

# *Using MOGCLASS in Group Music Therapy with Individuals with Muscular Dystrophy*

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# *What is* **MOGCLASS?**

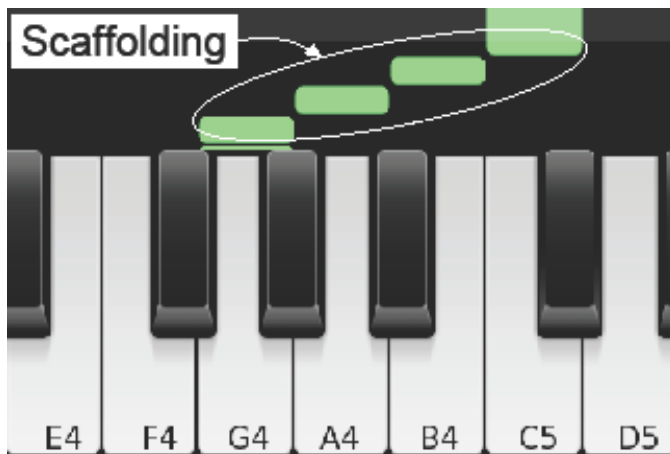
# MOGCLASS

- MOGCLASS (Musical mObile Group for Classroom Learning And Study in Schools)
  - Collaborative and multimodal music environment
  - Supports students music experience
  - Assists teachers in managing the classrooms

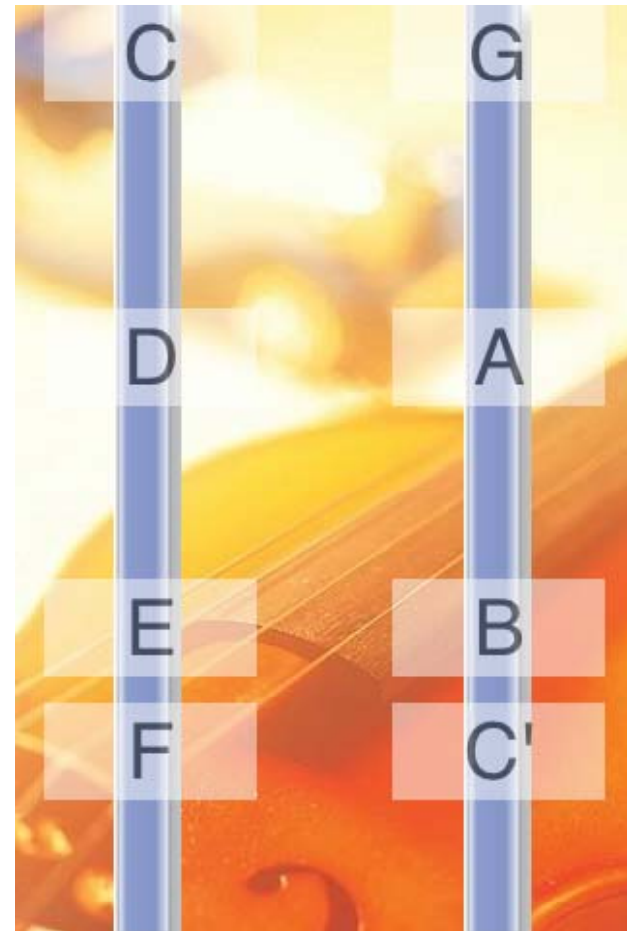
# Student Interfaces



Hitter Interface

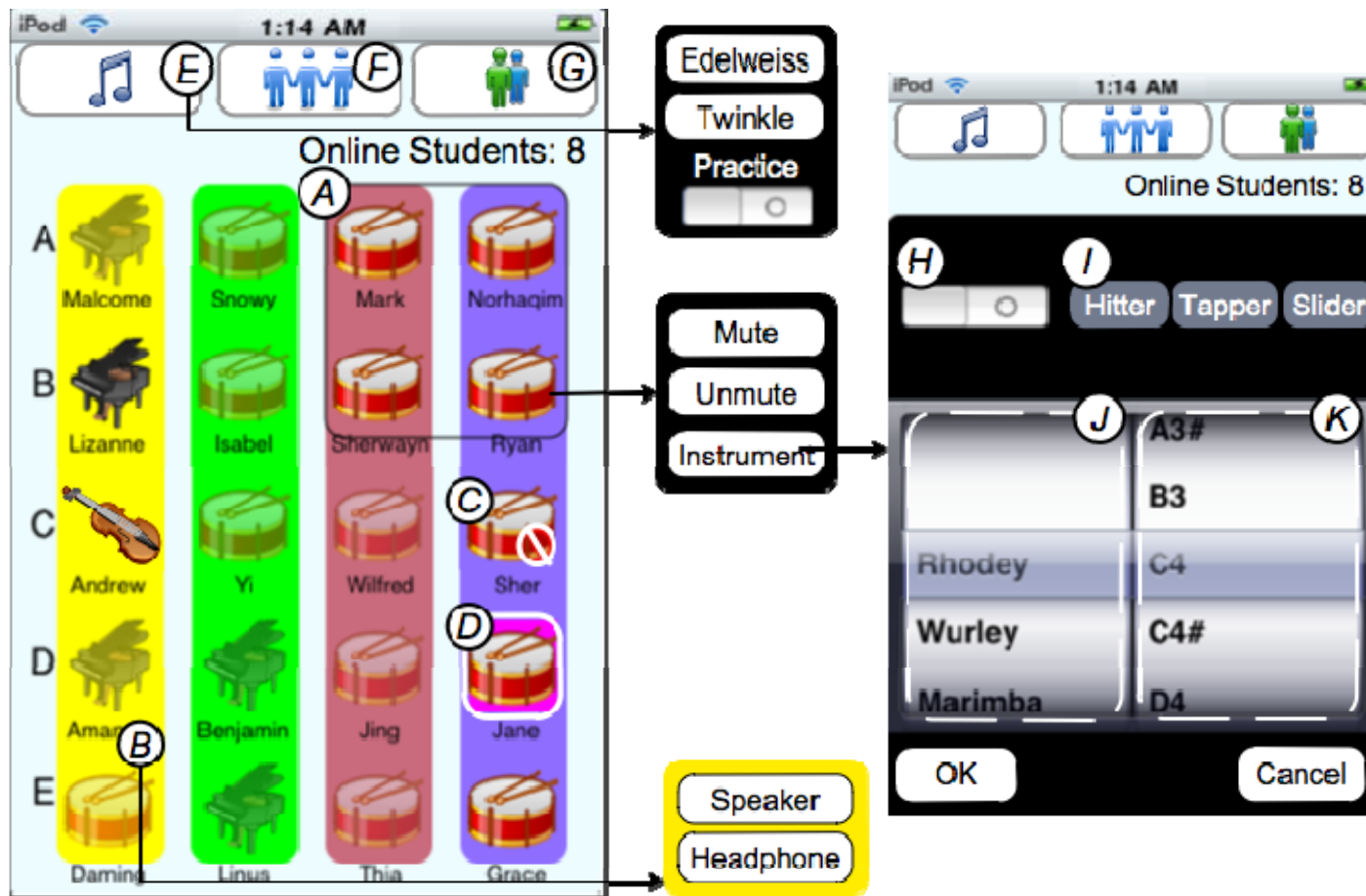


Tapper Interface



Slider Interface

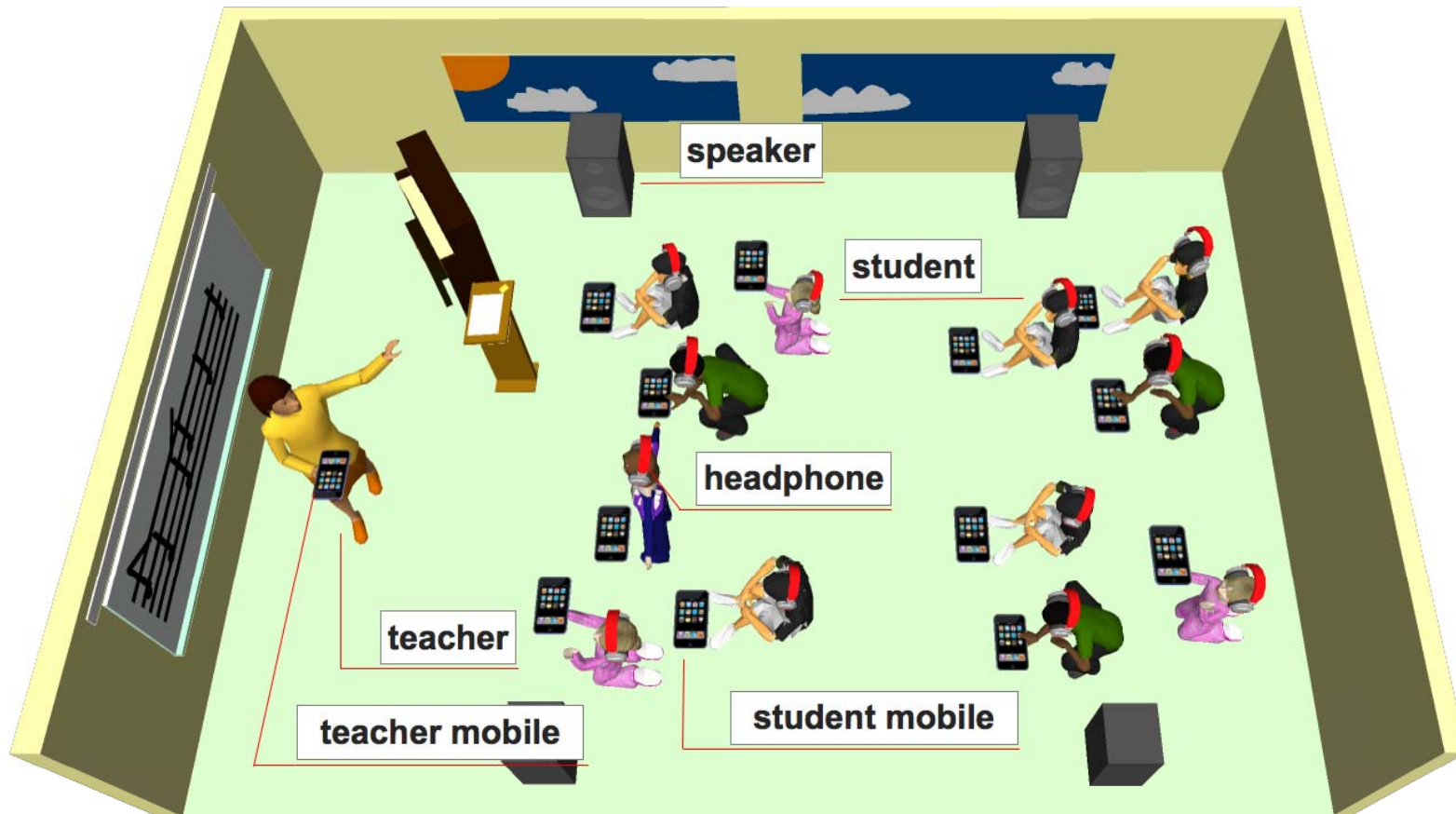
# Teacher Interface



# Virtual Sound Space



# User Scenario





# *Understanding of Muscular Dystrophy*

# Muscular Dystrophy (MD)

- progressive weakness and degeneration of skeletal muscles that control movement
- genetic
- no specific treatment to stop or reverse any form of MD
- prognosis varies according to type and progression of the disorder

Source: NINDS (2010)

# Muscular Dystrophy (MD)

•treatment to alleviate presenting problems include:

- Physical therapy
- Occupational therapy
- Respiratory therapy
- Assistive technology
- Corrective orthopedic surgery

*Music Therapy  
not identified as  
one of the  
treatment  
modalities*

Source: NINDS (2010).

# Muscular Dystrophy (MD)

- most common form: **Duchenne MD**
- absence of dystrophin (protein involved in maintaining integrity of muscle)
- Only boys affected
- Onset is between 3 and 5 years
- Rapid progression
- Unable to walk by age 12
- Need a respirator to breathe
- Becker MD**

# *Muscular Dystrophy and Music Therapy*

# Muscular Dystrophy and Music Therapy

- Limited research

- Music Therapy seen as “appropriate treatment” for MD (Korson, 1958)
- Transfer of skills from music therapy sessions to regular classes (Kennedy and Kua-Walker, 2006)
- The use of songwriting with an adolescent with MD (Dwyer, 2007)

# *The Study*

# Research Questions

- Does assisted technology, MOGCLASS improve MD clients' perception of success in music therapy group session?
- Does assisted technology such as MOGCLASS enhance MD clients' enjoyment in music therapy group session?
- Does assisted technology such as MOGCLASS improve MD clients' motivation in music therapy group session?



# Methods

- Subjects

- convenience sample, 4 individuals with MD, age 14-21 years of age

- Study Design and Procedure

- Within-subject design, with acoustic musical instruments and MOGCLASS condition.

- Questionnaire Design

- Two survey forms were created: (Form A) Client's background form ;(Form B) Survey on perceived enjoyment, motivation, and success in playing instruments/MOGCLASS

# Form B

#	Questions
General	
Q1	I find playing musical instrument(s)/MOGCLASS interesting.
Q2	I feel the instrument(s)/MOGCLASS is easy to play.
Perceived Motivation	
Q3	I would like to play musical instruments(s)/MOGCLASS during my free time.
Q4	I want to learn or practice new skills using musical instrument(s)/MOGCLASS.
Q5	I want to learn or practice new musical pieces using instrument(s)/MOGCLASS
Perceived Enjoyment	
Q6	I enjoy playing music in the group using instrument(s)/MOGCLASS.
Q7	I enjoy performing music for others using instrument(s)/MOGCLASS
Perceived Success	
Q8	I feel successful playing music in the group using instrument(s)/MOGCLASS
Q9	I feel my contribution using instrument(s)/MOGCLASS is important to the group's success.

# Session Plans

	0-5 <sup>th</sup> min	5 <sup>th</sup> -15 <sup>th</sup> minute	16 <sup>th</sup> – 30 <sup>th</sup> minute
Sessions 1 & 2 – using traditional instruments	Breathing exercise and warm-up physical exercise	Instrument choice and structured playing with solo turn-taking	Work on song “Uptown Girl” – add percussion parts
Session 3 – using traditional instruments	As above	Rainbow Bell activity	Continue from previous week
Sessions 4 & 5 – using MOGCLASS	As above	Instrument choice and structured playing with solo turn-taking	Work on song “All About You” – add percussion parts
Session 6 – using MOGCLASS	As above	Rainbow Bell activity Instrument choice and structured playing with solo turn-taking	Continue from previous week



# Group Music Therapy

using  
traditional  
instruments...



## Research Hypotheses

H1: MD clients have greater *perception of enjoyment* in music therapy group session using MOGCLASS

H2: MD clients have greater *perception of success* in music therapy group session using MOGCLASS

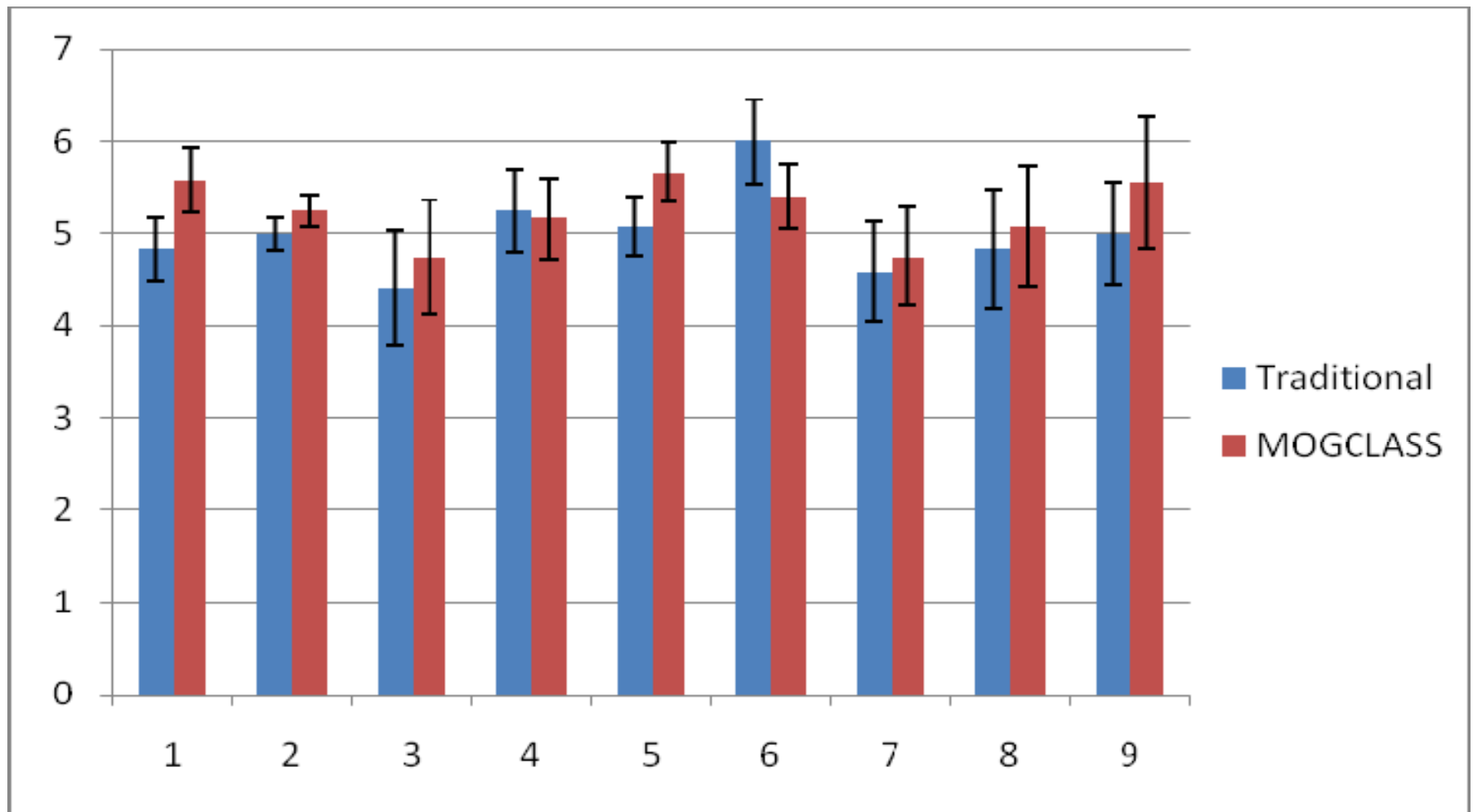
H3: MD clients have higher *motivation level* in music therapy group session using MOGCLASS

# Data Analysis

- SPSS-WINDOWS
- Repeated measures ANOVA
- The instrument was between-subject factor

# Graph of questionnaire results

Figure 1: Form B data



## Results: Research Hypotheses

H1: MD clients did not consistently report a greater *perception of enjoyment* in music therapy group session using MOGCLASS.

H2: MD clients have greater *perception of success* in music therapy group session using MOGCLASS, though results were not significant.

H3: MD clients did not consistently report a higher *motivation level* in music therapy group session using MOGCLASS.



## Discussion: MOGCLASS rated higher

For 7 out of 9 questions, MOGCLASS rated **higher** than traditional instruments, though difference not statistically significant. Possible reasons:

- device's sensitivity was adapted to match subject's physical ability (as programmed by designer)  
  
→ subjects made sounds with a light touch/shake
- subjects were able to choose sounds based on options given, not limited by ability

## Discussion: Traditional instruments rated higher

Whereby subjects rated traditional musical instruments higher than MOGCLASS, possible reasons include:

- Playing MOGCLASS = tapping on screen OR shaking device  
→ boring, unrealistic
- MOGCLASS sounded same, no matter how it was played
- Traditional musical instruments provide instantaneous auditory and vibro-tactile feedback – while MOGCLASS produced only auditory feedback from the same loud speaker.

## Discussion: Traditional instruments rated higher

- Slight delay in the sound produced by MOGCLASS → more difficult for subjects to locate their own sound(s).
- MOGCLASS was heavy (hand-held component weighed 115 grams).
- Subjects may have concentrated more on not losing grip on MOGCLASS, therefore reporting a lower level of enjoyment

## Discussion

- General rating of perceived enjoyment, motivation and success for both conditions were high.
- Subjects enjoyed group MT sessions (both conditions).
- Highest score was for **enjoyment of making music in the group**, for **traditional musical instrument condition**.
- ***Music Therapy is a highly appropriate treatment modality for individuals with MD.***

## Limitations of study and Recommendations

- Number of subjects was small (n=7); number of MD clients who completed all sessions was even more reduced (n=4) → Bigger sample size is needed
- In 1st MOGCLASS session, devices not yet fine-tuned to match subjects' ability → MOGCLASS condition was not held constant, as opposed to traditional instruments that did not require any fine-tuning
- More Music Therapy and MD research needed!

# References

Kennedy, R. & Kua-Walker, Y. A. (2006). Movement, singing, and instrument playing strategies for a child with Myotonic Dystrophy. *Music Therapy Perspectives*, 24, 1, 39-51.

Korson Herman, F. (1968). Music therapy for children hospitalized with Muscular Dystrophy. In E. Thayer Gaston (Ed.), *Music in Therapy*. New York: The MacMillan Company.

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