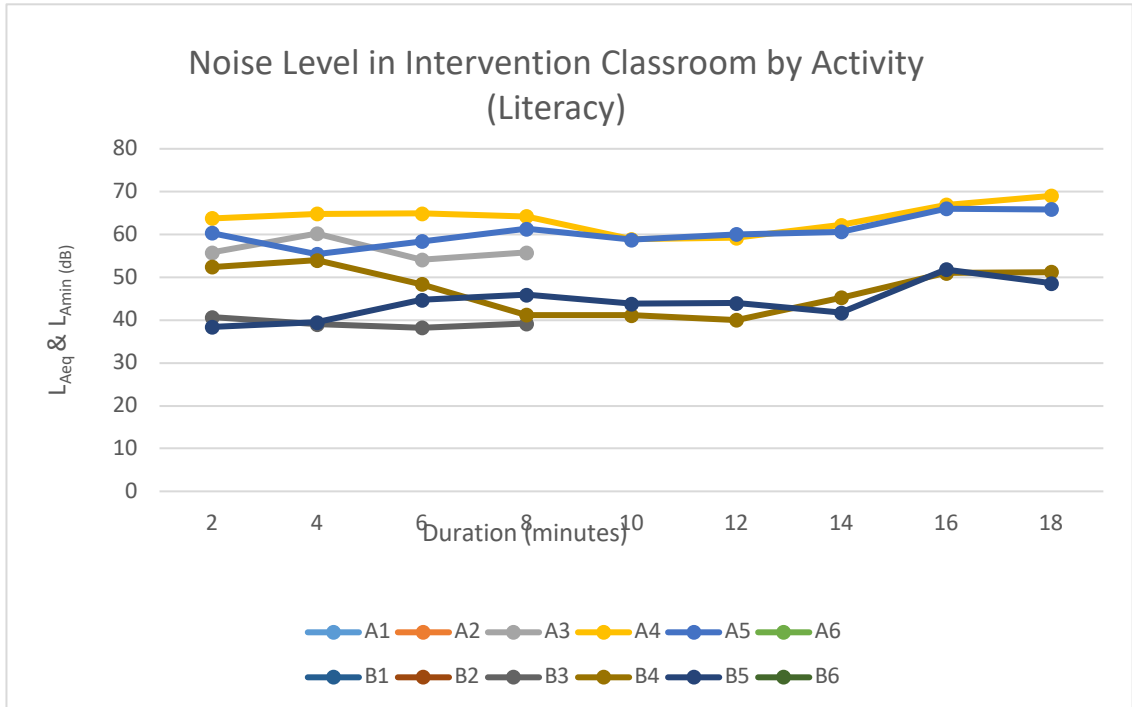


Appendix 15

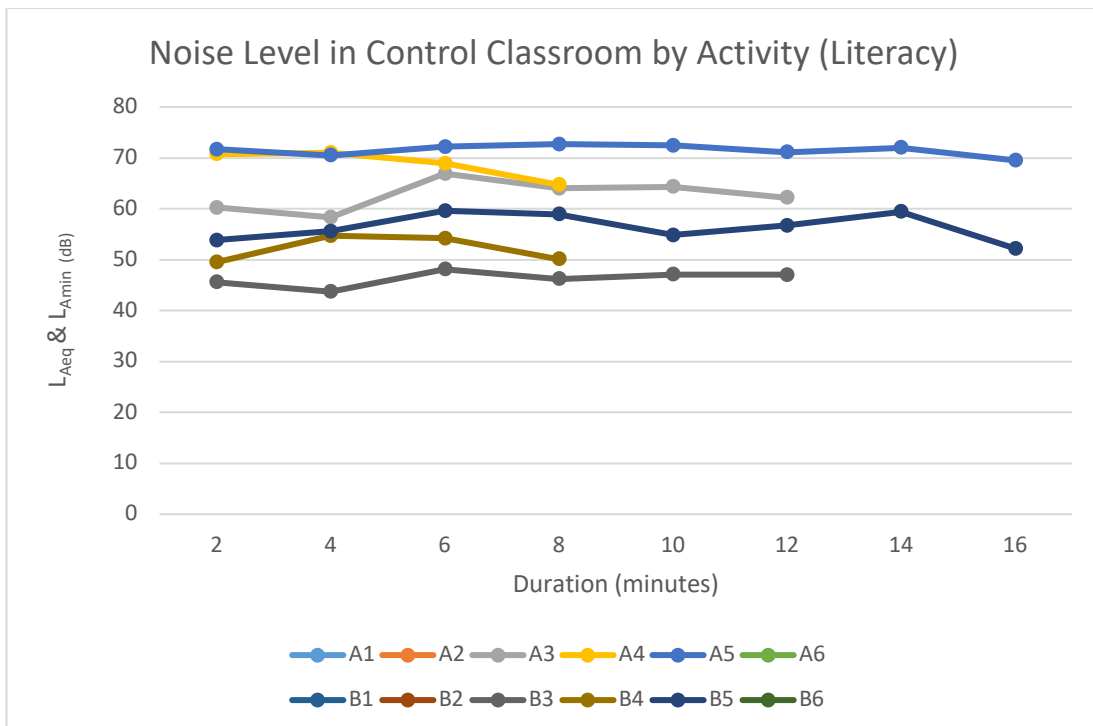
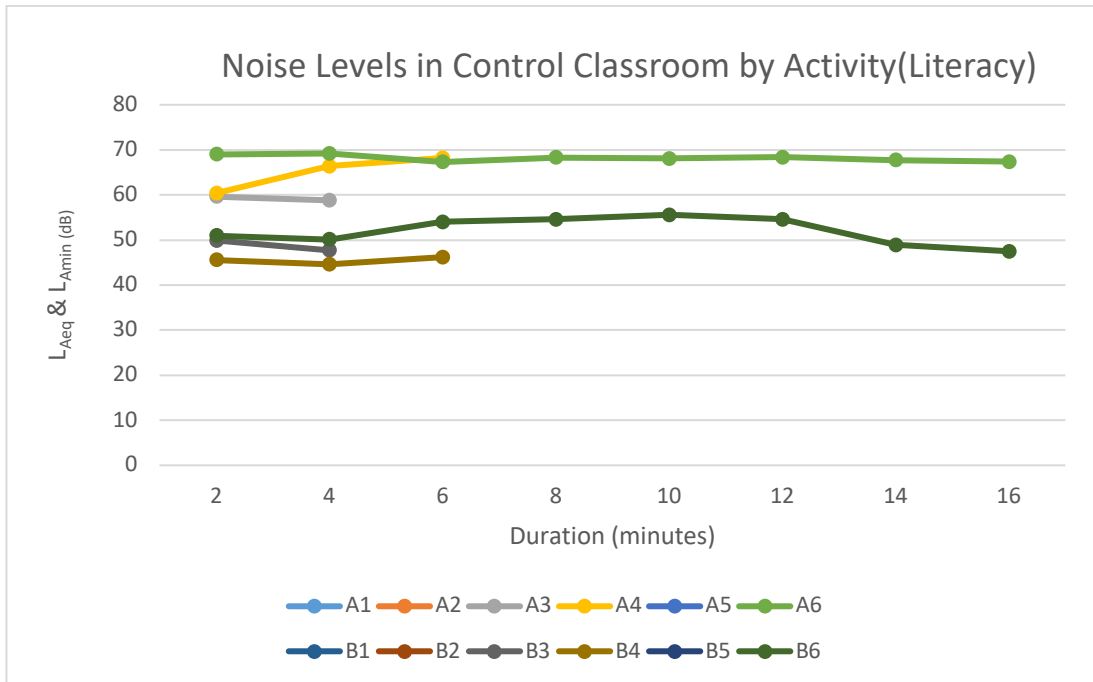


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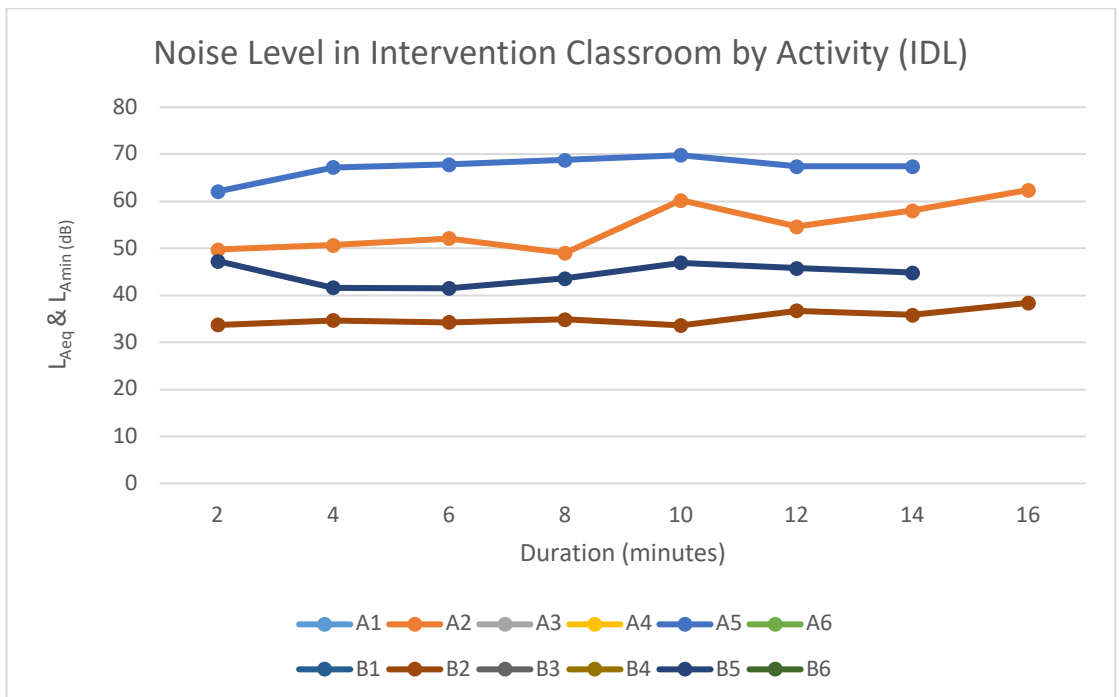
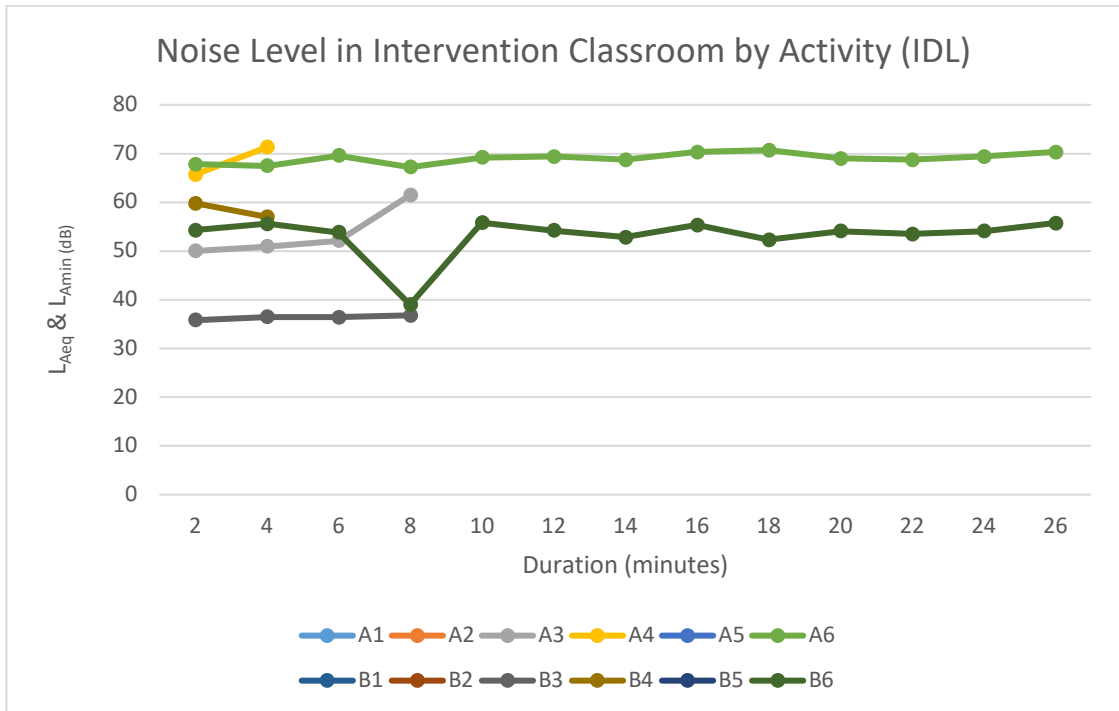


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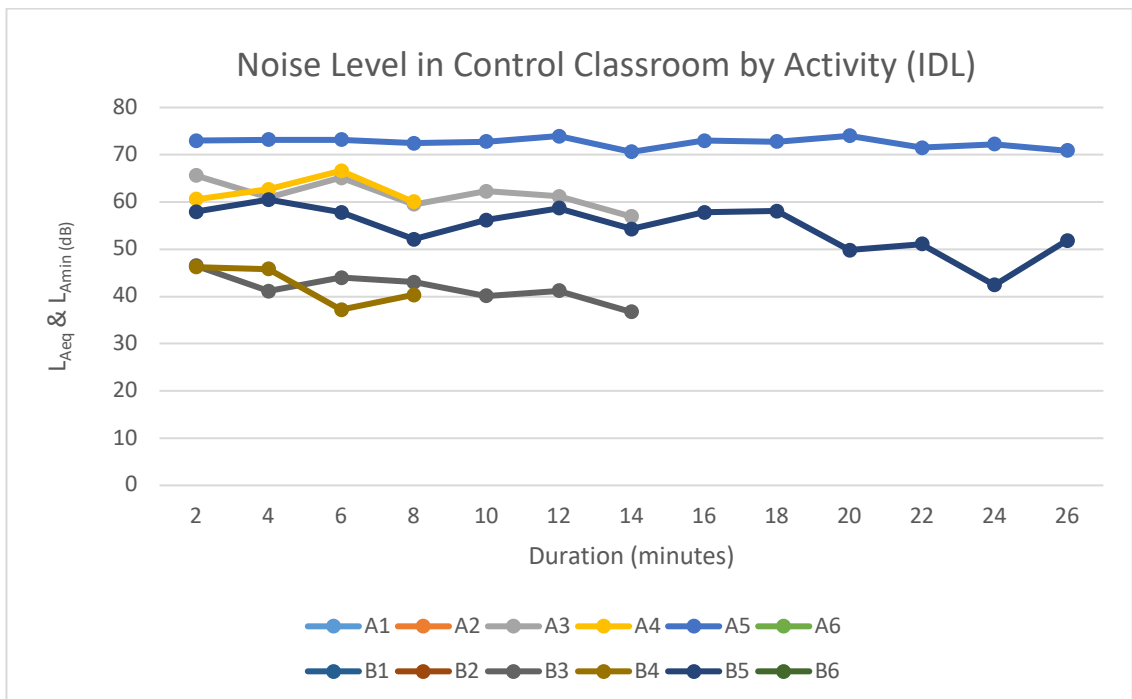
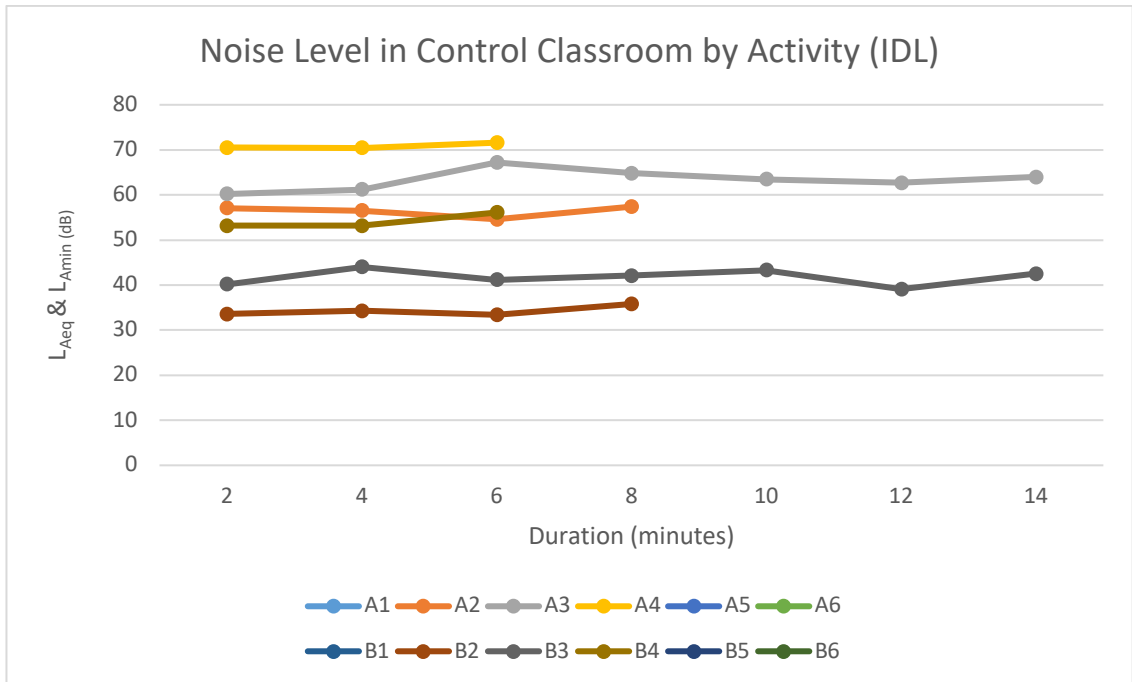


Classroom Noise Survey Results by Activity.

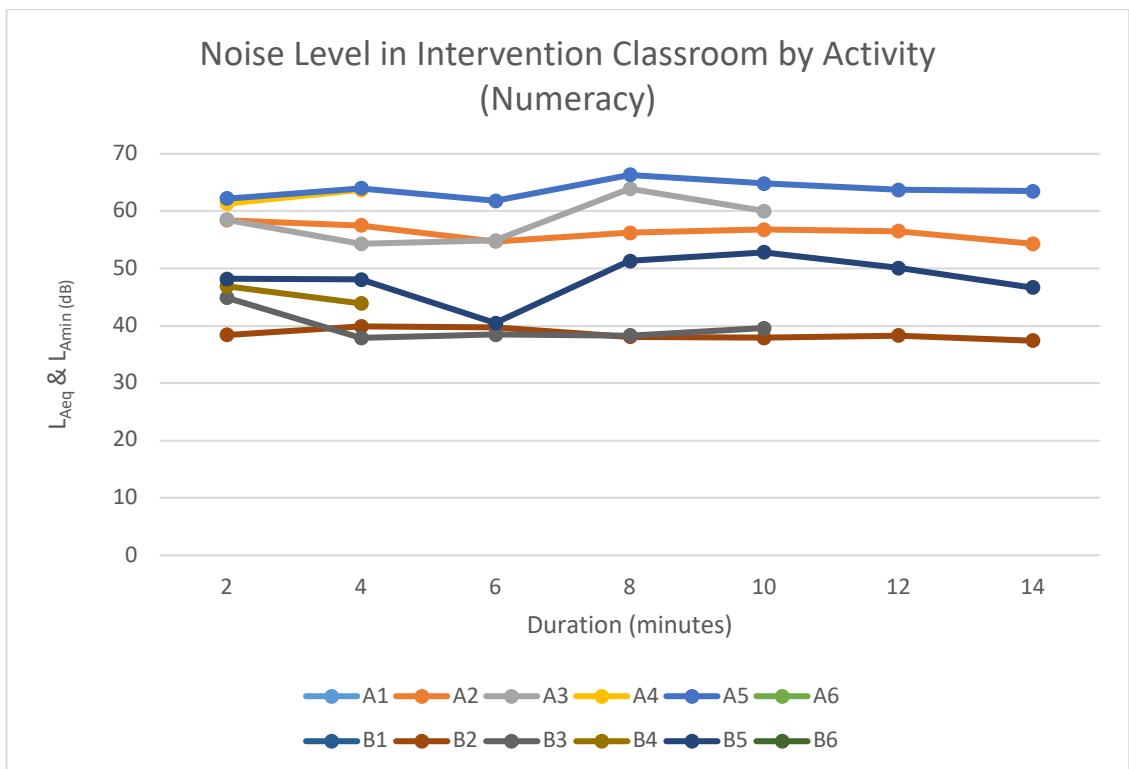
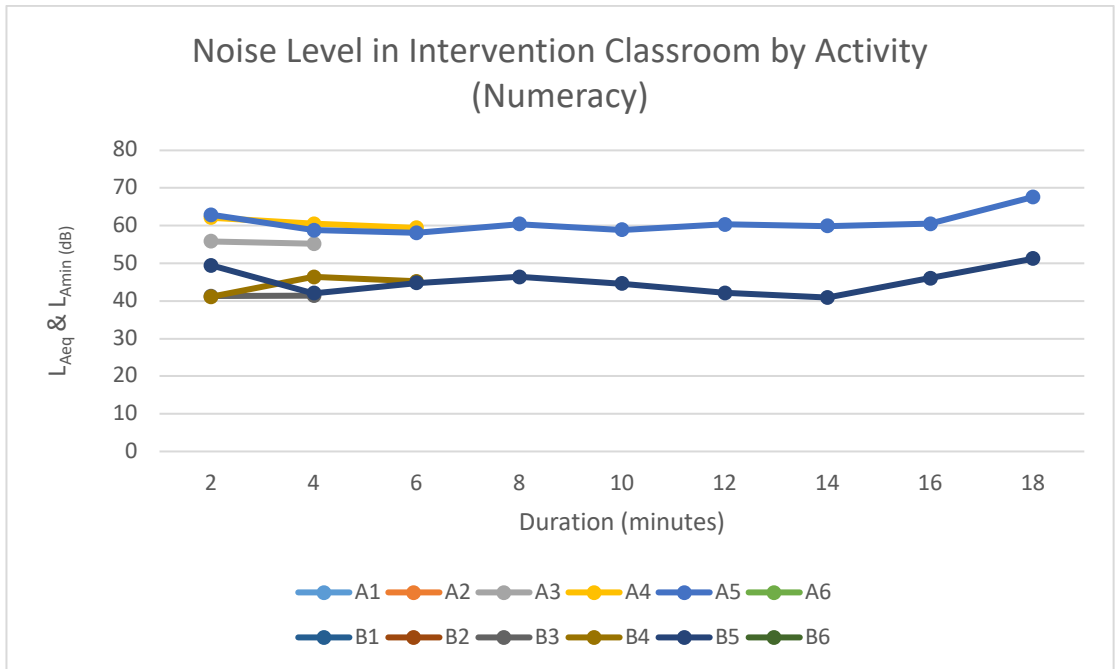
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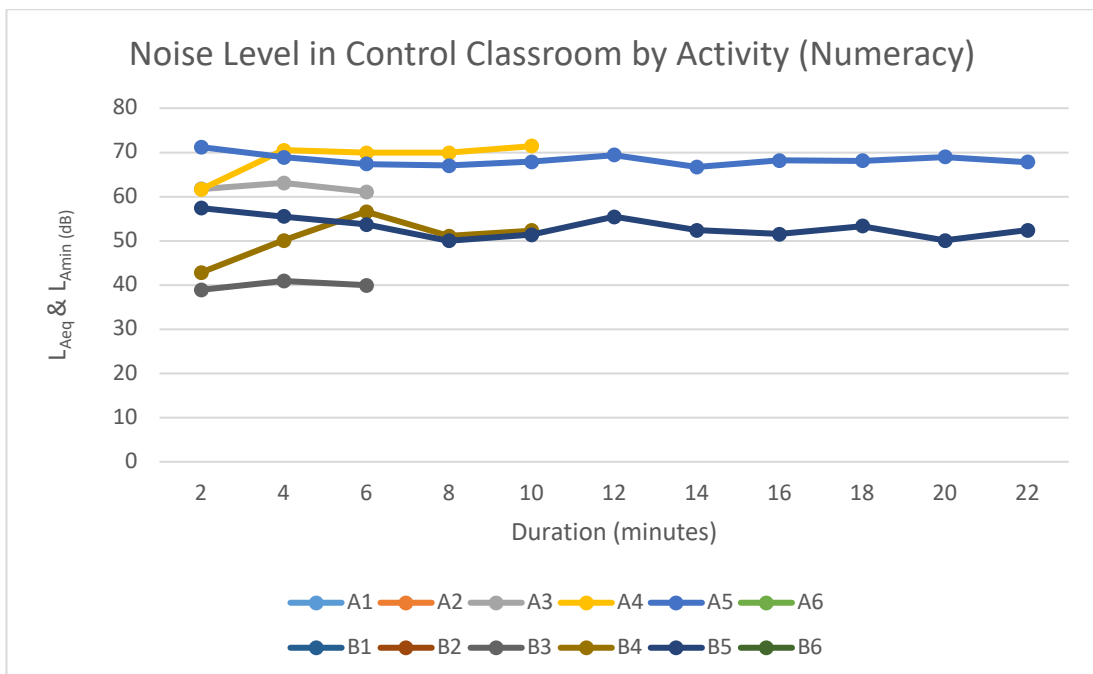
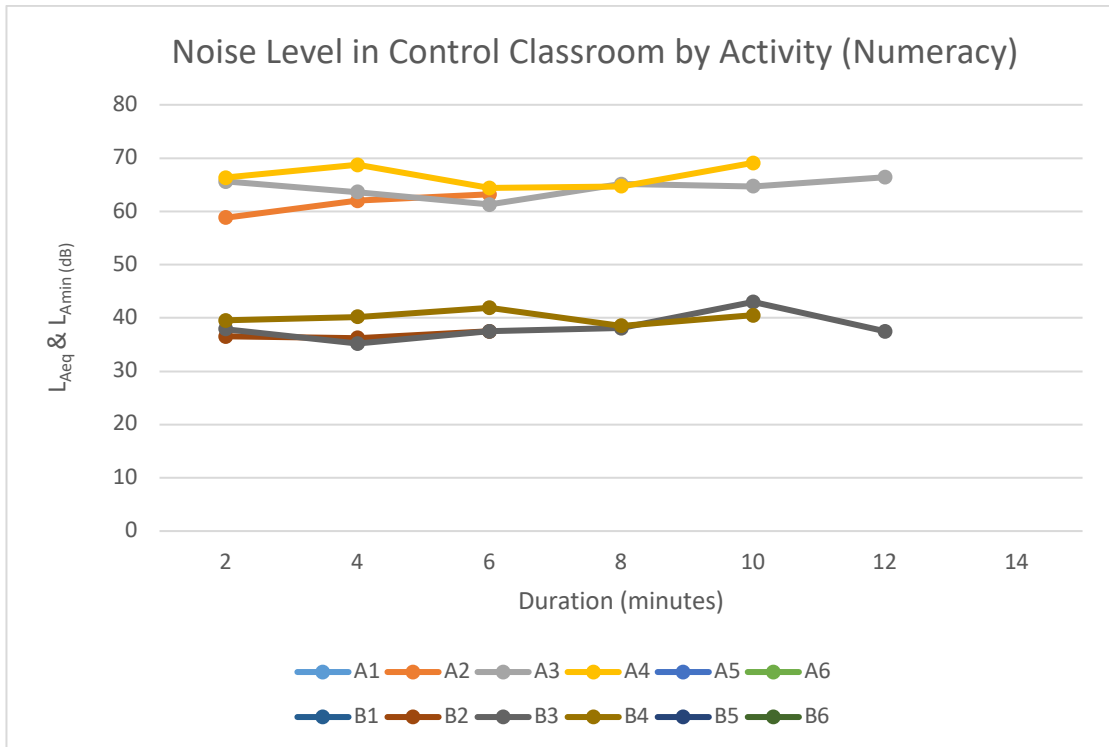
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Appendix 15



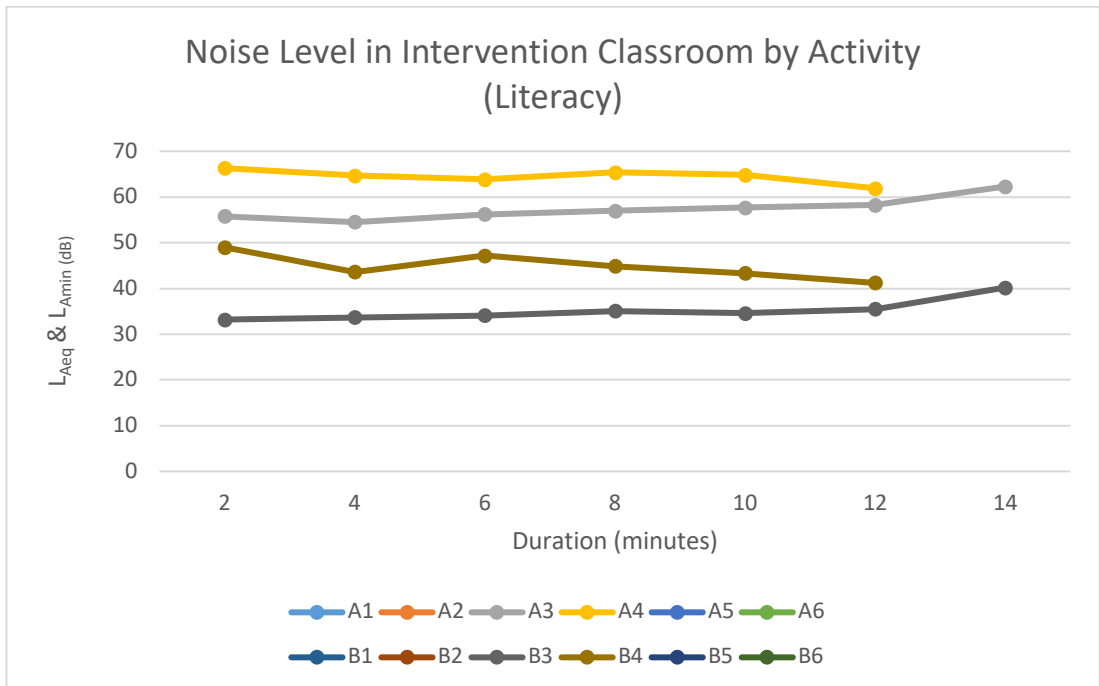
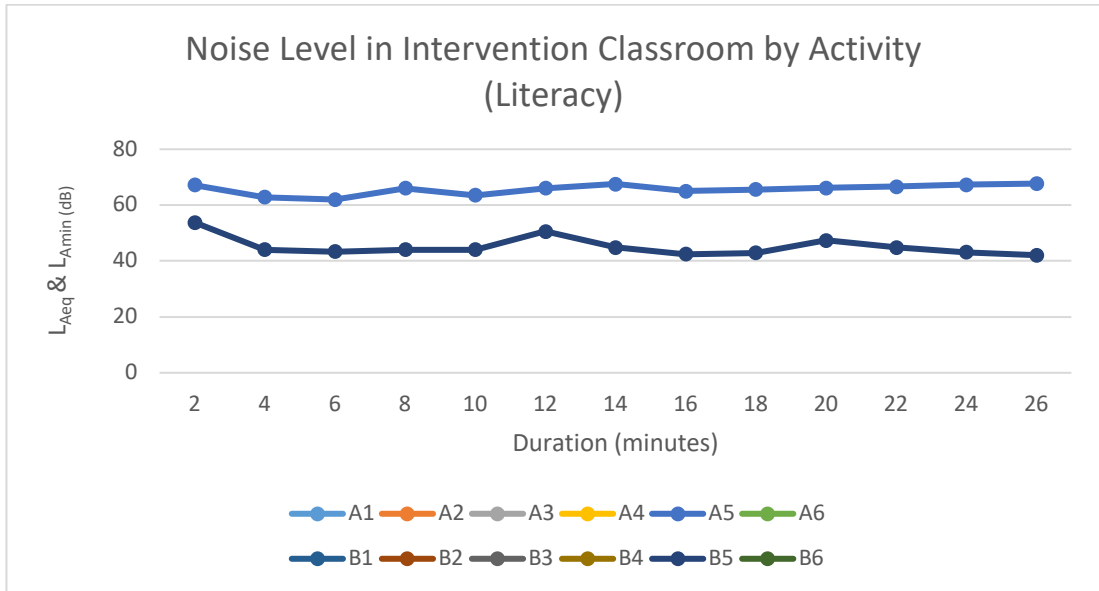
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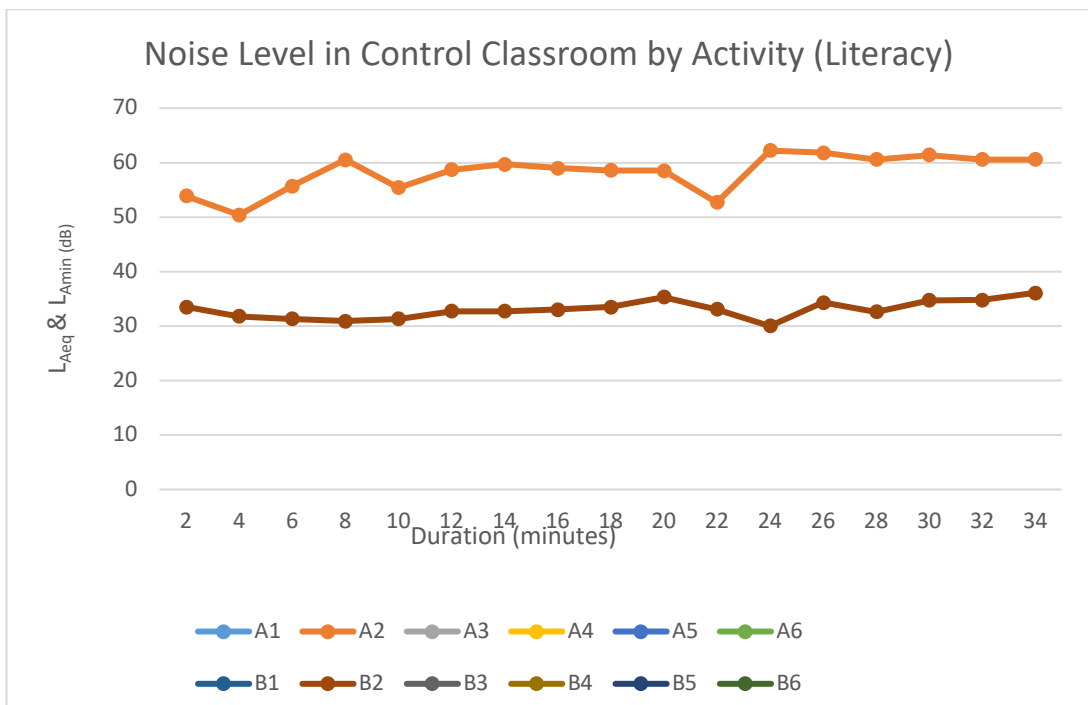
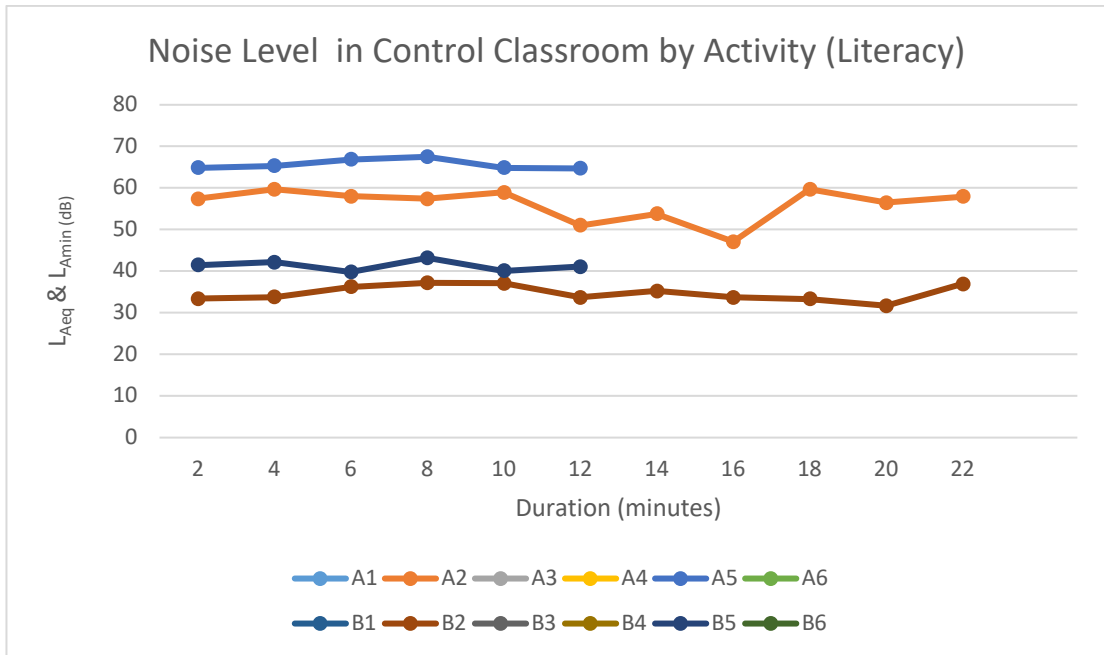
Classroom Noise Survey Results by Activity.

Appendix 15

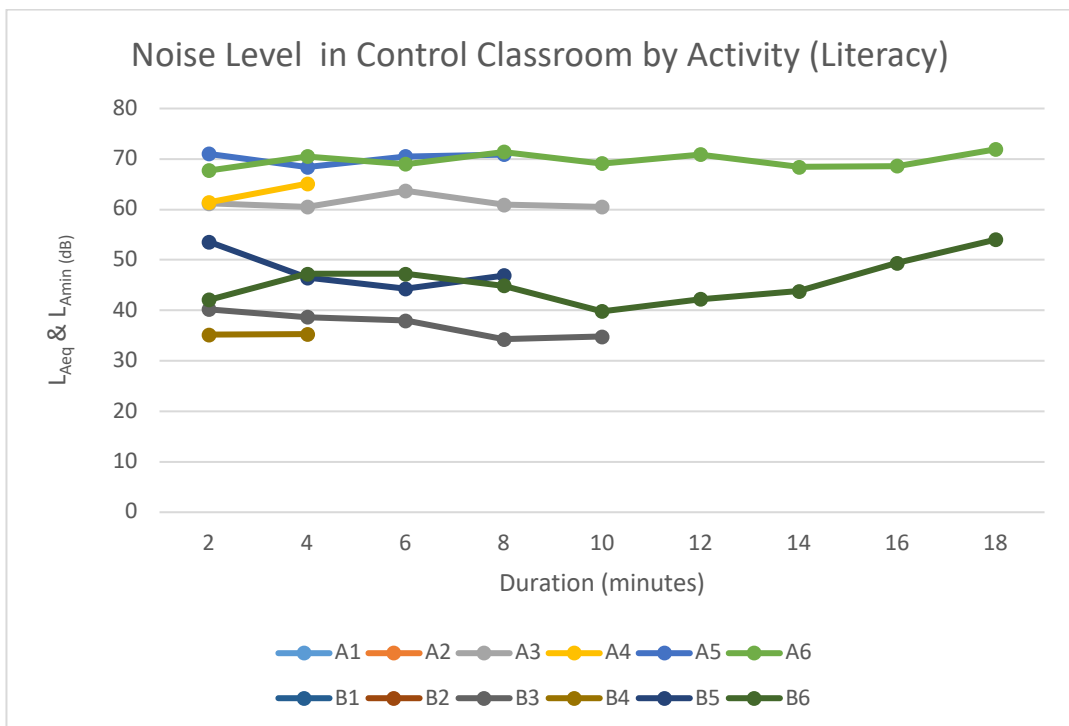
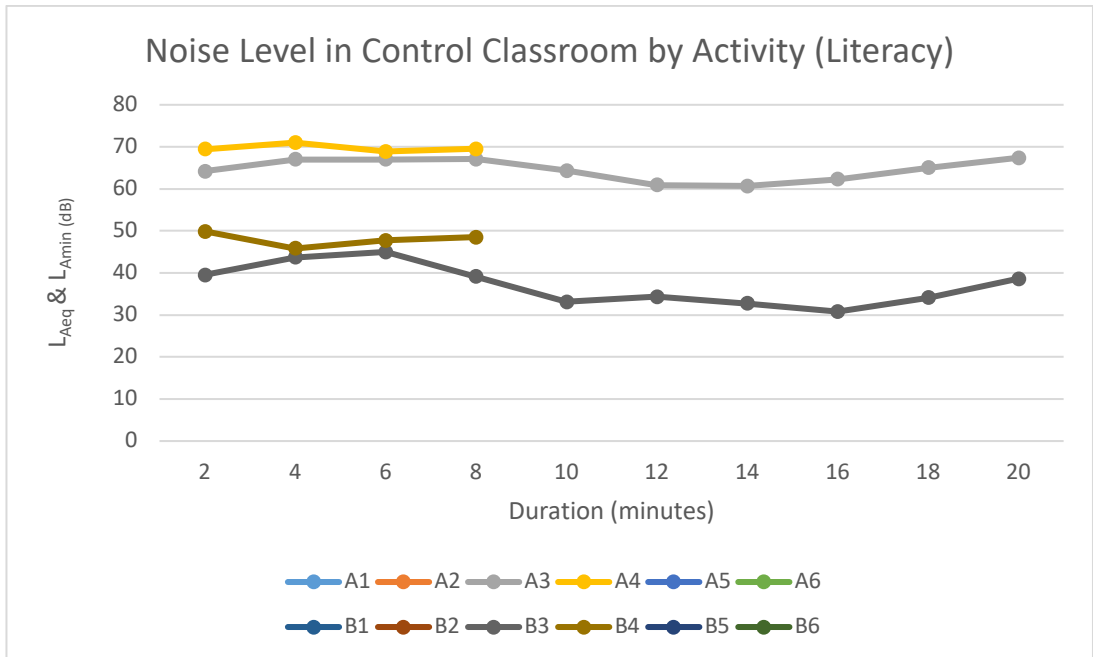
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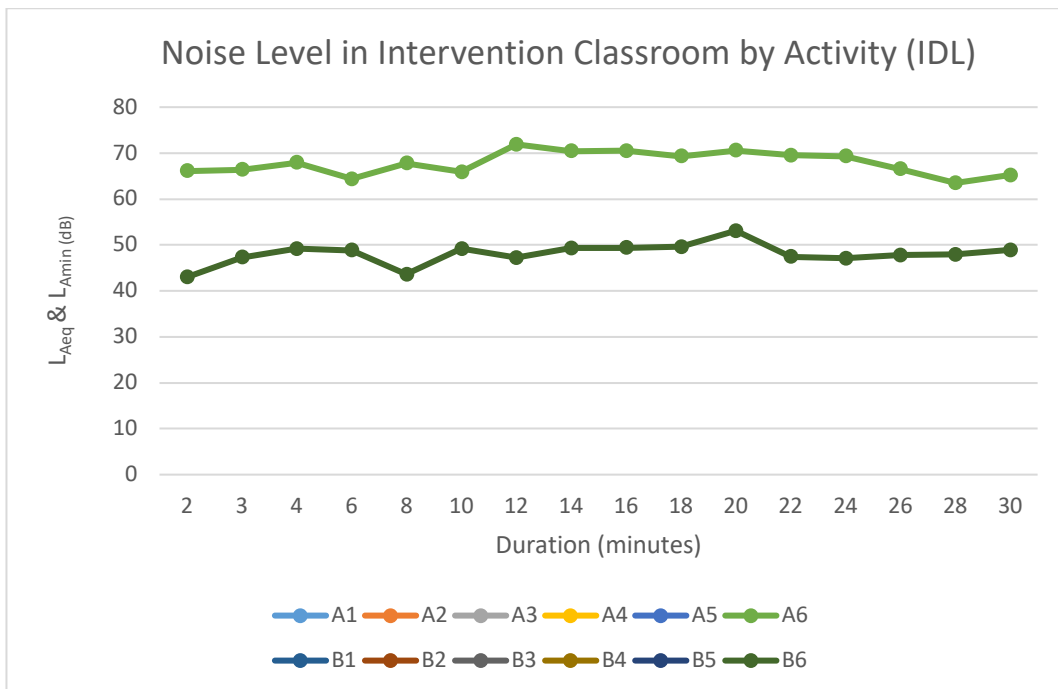
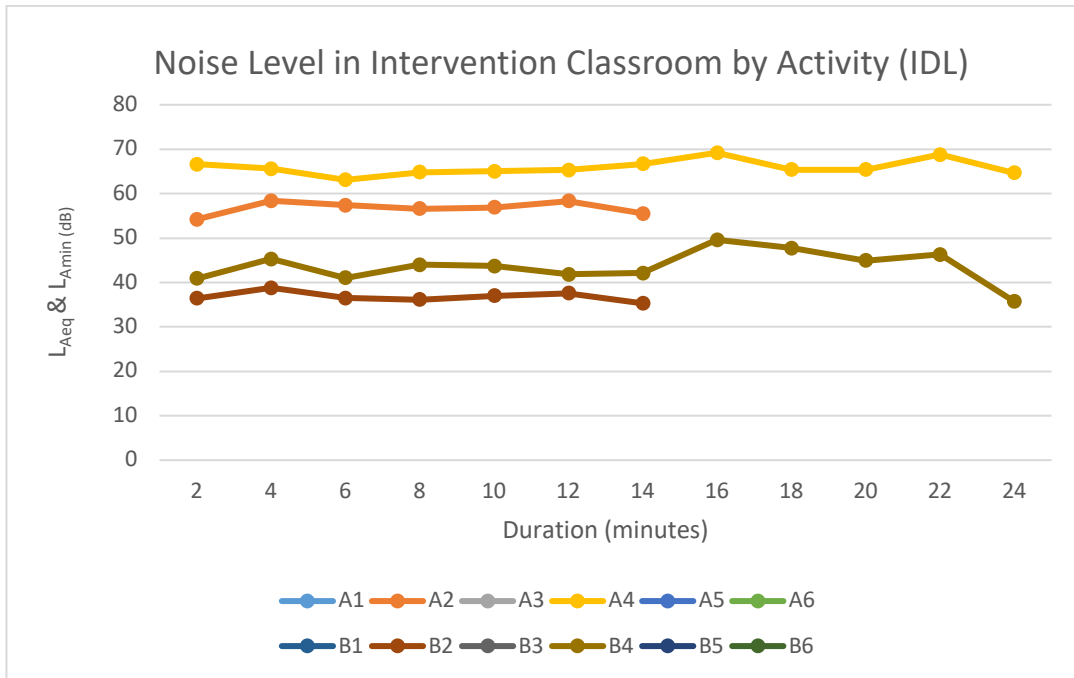
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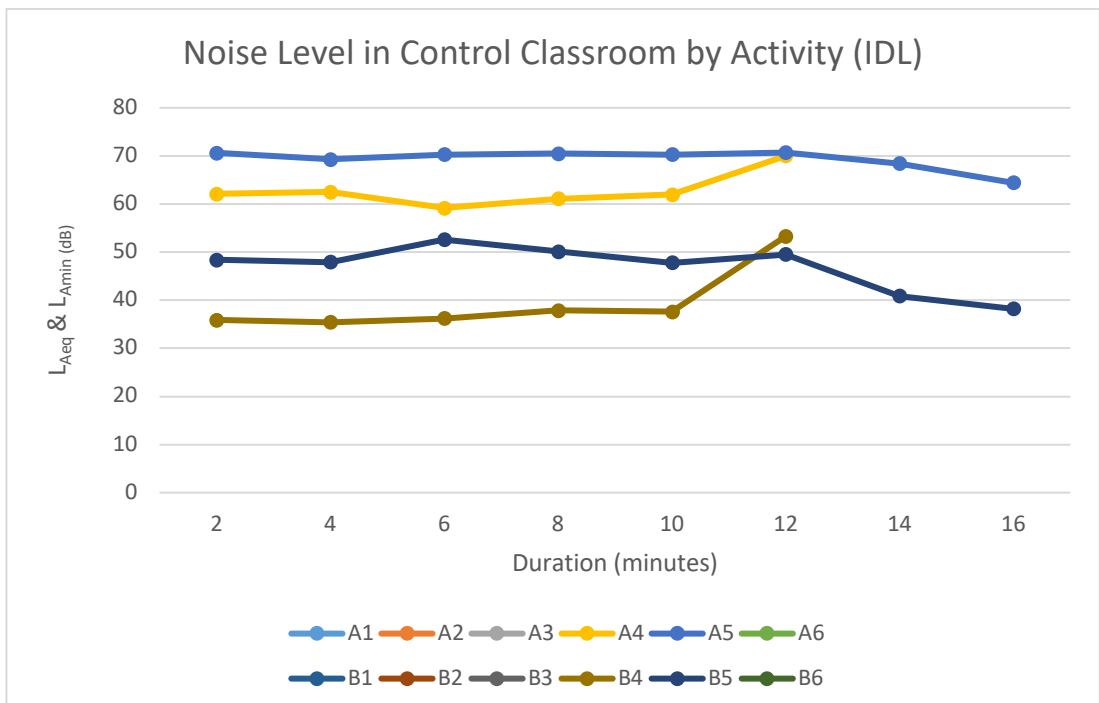
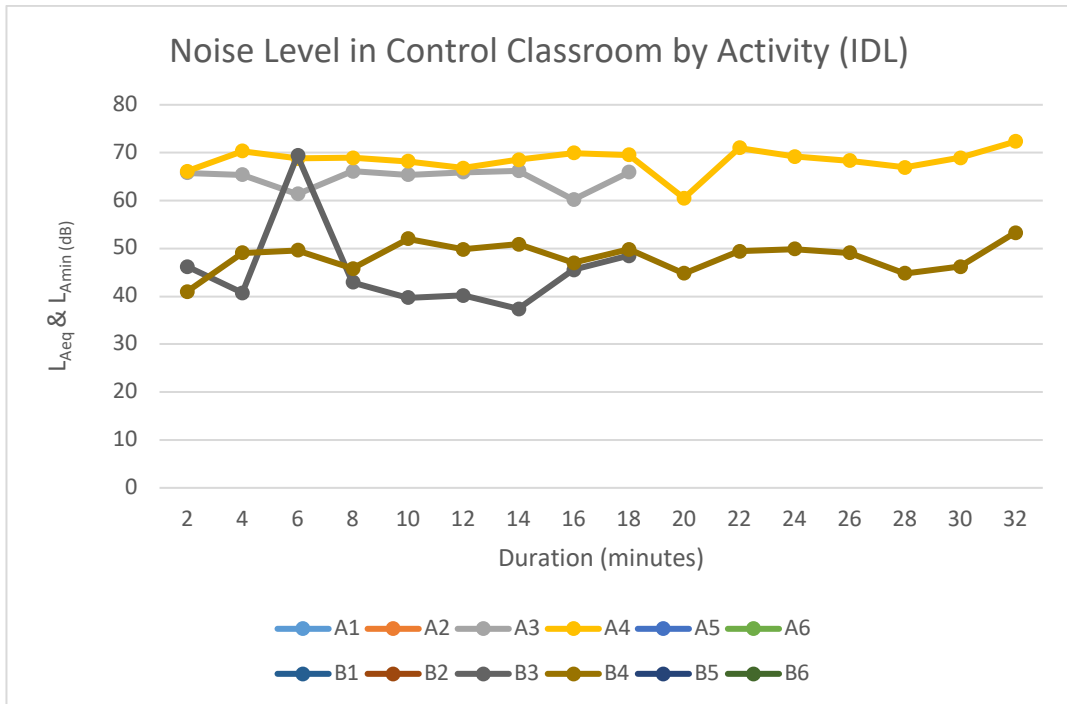
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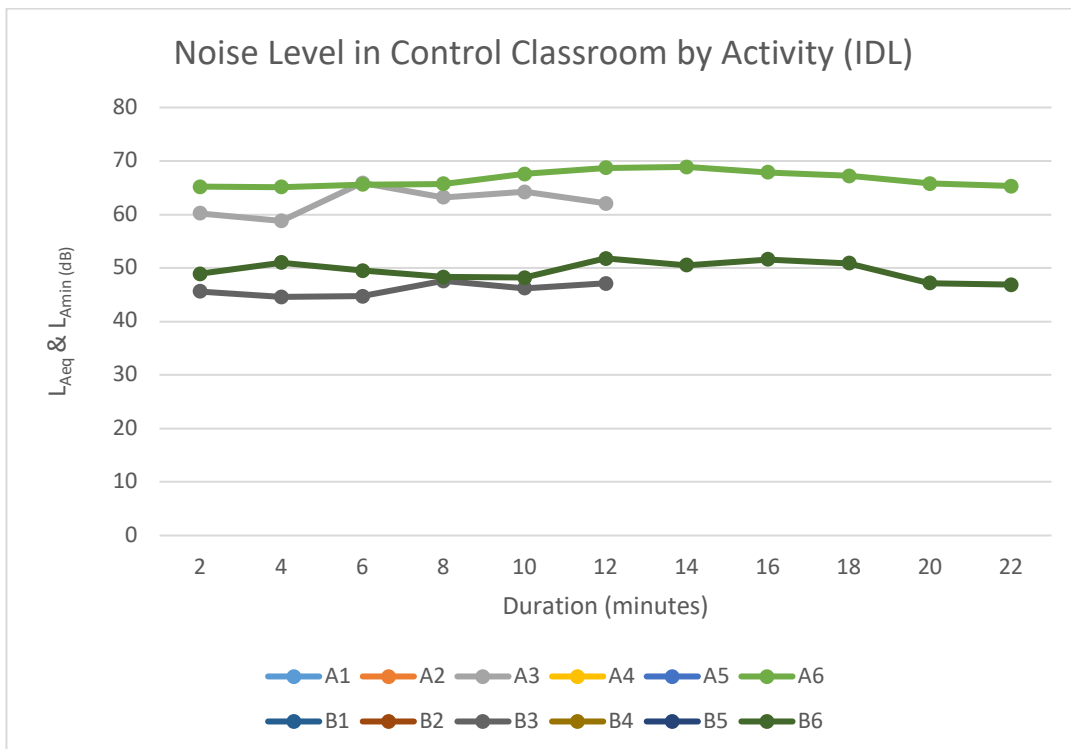
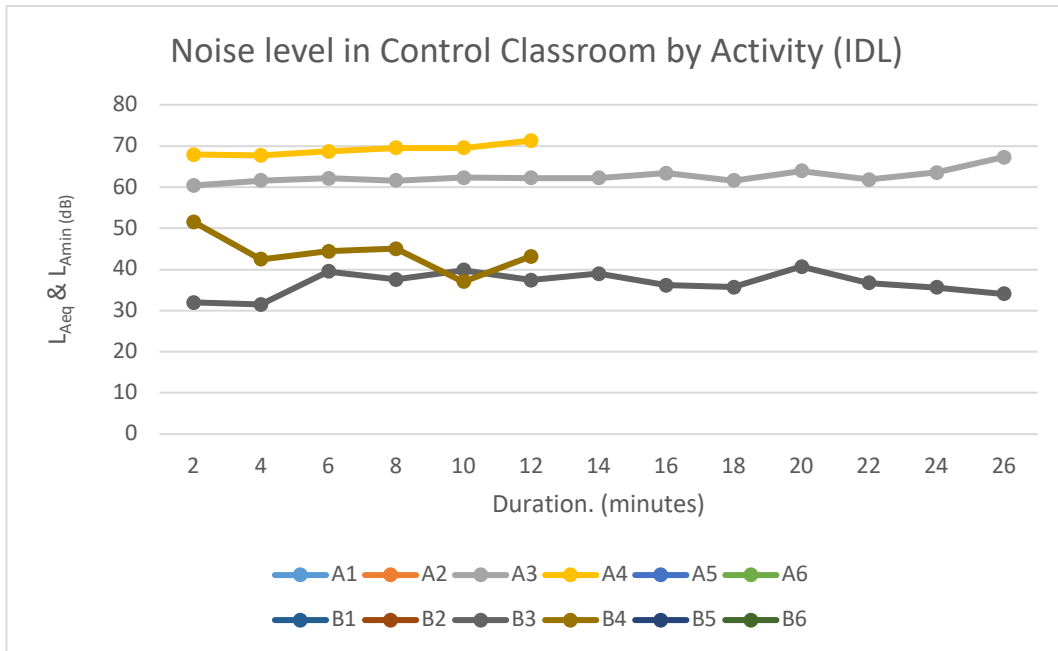
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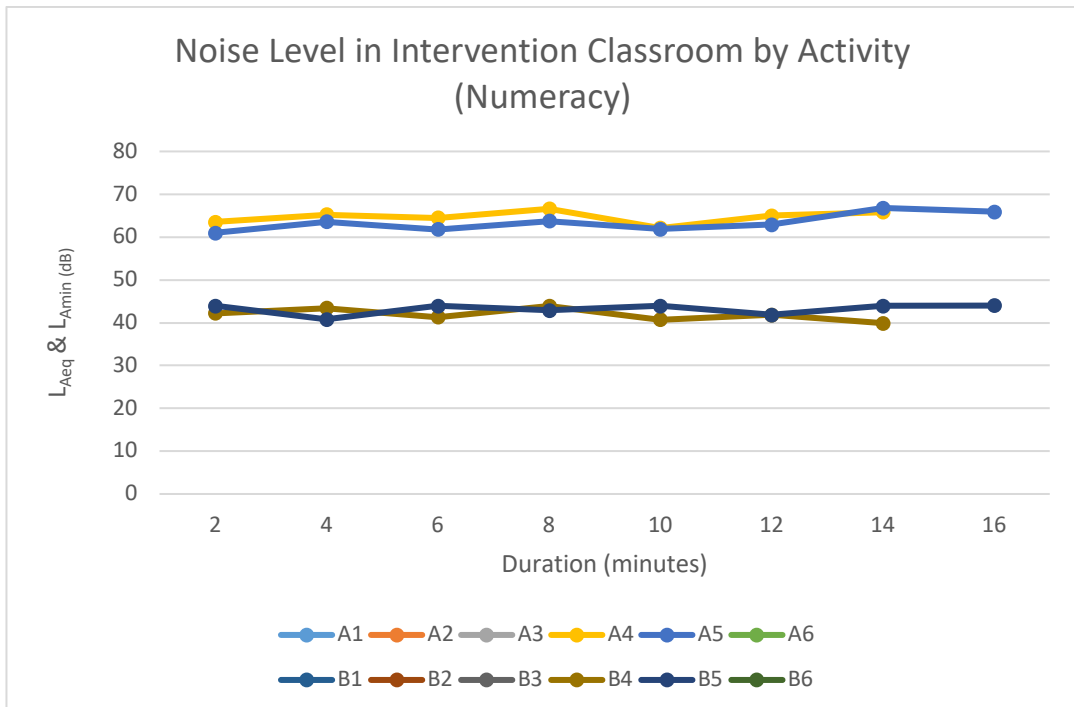
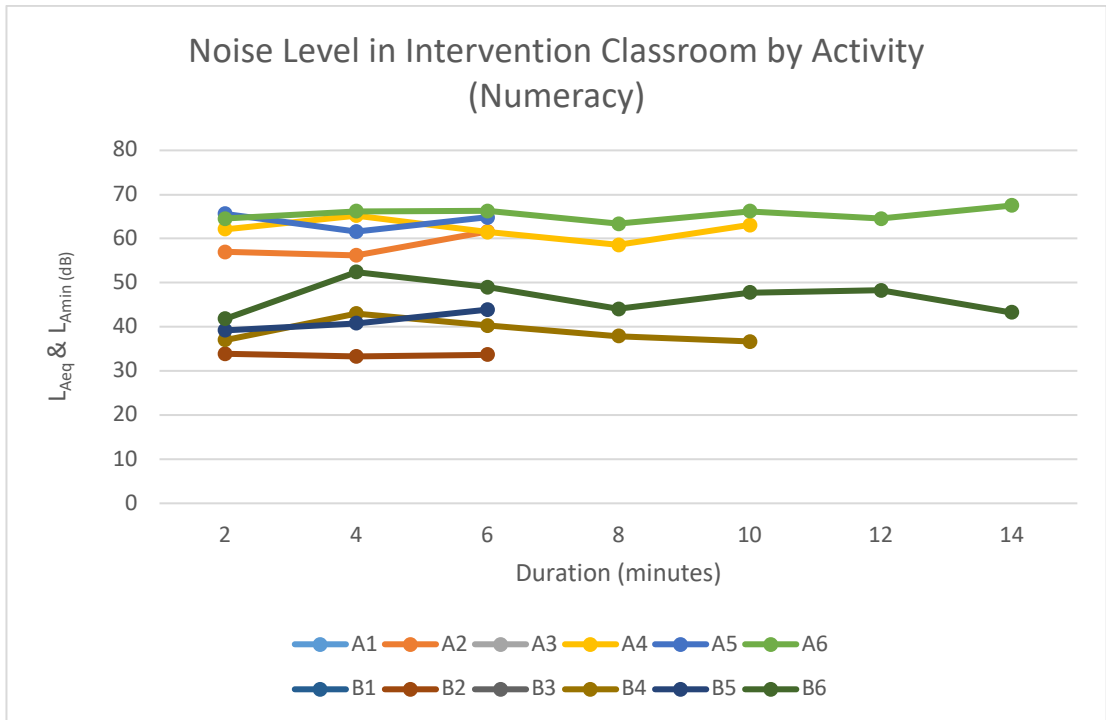
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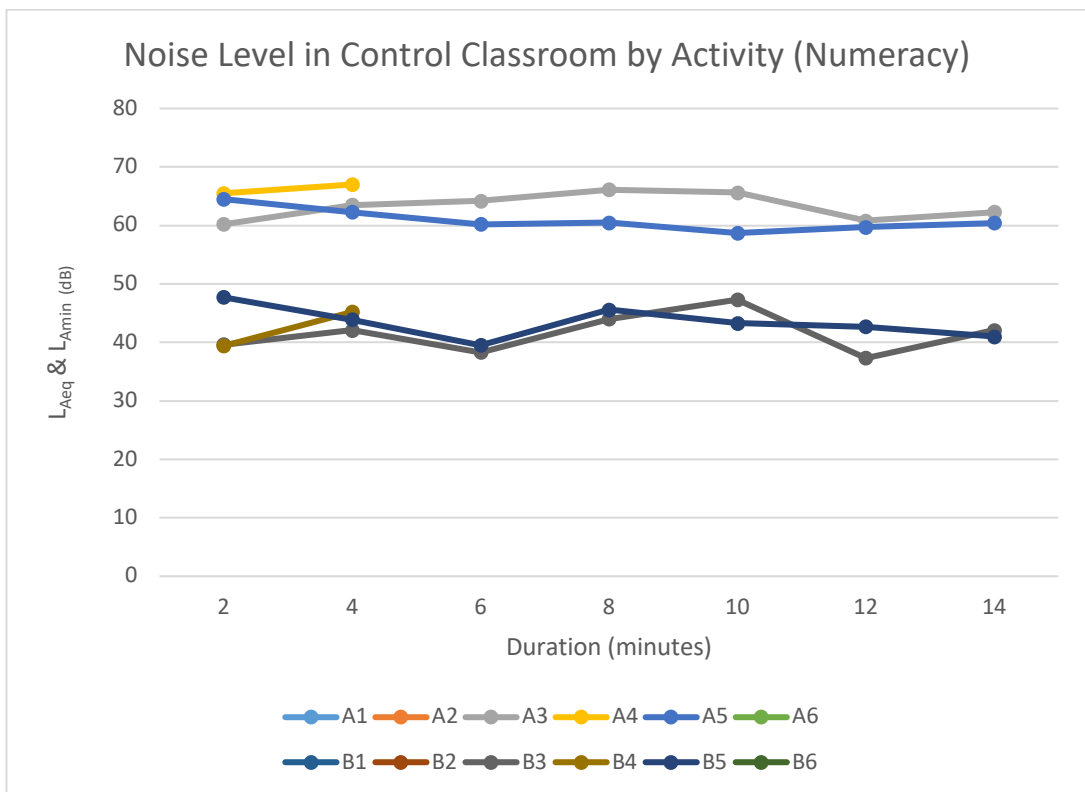
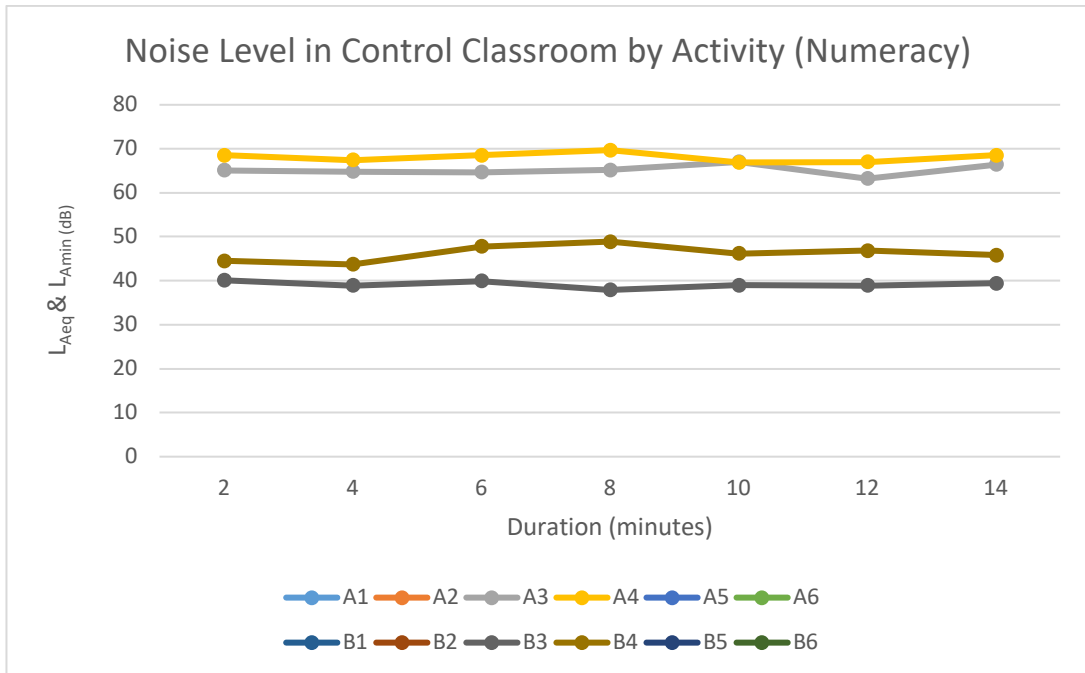
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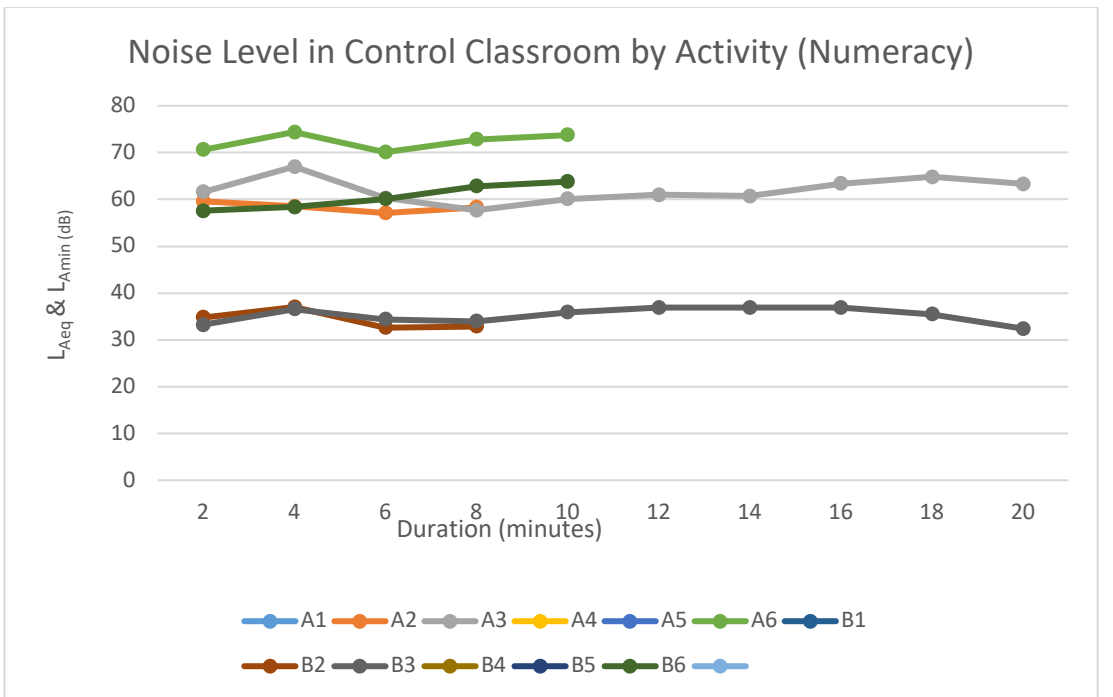
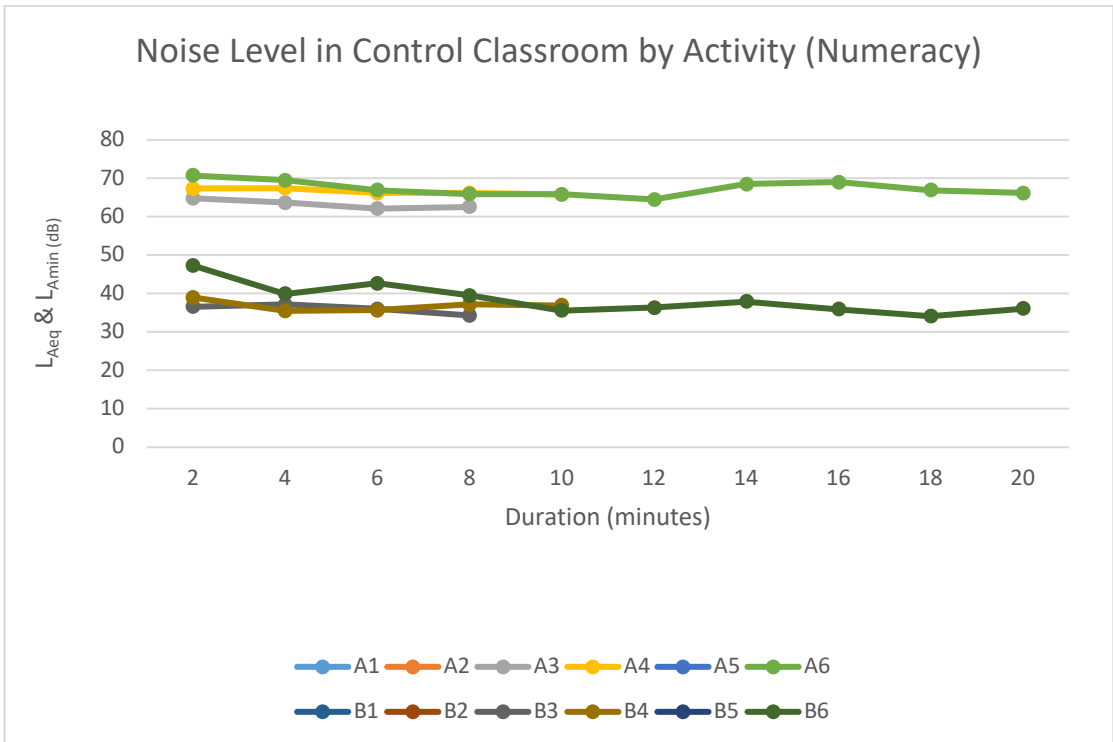
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Appendix 15

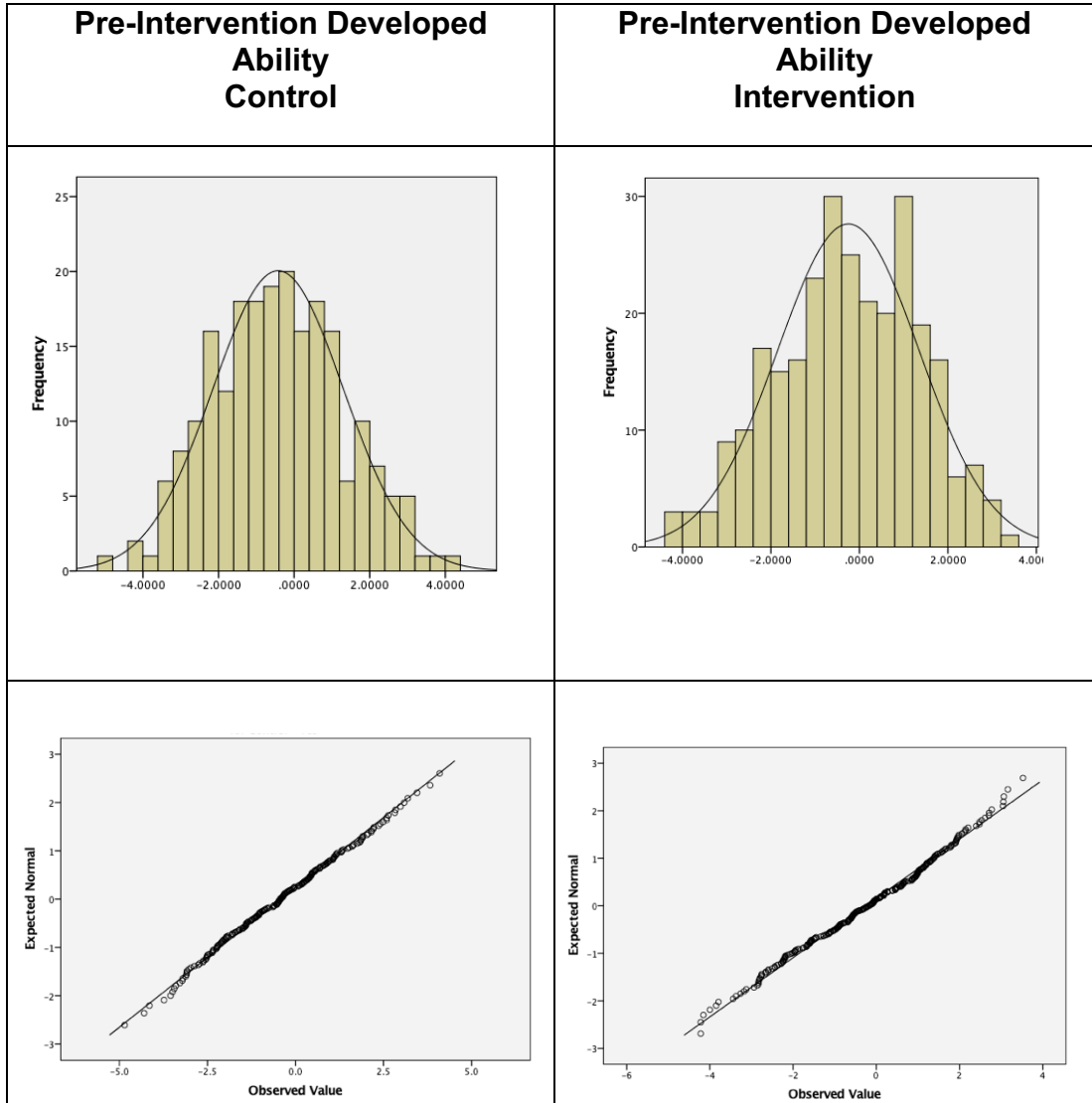


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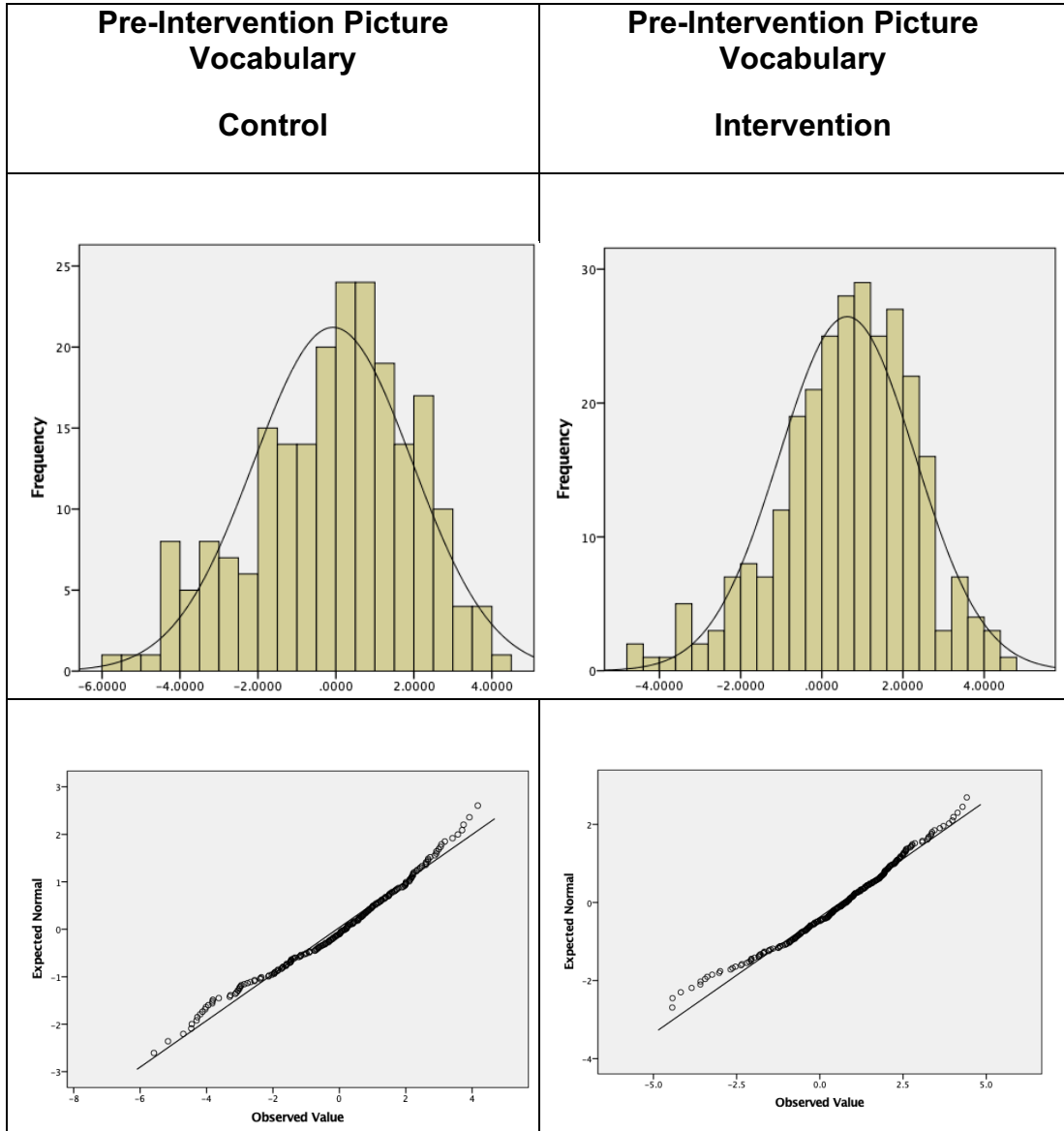


Classroom Noise Survey Results by Activity.

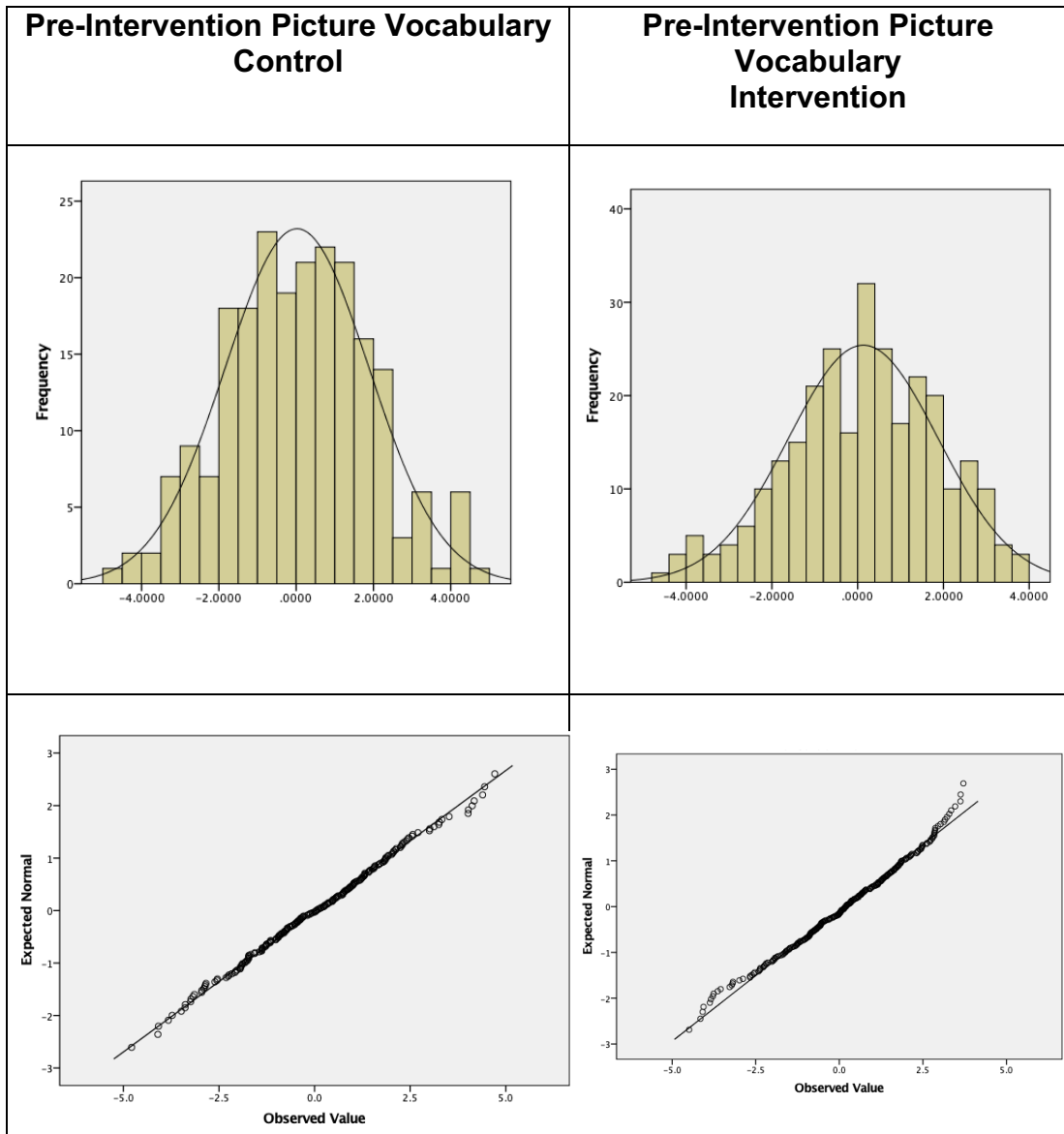
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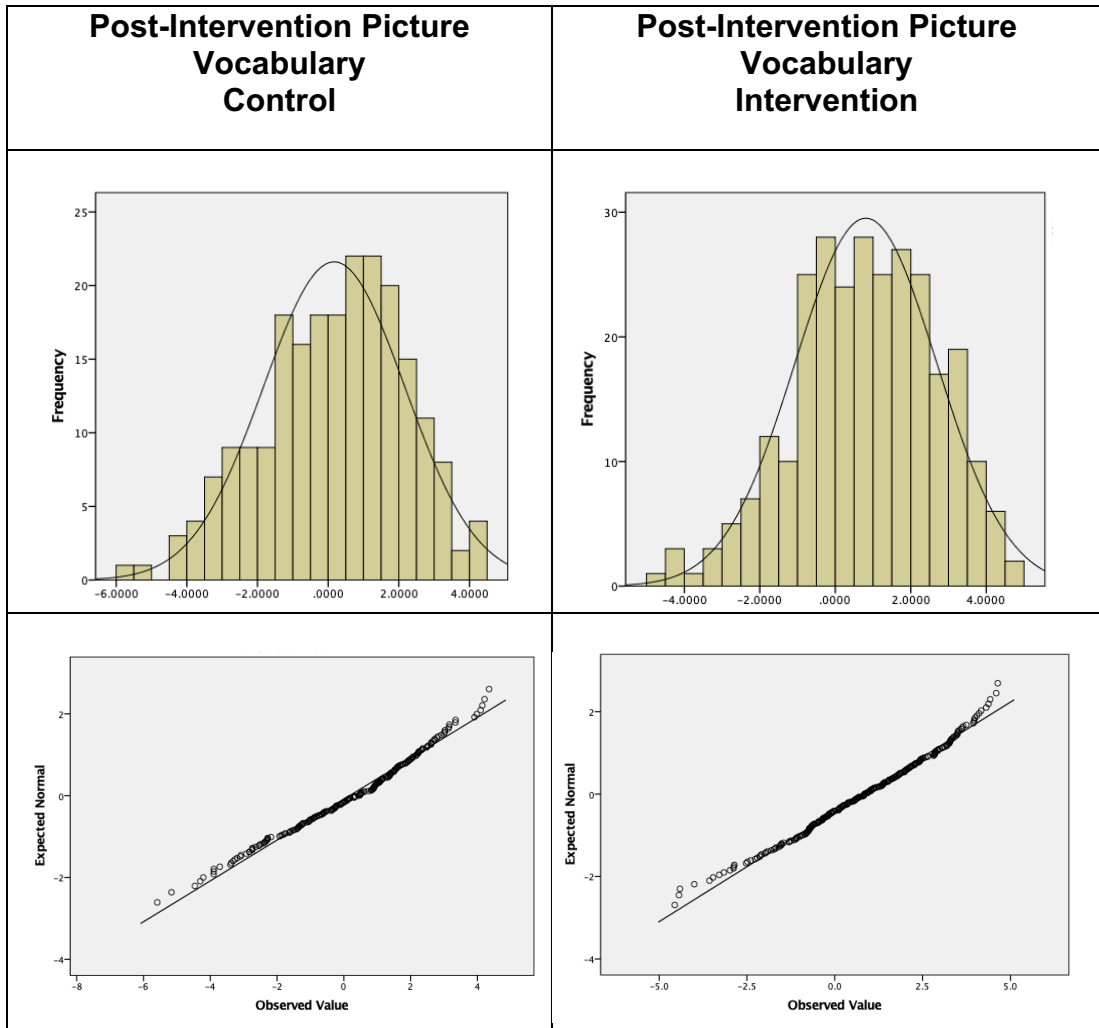
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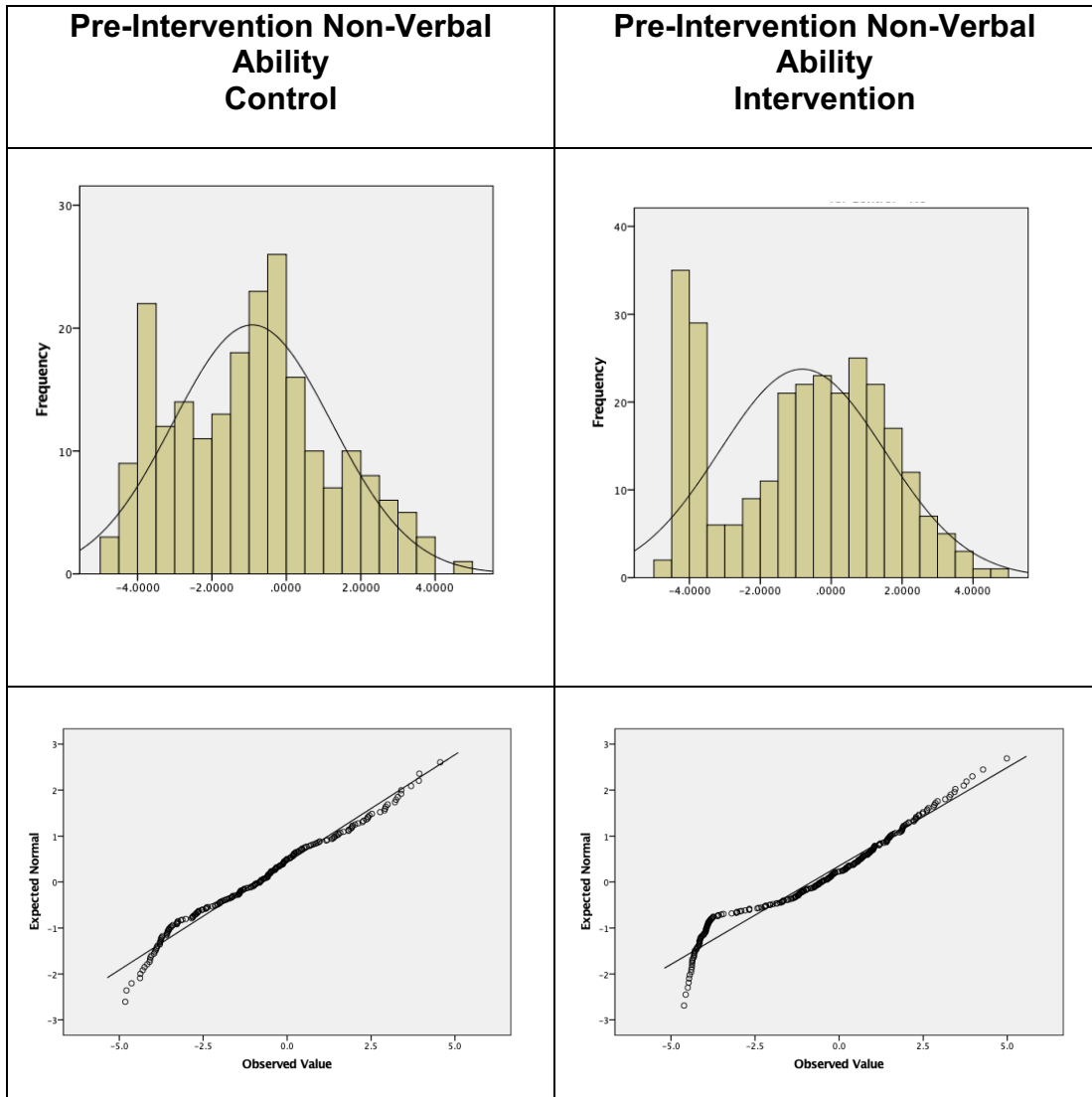
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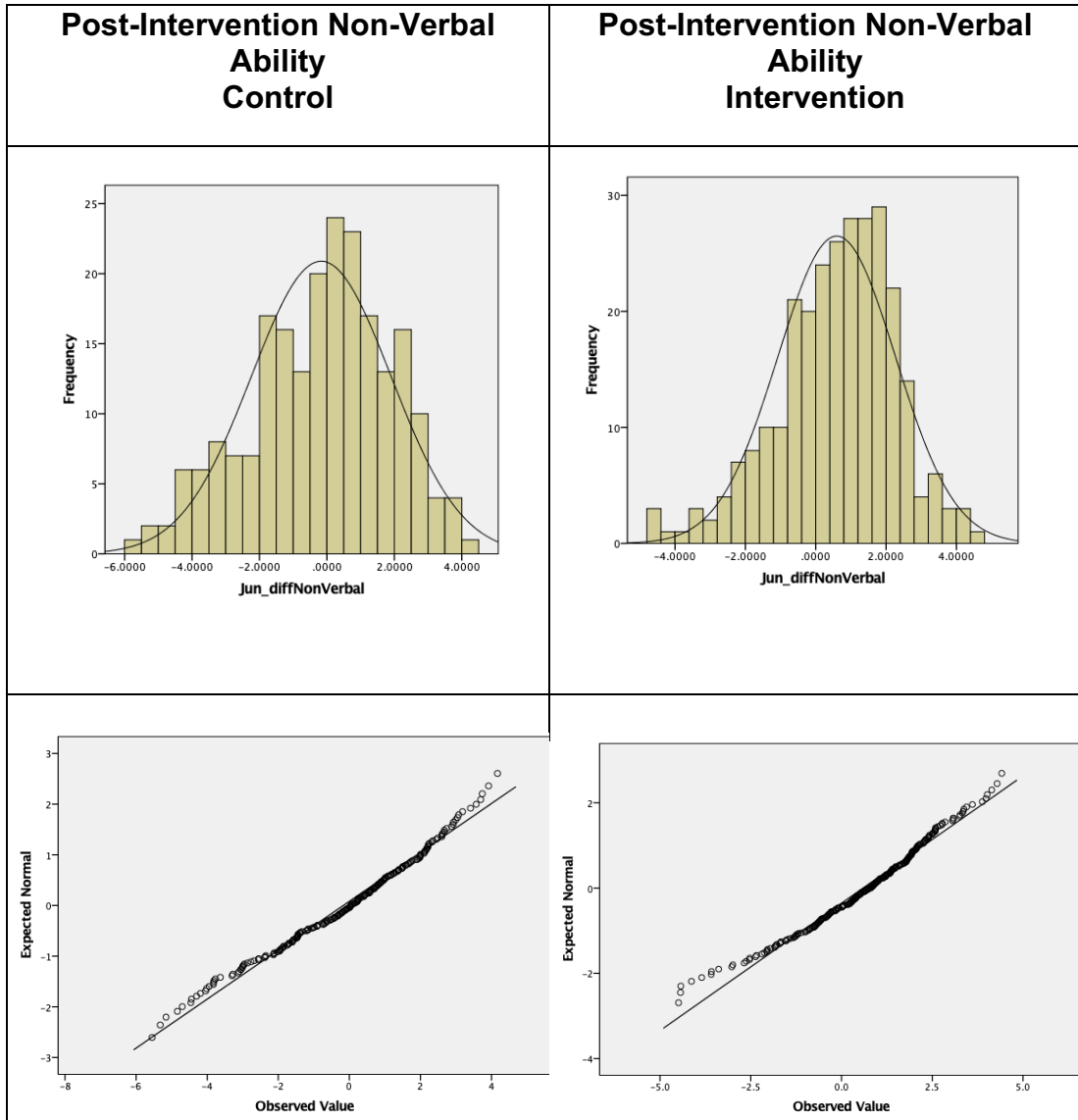
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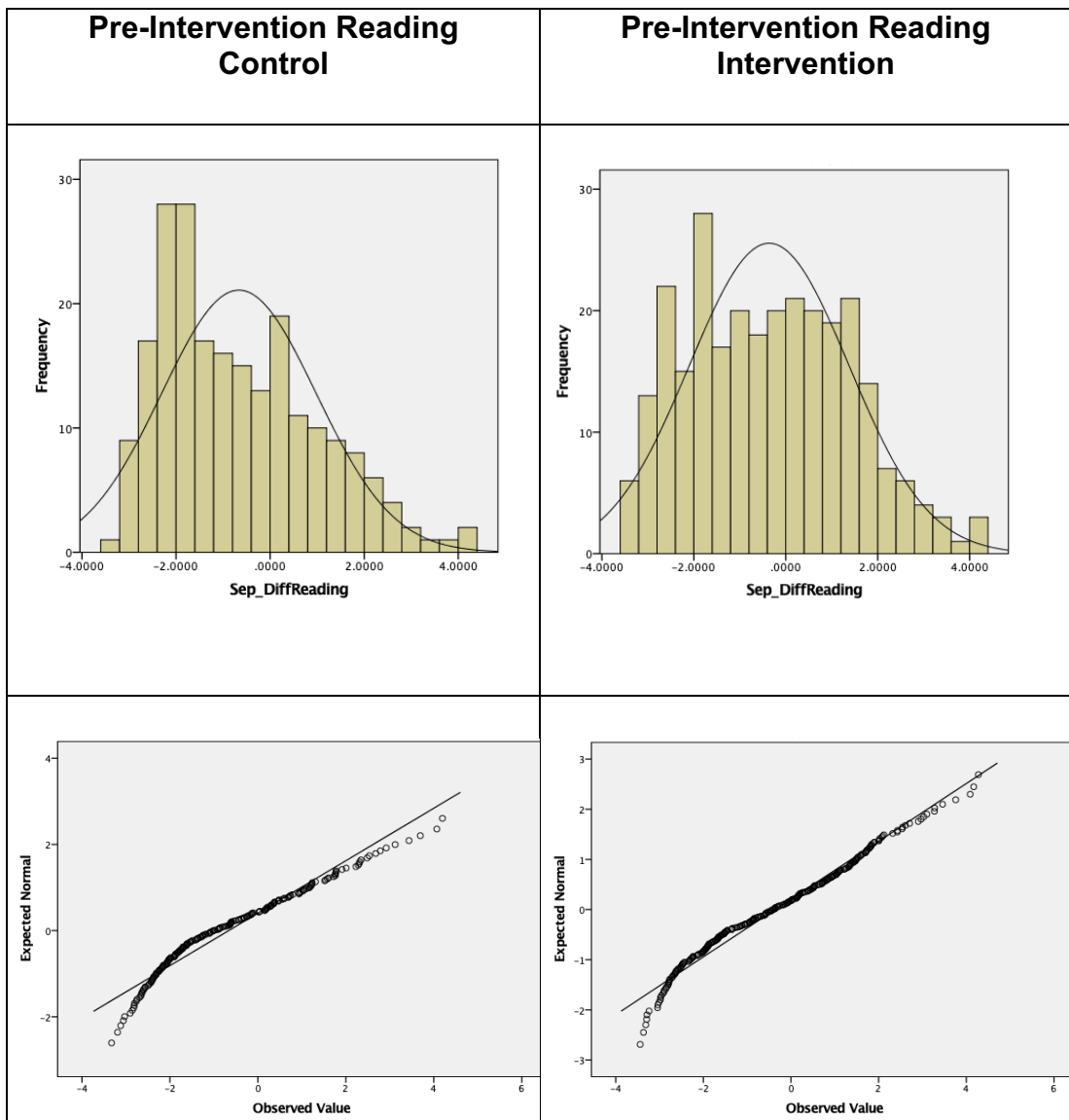
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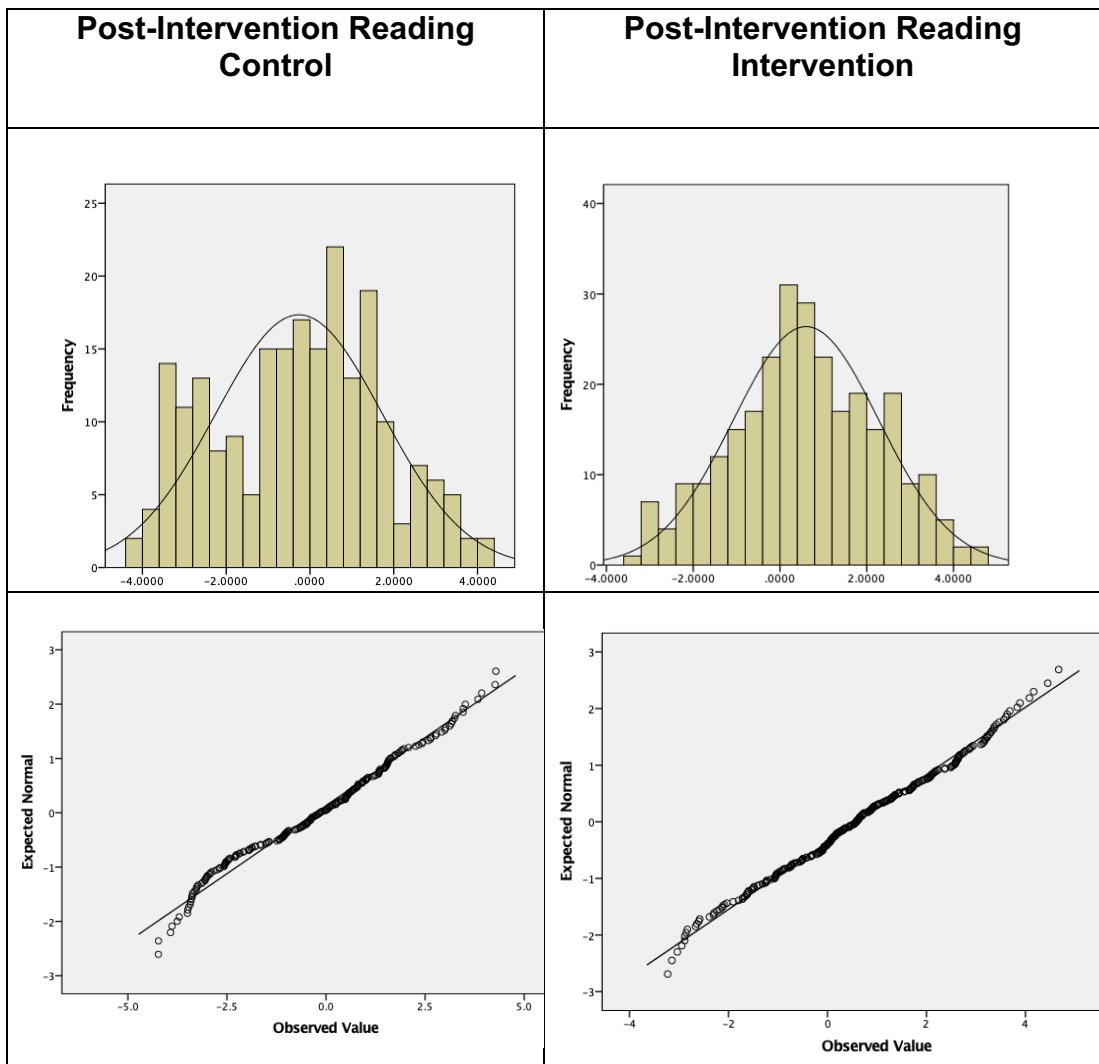
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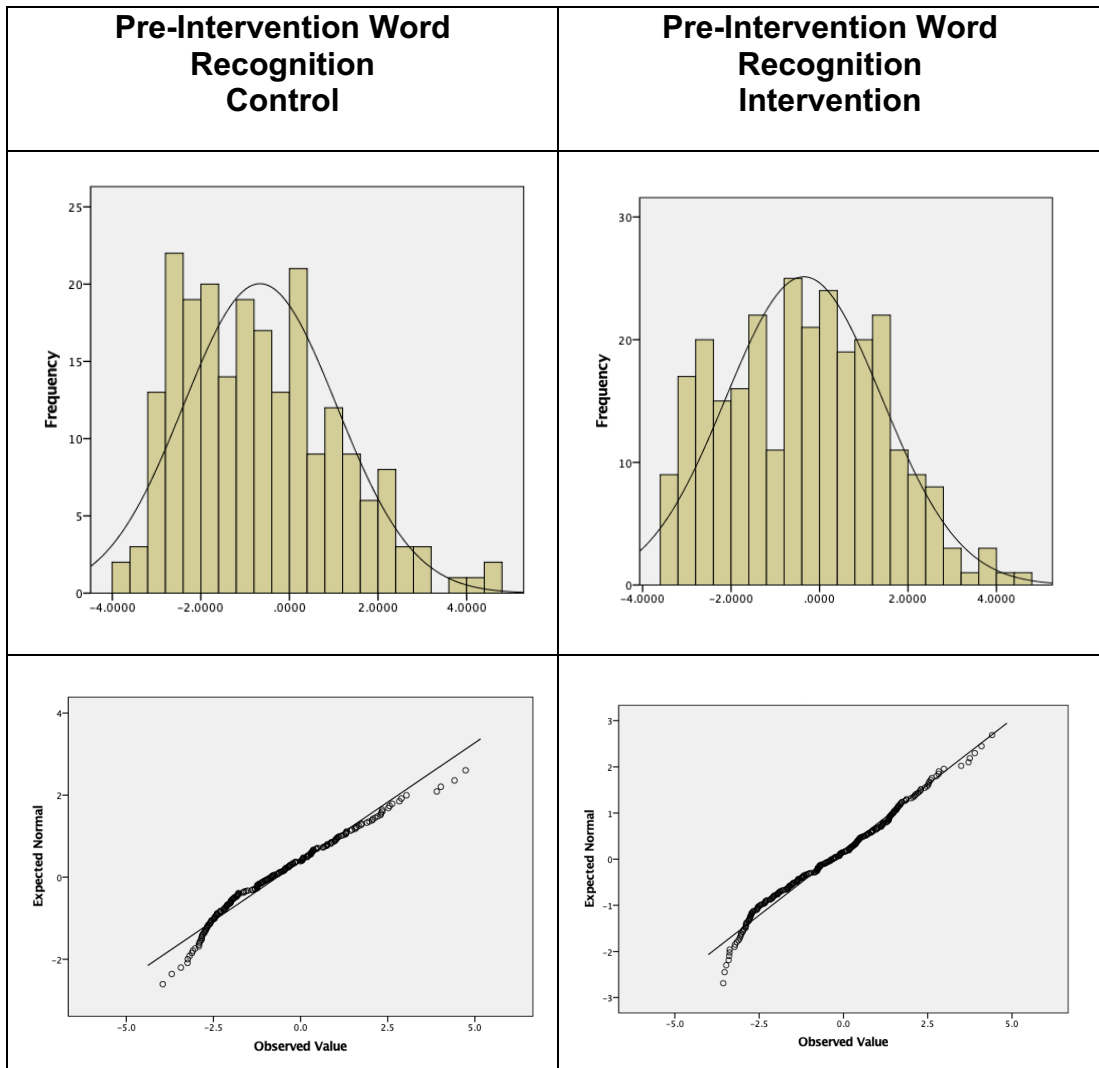
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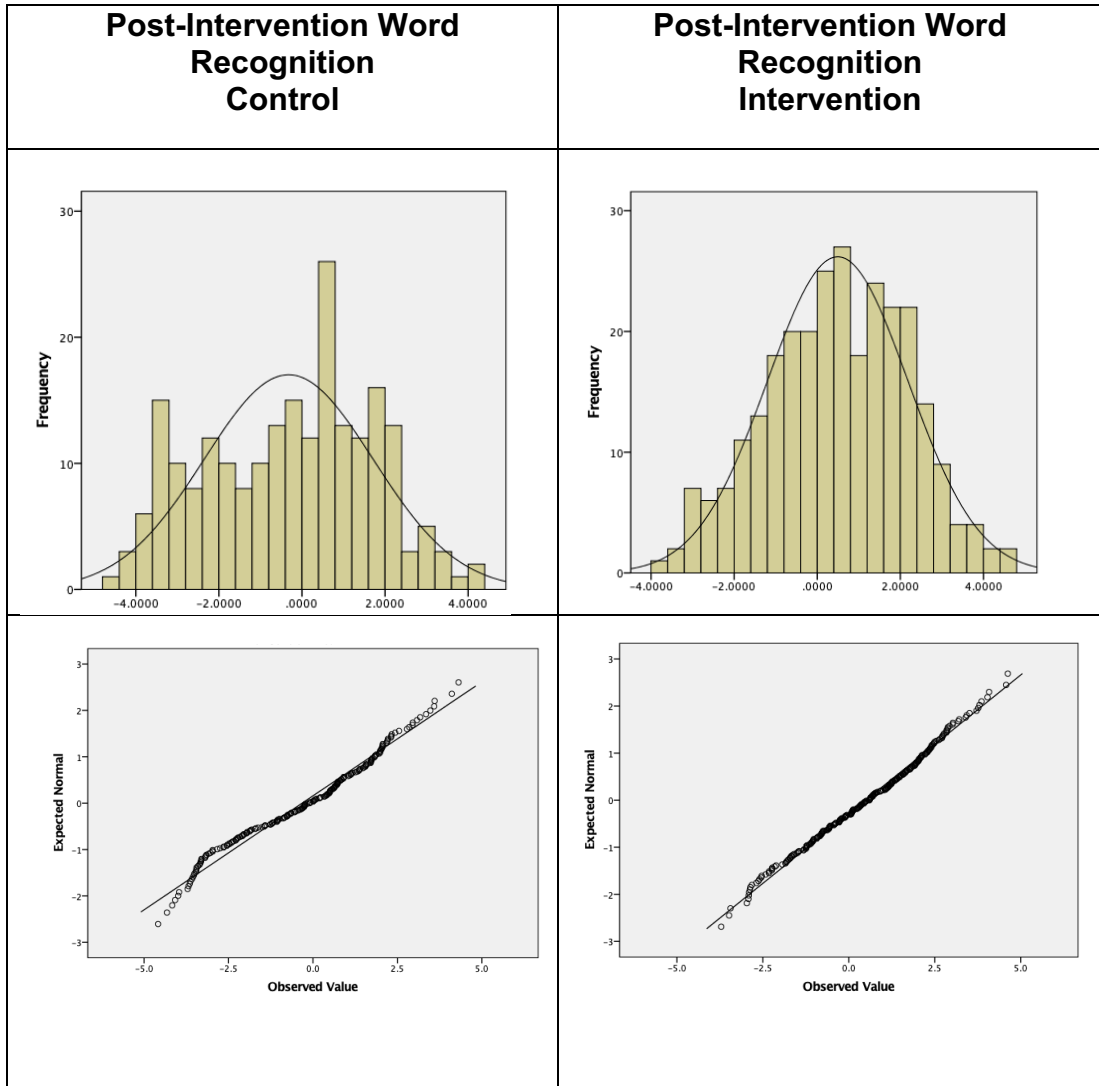
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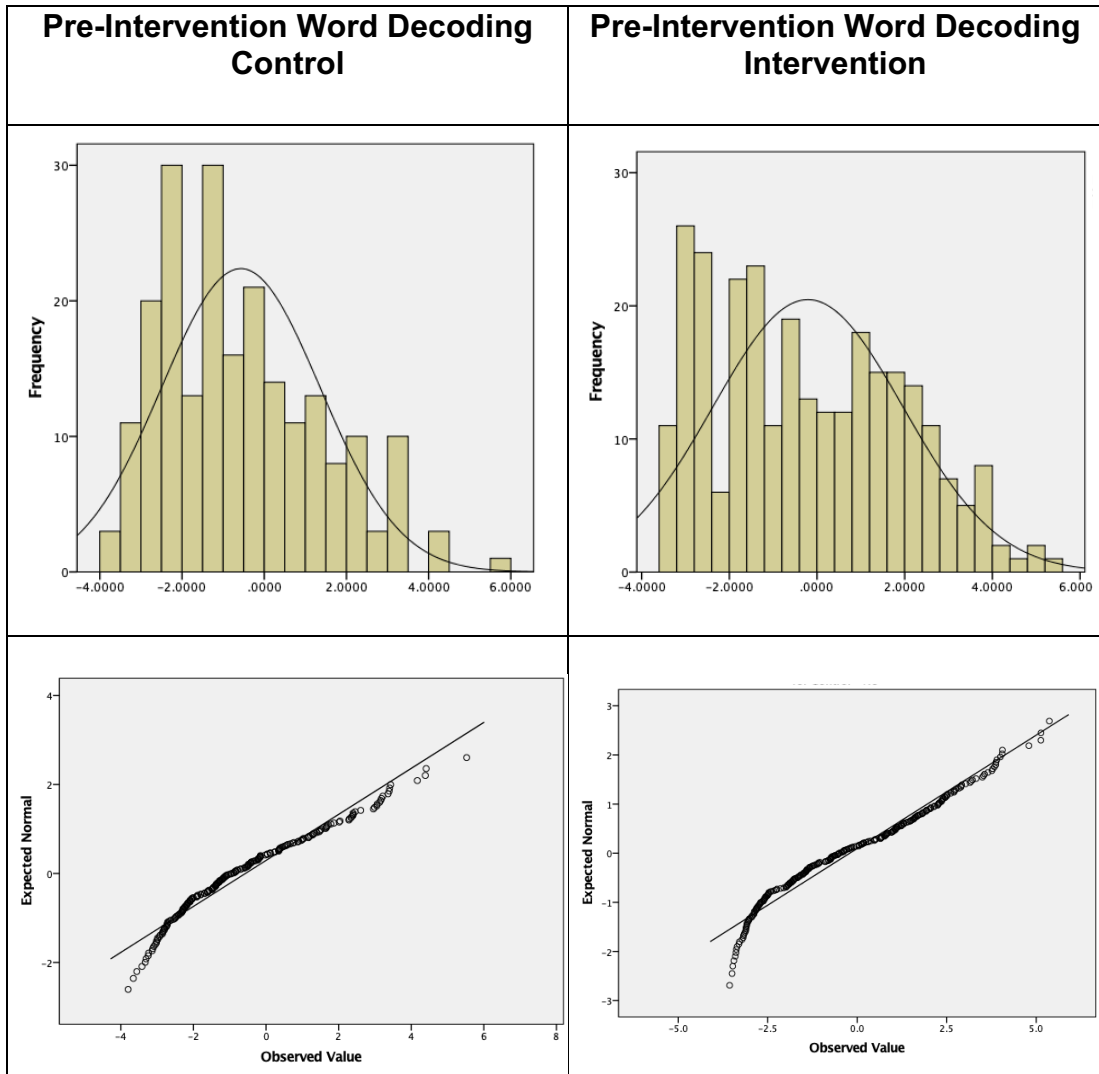
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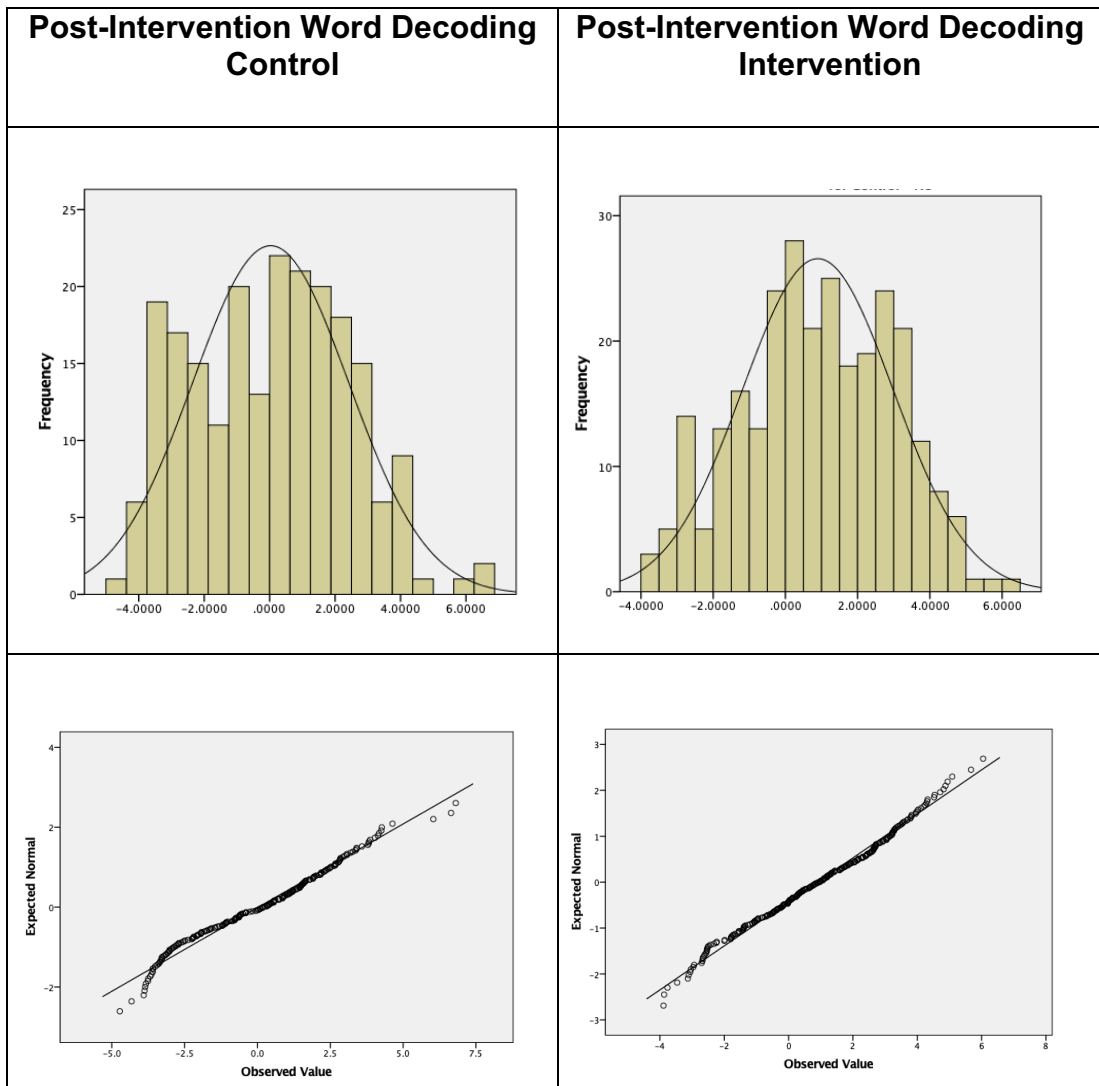
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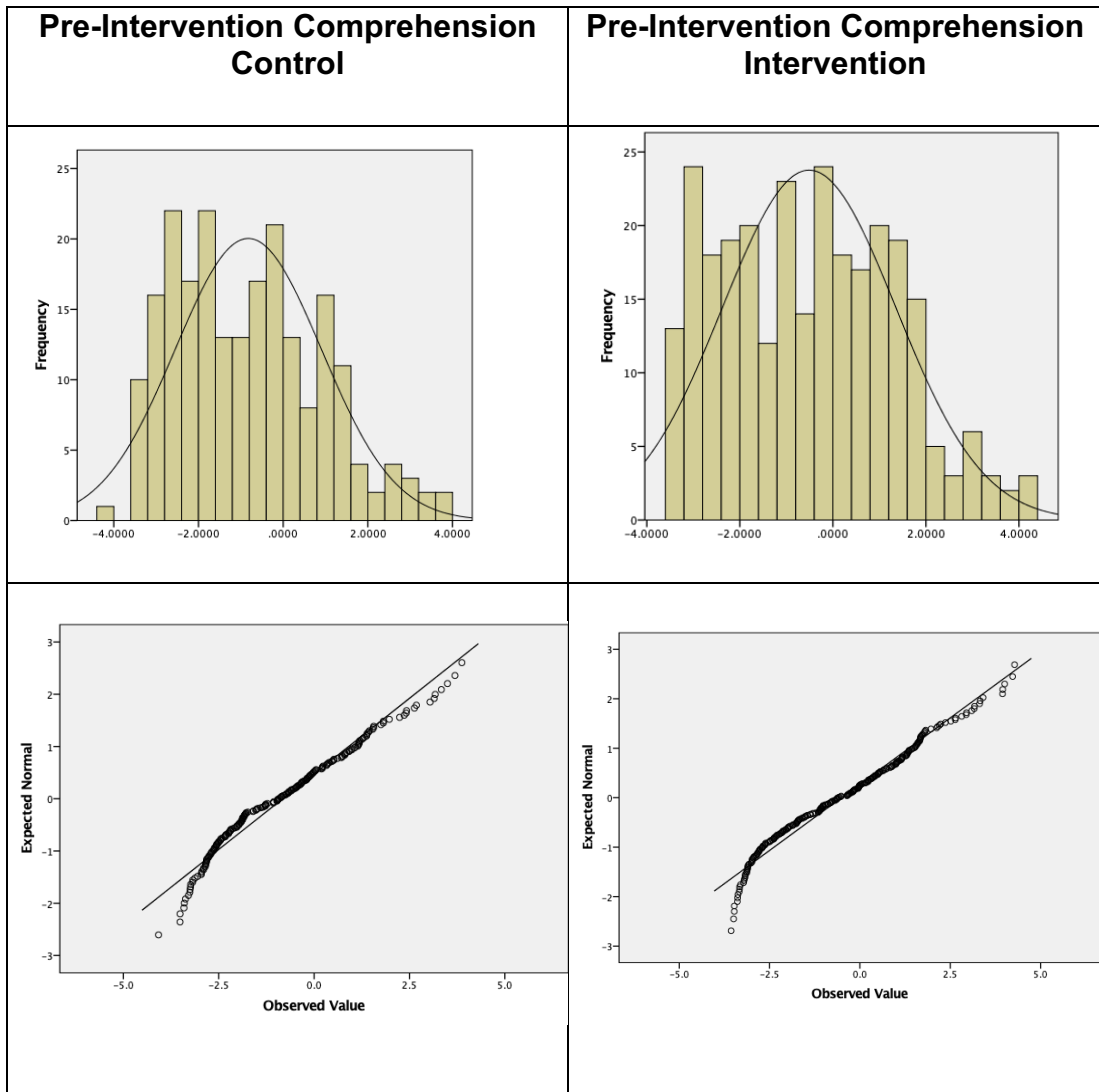
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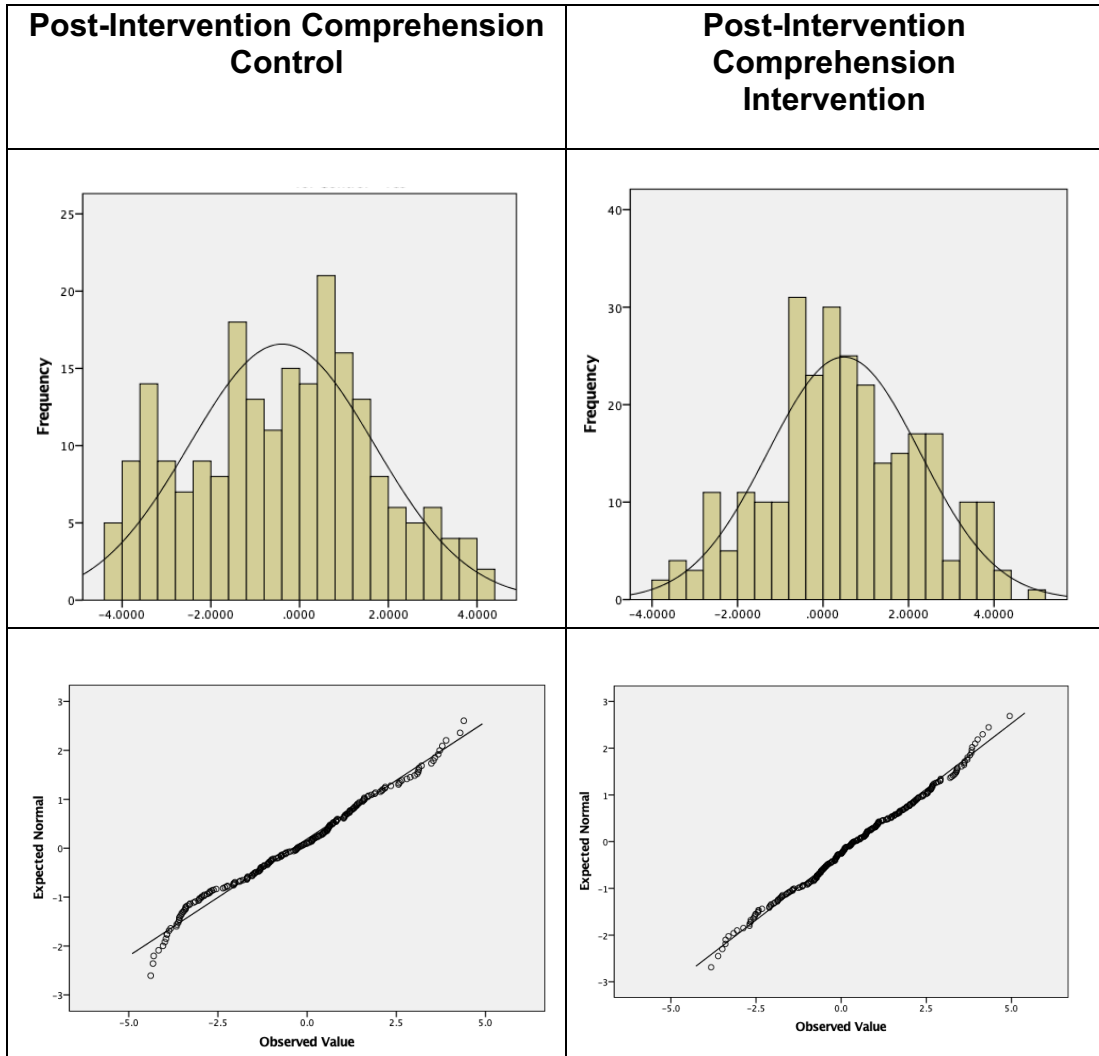
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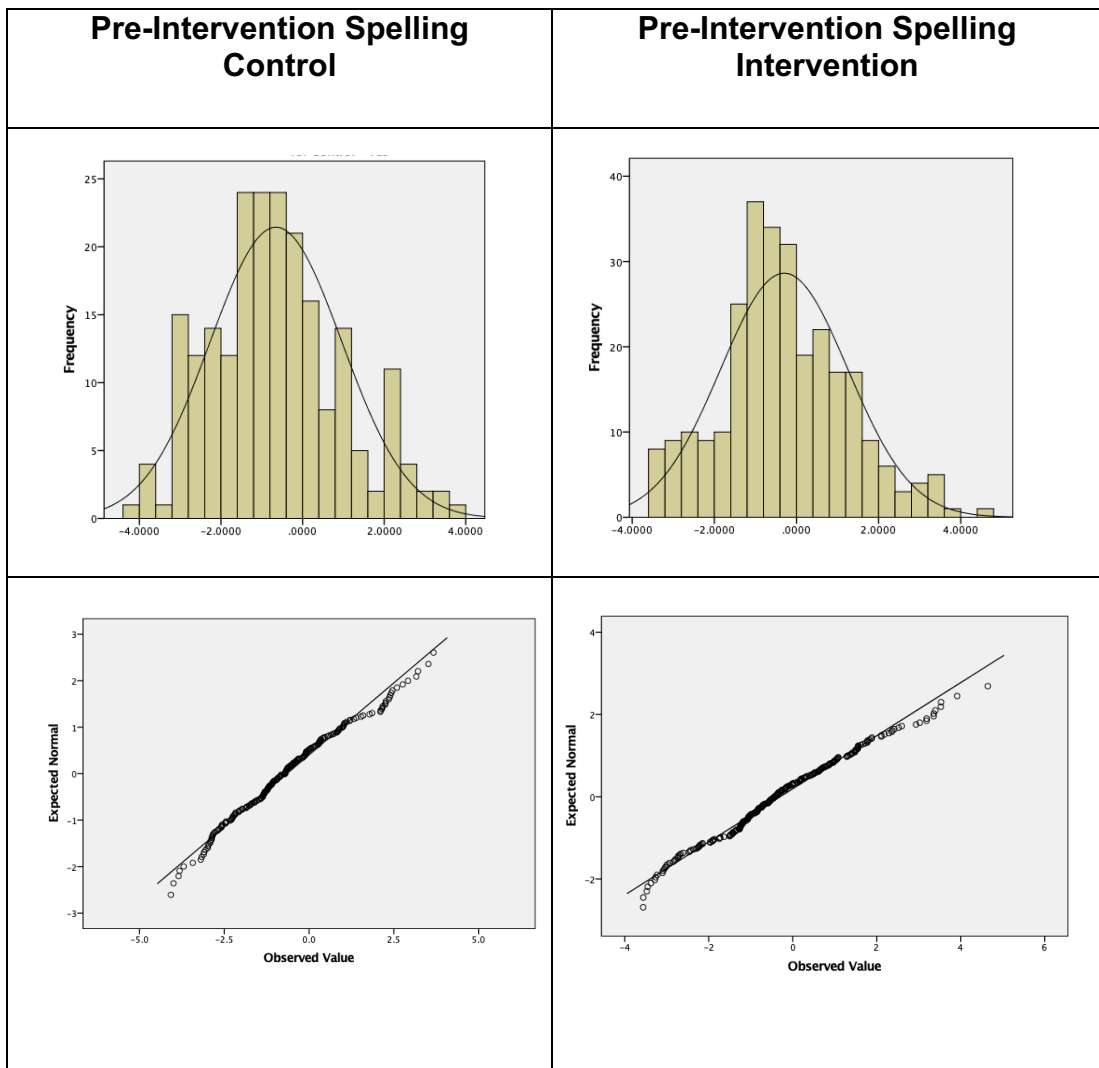
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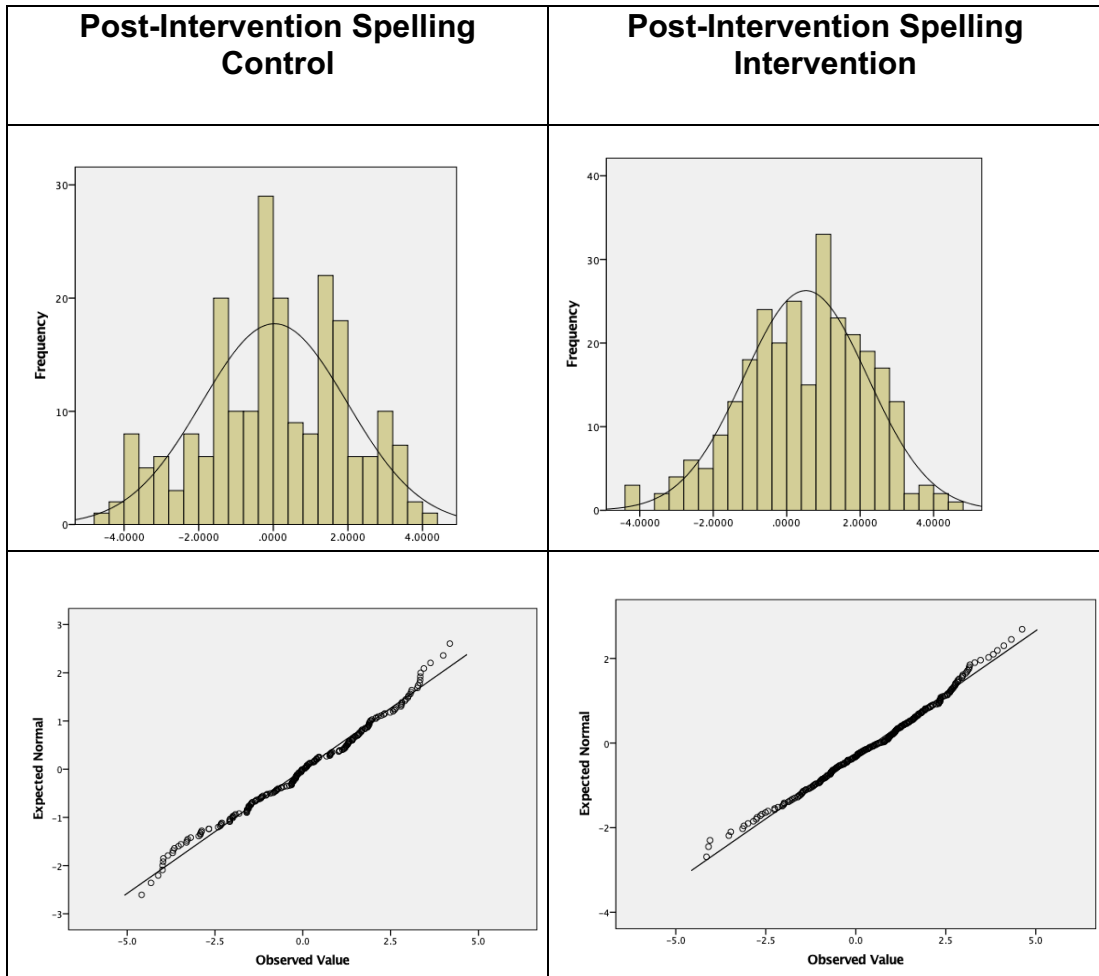
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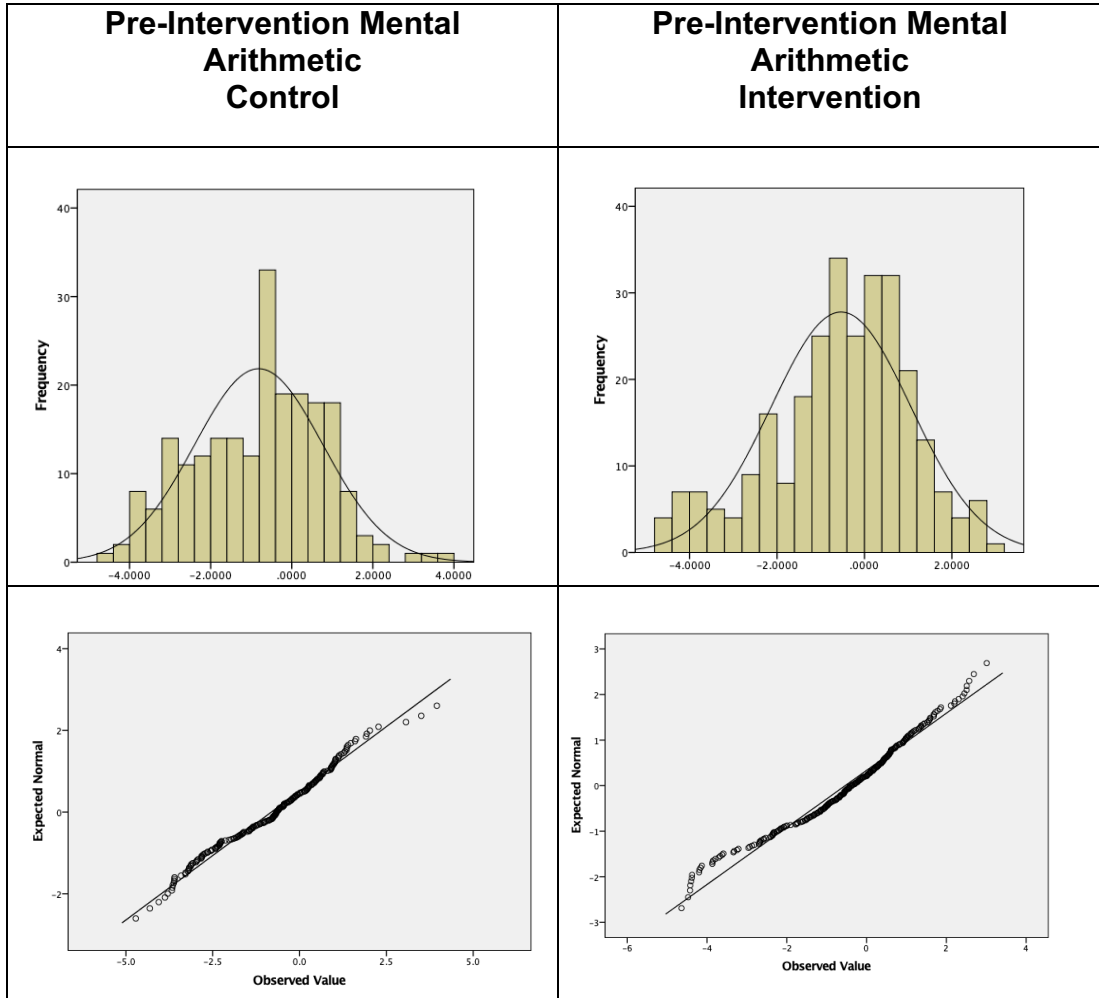
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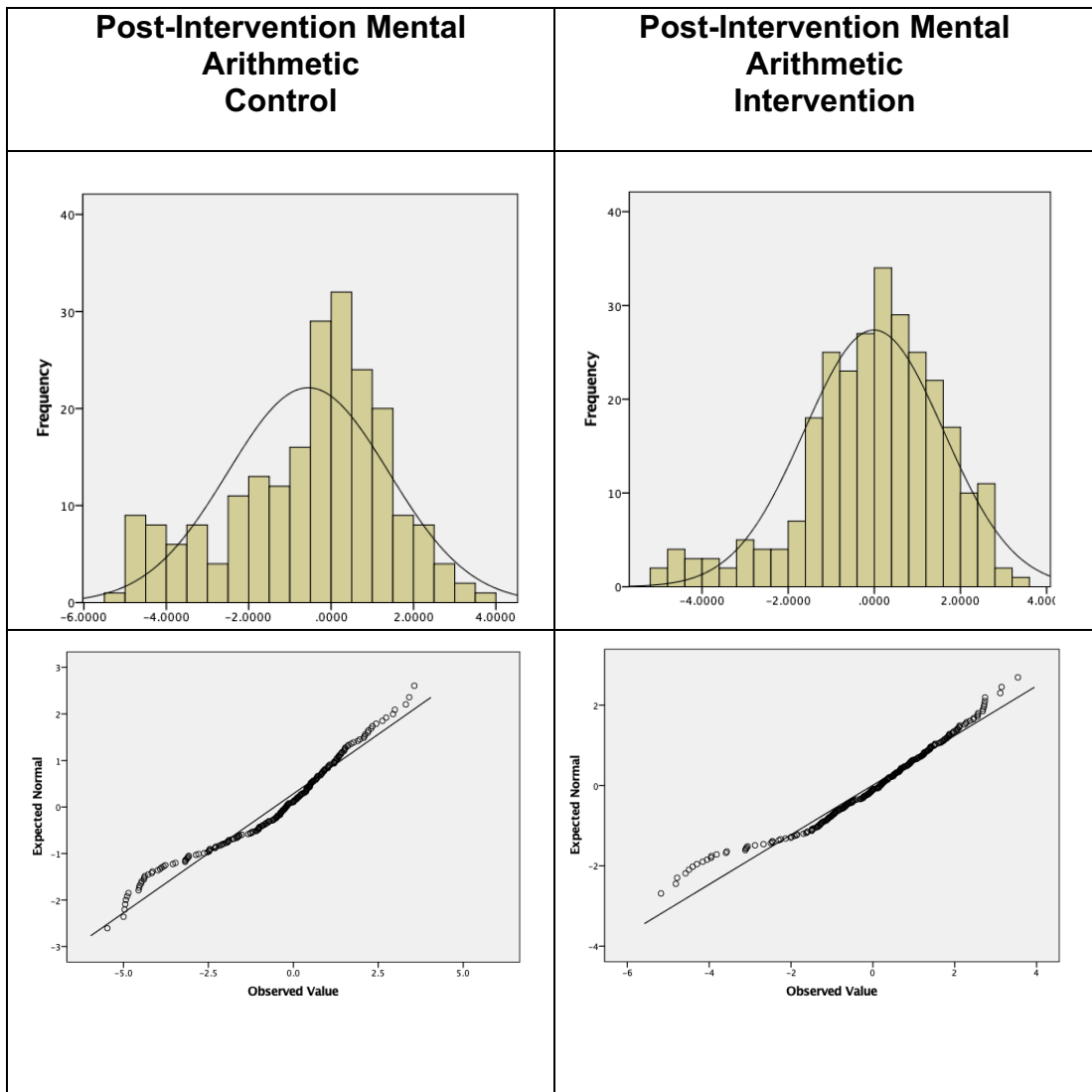
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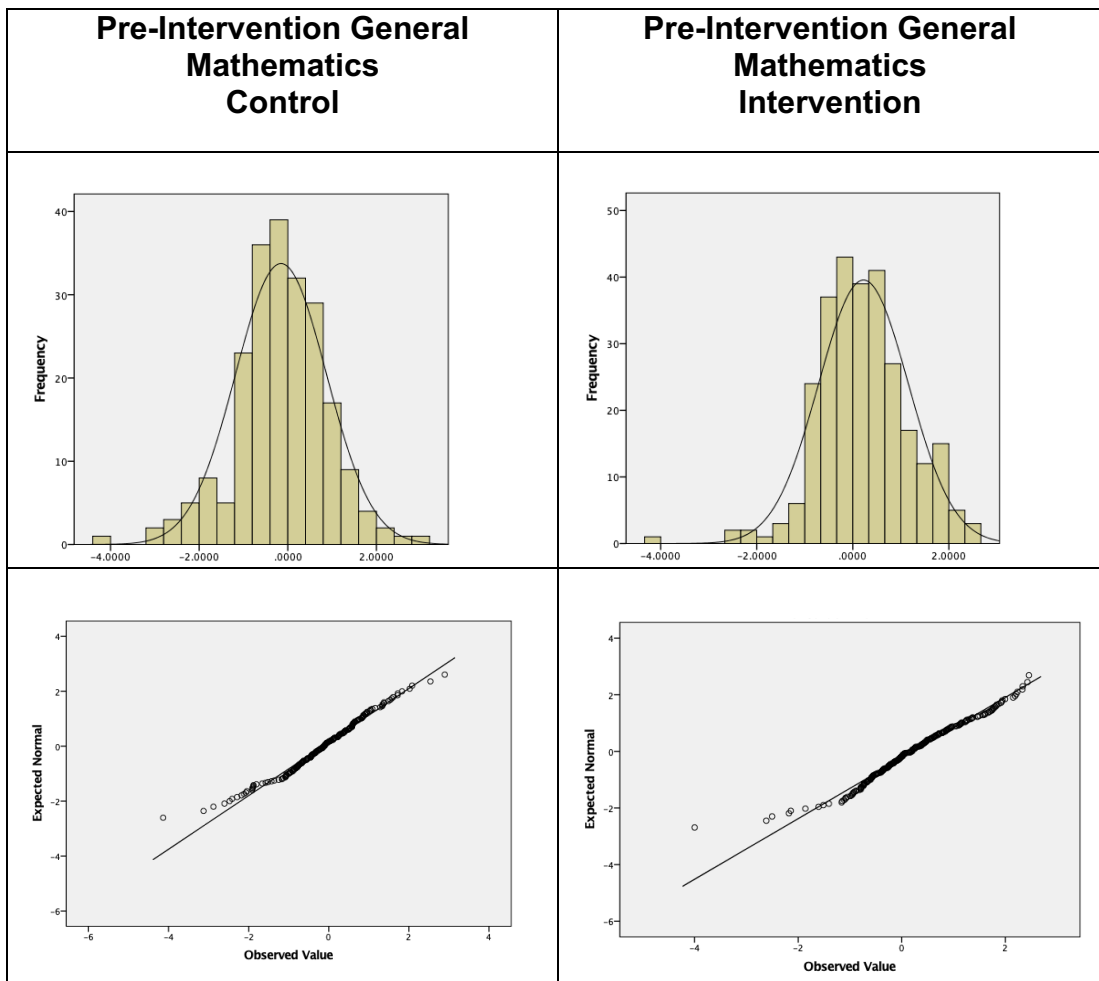
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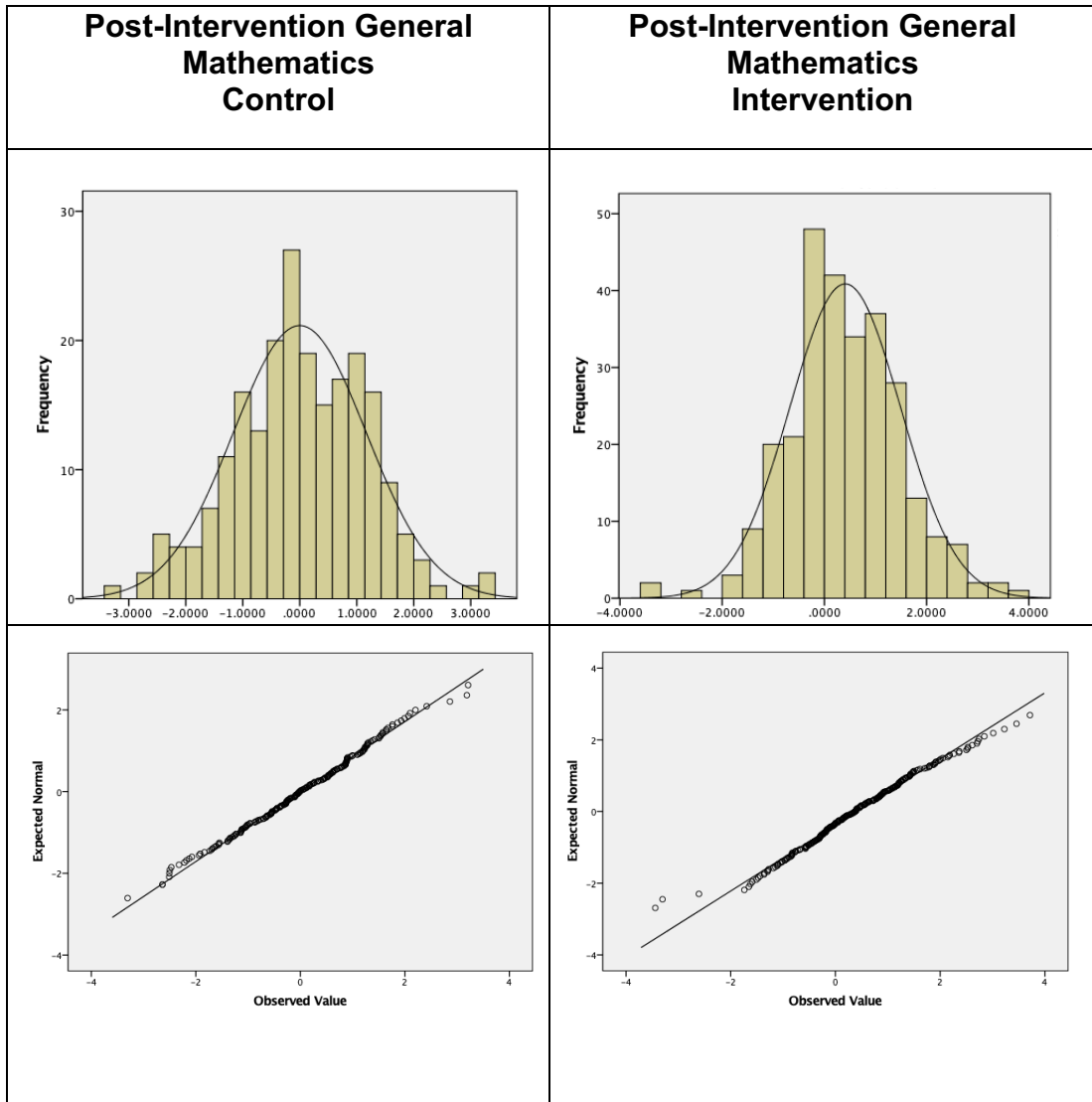
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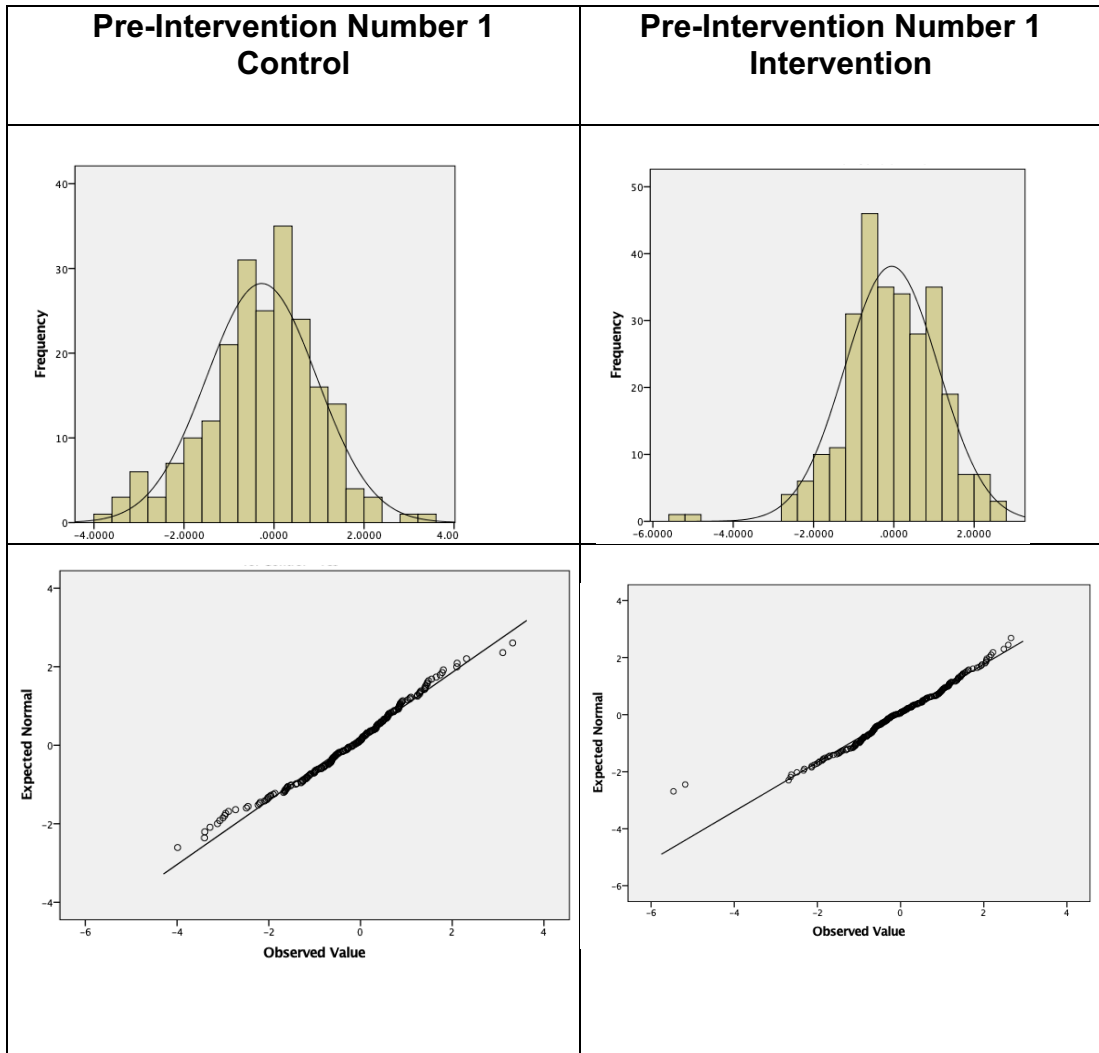
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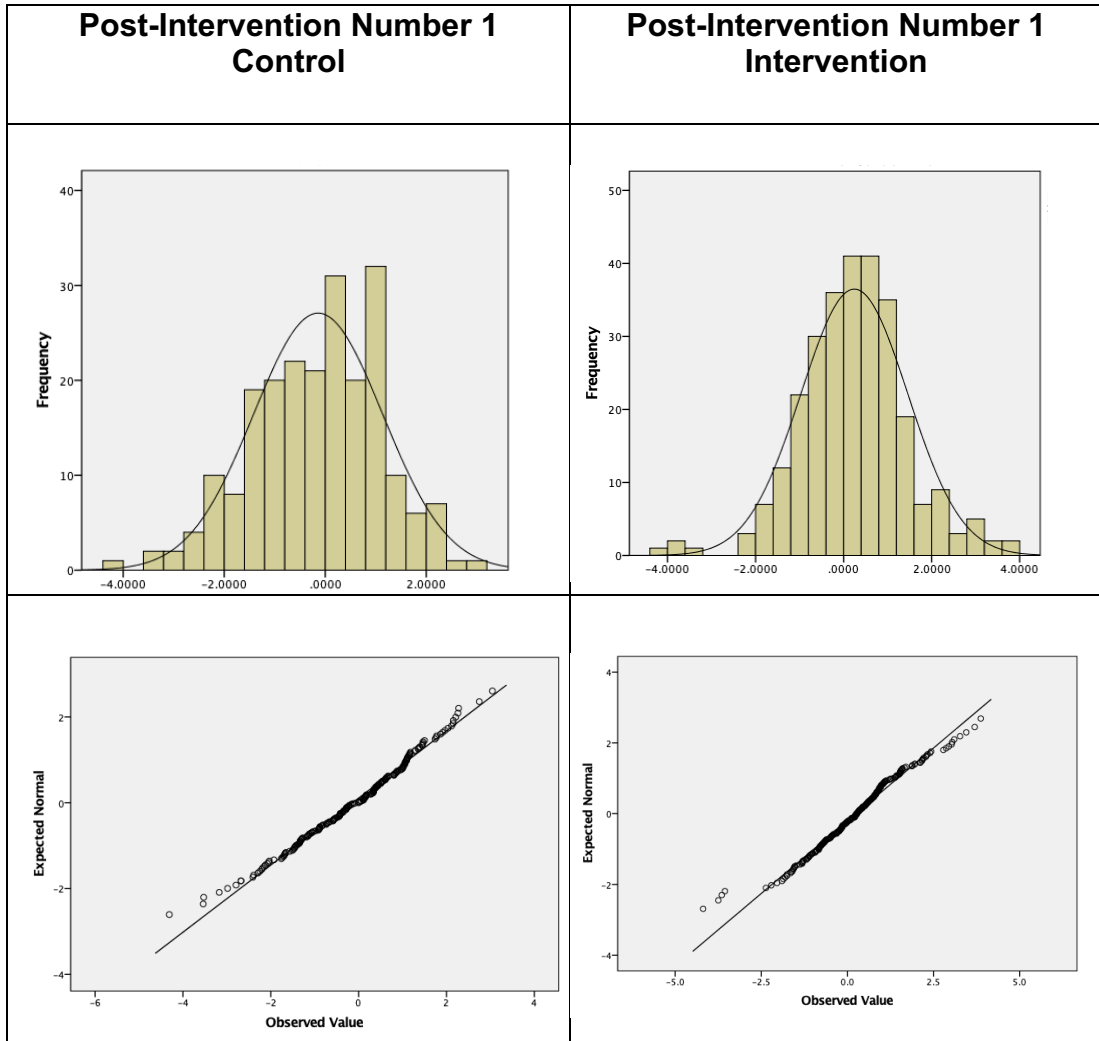
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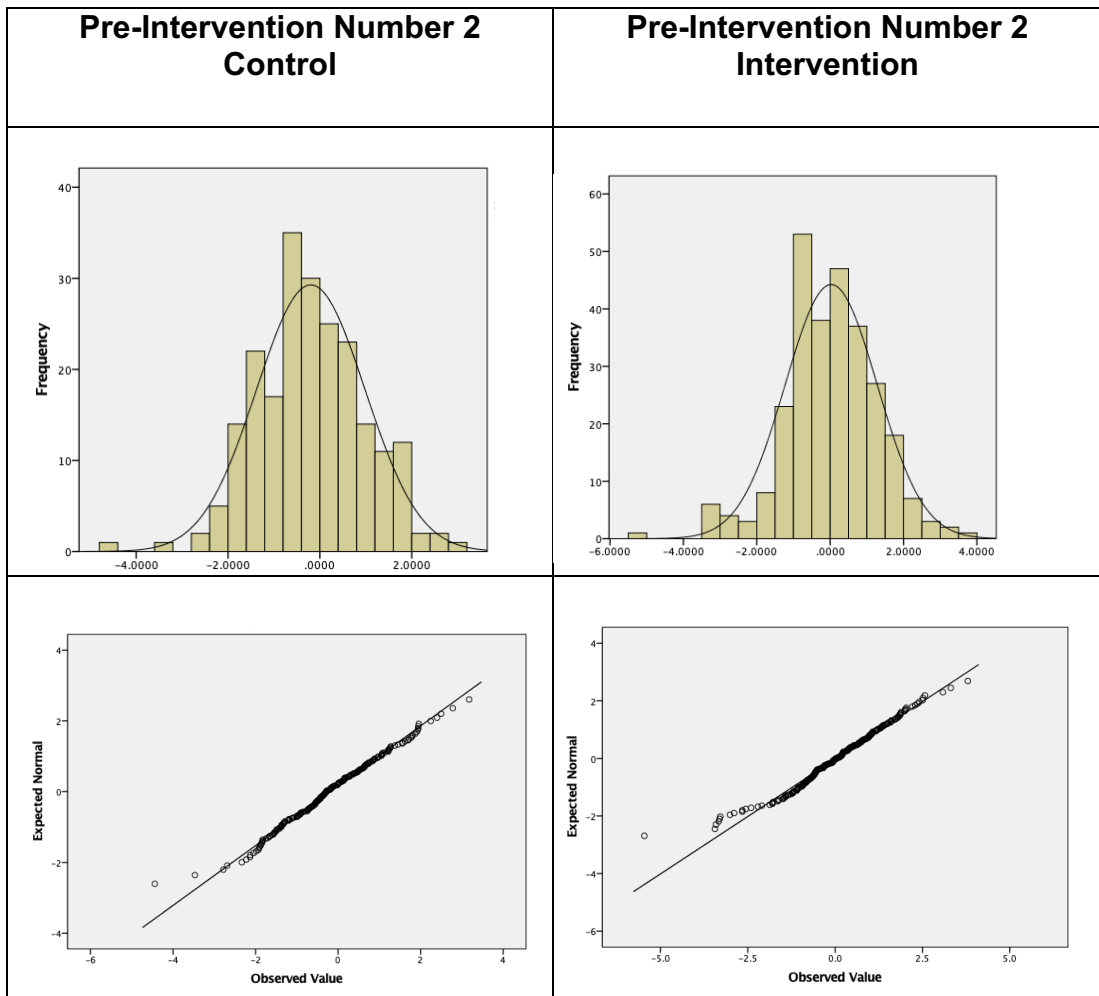
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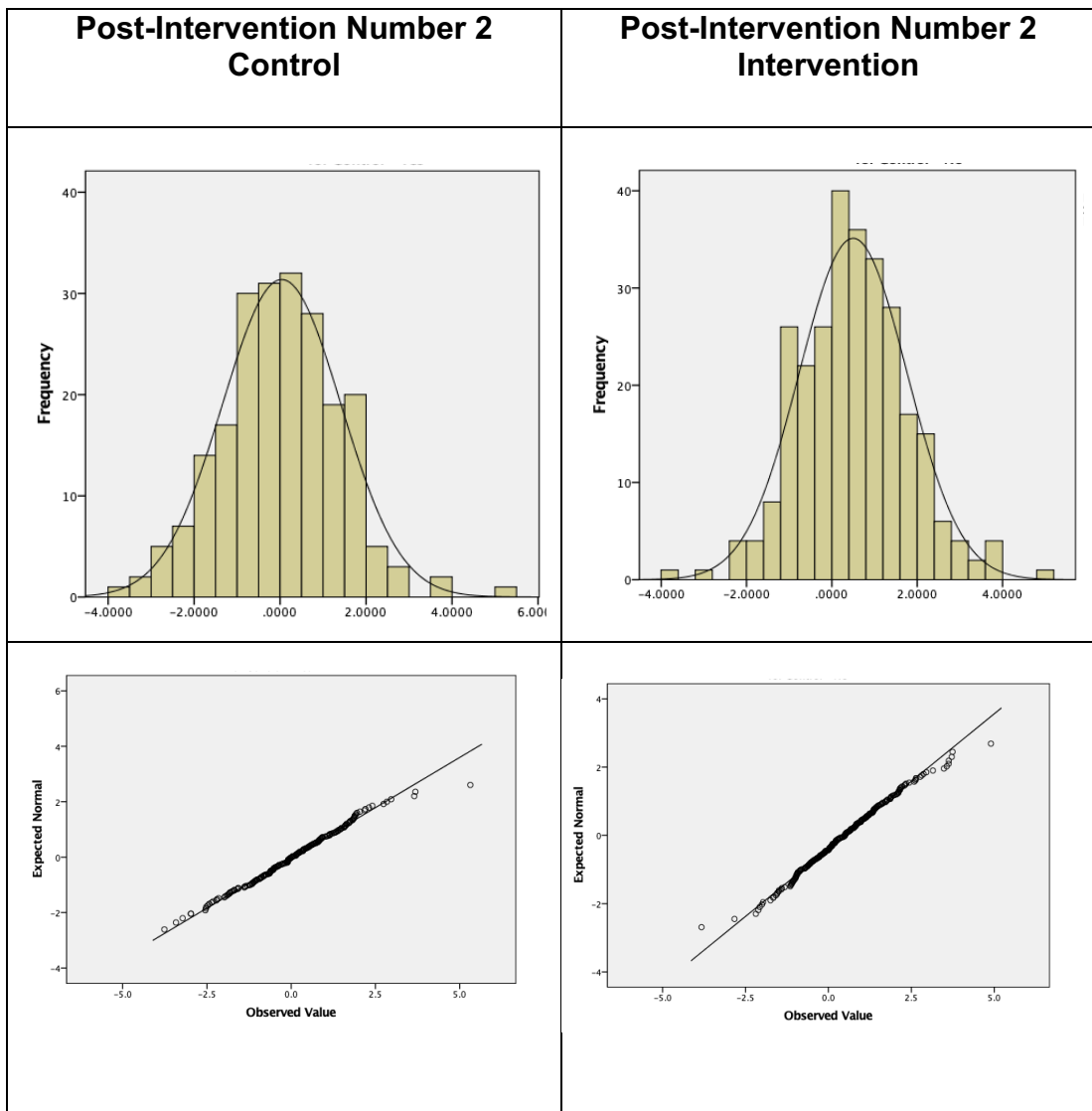
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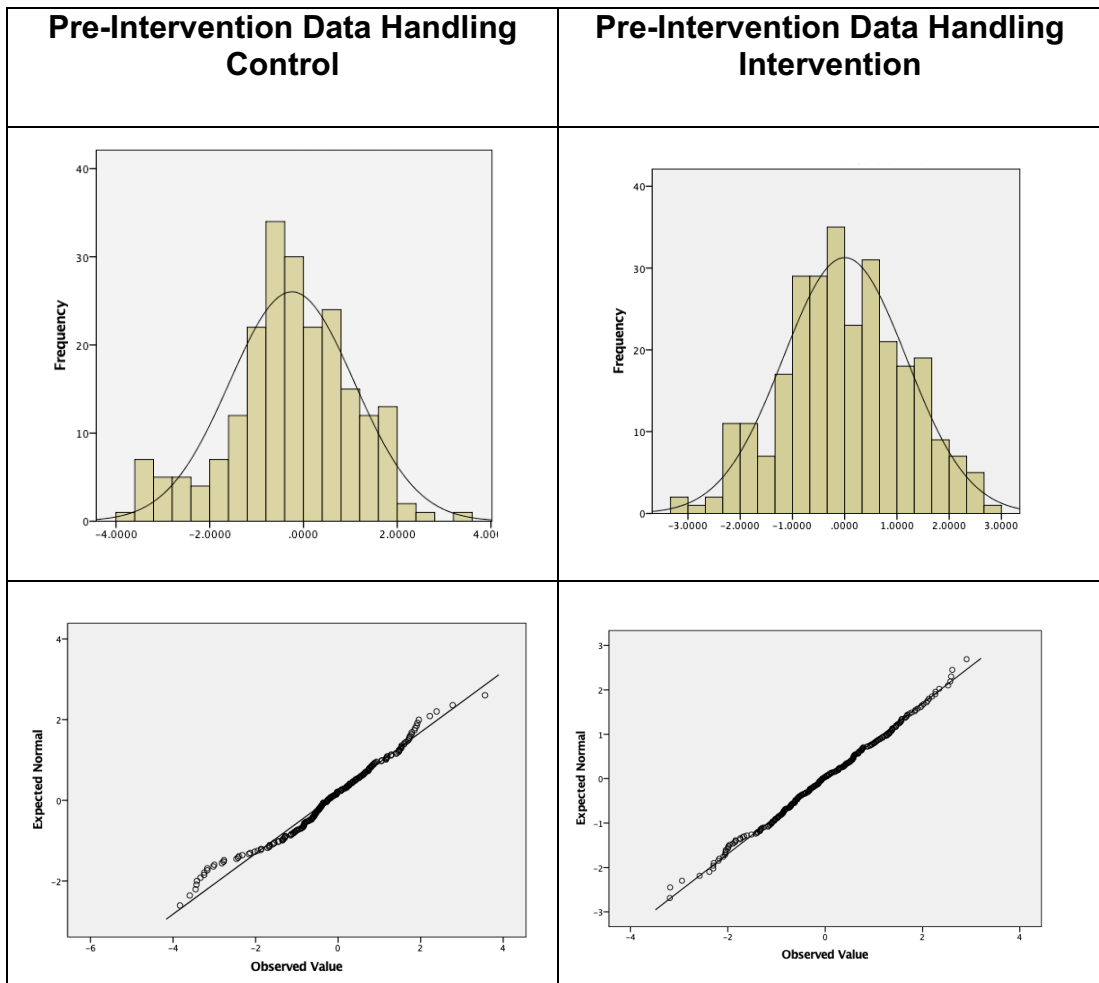
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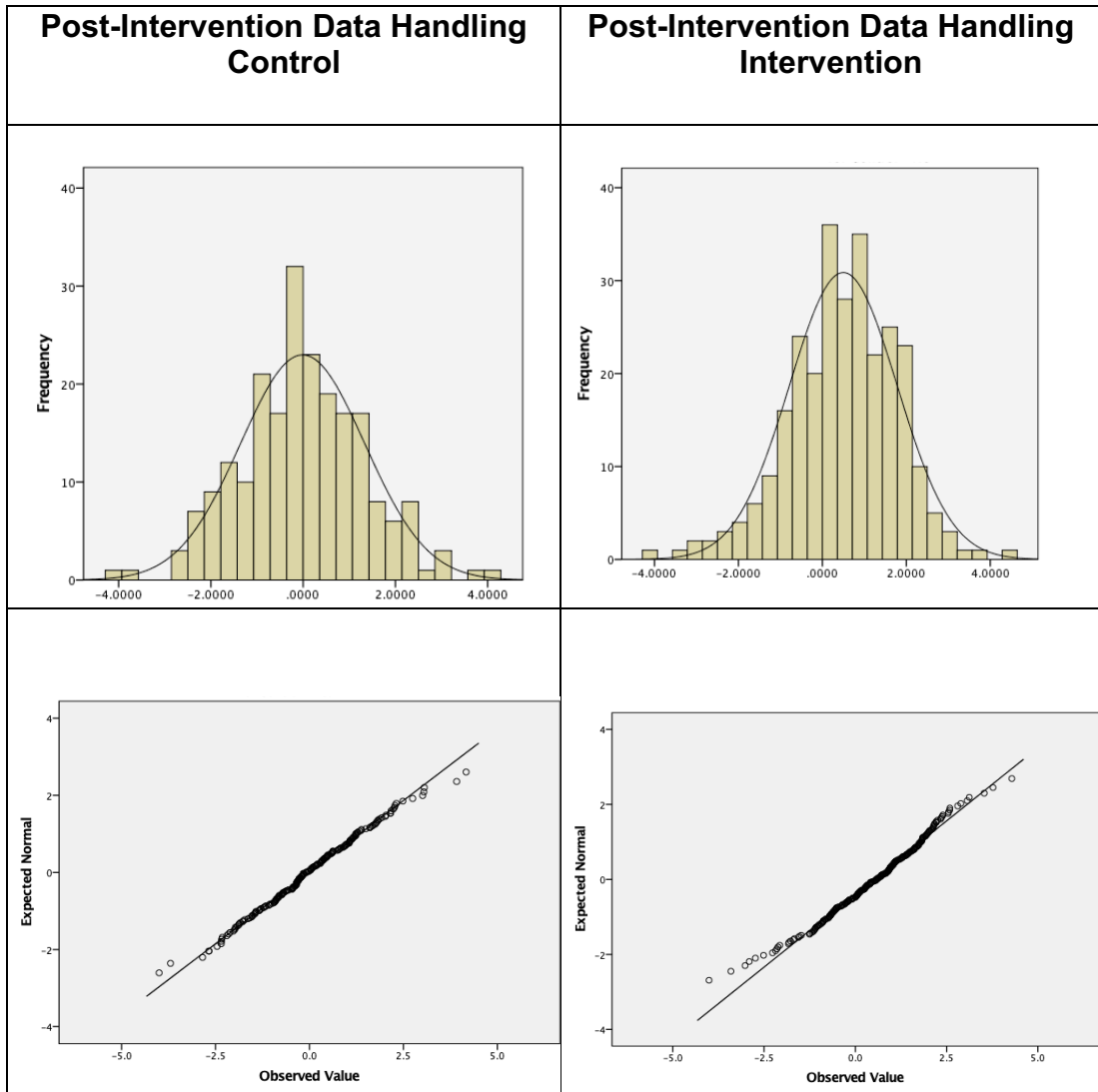
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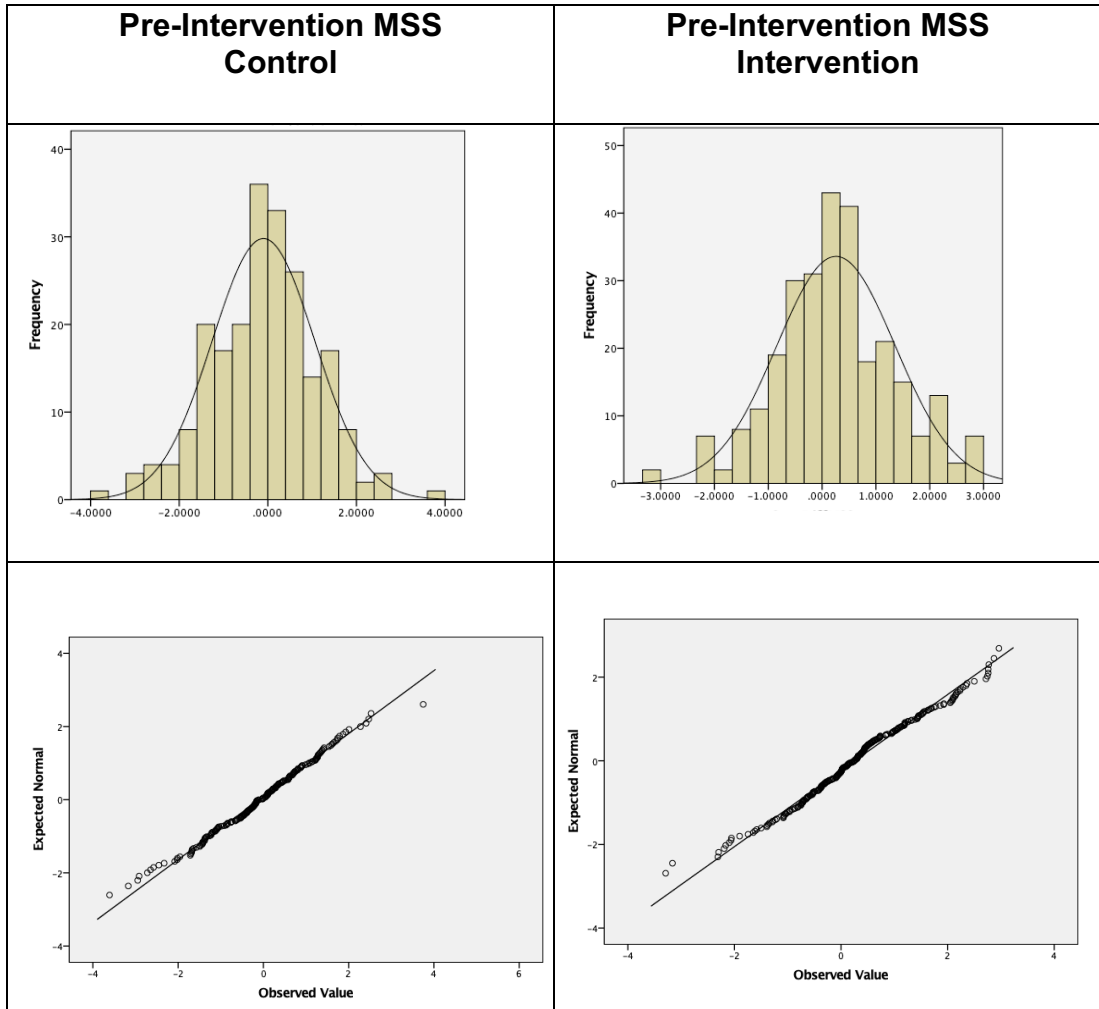
Appendix 16



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