

**19^e Symposium scientifique
sur l'incapacité visuelle
et la réadaptation**

CRIR
Centre de recherche
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Electronic Glasses to Read Sheet Music: The eSight Examination

Bianka Lussier Dalpé

co-supervised by

Walter Wittich, Ph. D., F.A.A.O., C.L.V.T.

& Marie-Chantal Wanet-Defalque, Ph. D.

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LITERATURE REVIEW

Reading a text versus sheet music requires distinct visual capabilities:

(Comeau, 2010; Madell & Hébert, 2008)

Reading Task

« *The act of decoding the symbols of staff notation using a musical instrument* »

(Gudmundsdottir, 2010)



Visual Presentation

Allegro moderato

The first system of the musical score is written for piano in 2/4 time, featuring a key signature of three flats (B-flat, E-flat, A-flat). The tempo is marked 'Allegro moderato'. The system consists of two staves: a treble clef staff and a bass clef staff. The treble staff begins with a whole rest, followed by a series of eighth notes and quarter notes, including two measures with accents marked 'v'. The bass staff provides a harmonic accompaniment with chords and moving lines.

The second system of the musical score continues the piece. It begins with a measure number '6' in the treble staff. The treble staff features a melodic line with eighth notes, quarter notes, and a sixteenth-note triplet, with two measures marked with accents 'v'. The bass staff continues with a steady accompaniment of chords and eighth notes.

Music Sheet Reading and VI

- Few technologies allow for:
 - ▶ Freeing up the hands and
 - ▶ An intermediary reading distance (50 to 70 cm)

(Juracic, 2014)

- Visual assistive technologies made for text reading only partially answer the needs of a musician

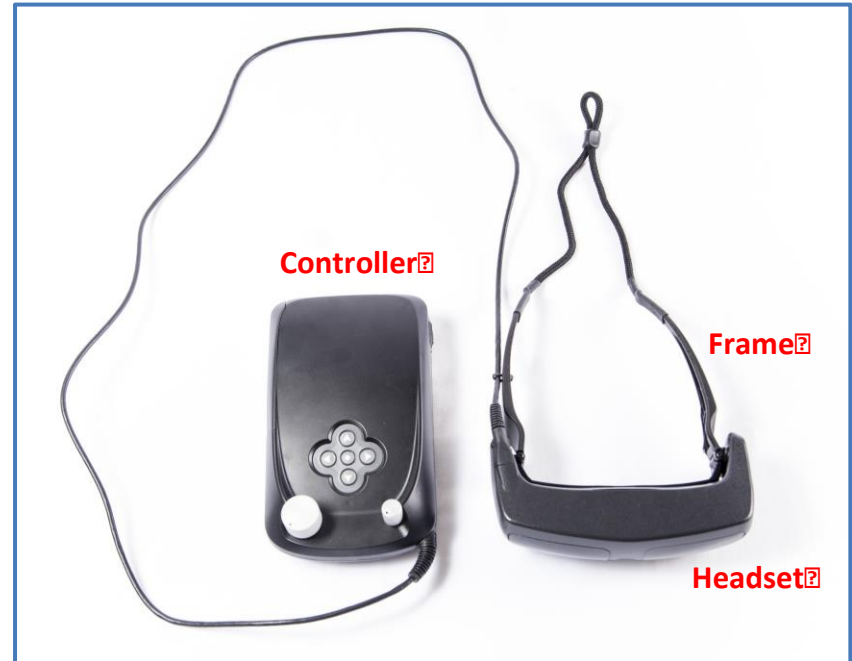
(Coates, 2012; Housley et al., 2013)



HMD and Music Sheet Reading

eSight

- Head Mounted Display
- Many magnification settings
- Frees up the hands
- Focus can be achieved at different distances



Objectives



1. To describe the visual **aids**, **adaptations** and **strategies** used by pianists with a VI when reading **sheet music**
2. To describe **difficulties** encountered while using these aids, adaptations, and strategies
3. To describe how pianists with a VI perceive their use of **eSight** to gain access to sheet music

METHODOLOGY

- **Qualitative and exploratory** work
- **Phenomenological approach**
 - ▶ Exploring individual perceptions in a heterogeneous group
 - ▶ Describing a common phenomenon experienced by all (Hesse-Biber, S. N., & Leavy, P., 2010)

Data collection

- **Sample: 5 pianists with VI**
- **Semi-structured interviews**
- **Optometry file consultation**

Data analysis

- Coding done jointly by **2 evaluators**

Participants

#	Age	Primary Dx	VA far	VA near	VF	Lvl
1	62	Oculocutaneous albinism	OD 6/60 OS 6/38	0.6 M at 9 cm	OD 120 X 80 OS 130 X 75	4
2	65	Chorioretinitis : Birdshot retinochoroiditis	OD 6/1080 OS 6/210	12 M at 16 cm	OD 3 X 10 OS 8 X 5	2
3	24	Aniridia	OD 6/30 OS 6/38	1 M at 9 cm	OD 120 X 100 OS 100 X 80	3
4	61	Oculocutaneous albinism	OD 6/60 OS 6/37.5	0.5 M at 8 cm	OD 60 X 40 OS 65 X 60	4
5	20	Kjer's optic neuropathy	OD 6/96 OS 6/120	1 M at 5 cm	OD 125 X 102 OS 132 X 100	3

Lvl : * Degree of musical knowledge : Self-report using Likert scale
(1 = no theoretical knowledge; 4 = deep knowledge)

RESULTS

Obj. 1: Aids, Adaptations and Strategies

Themes and subthemes emerging from participant interviews – Pre-eSight

Themes \ Subthemes		Aids	Adaptations	Strategies
Visual access to sheet music	Magnification	✓	✓	✓
	Others	✓	✓	✓
Non-visual access to sheet music		✗	✓	✓

Obj. 2: Difficulties

Themes and subthemes emerging from participant interviews – Pre-eSight

Types of difficulties		Aids	Adaptation	Strategy
Efficiency/ Ease of use	Visibility of sheet music	✓	✓	✓
	Musical performance	✓	✓	✓
Comfort		✓	✓	✓
Ease of adjustment		✓	✓	
Dimension / Weight / Appearance		✓	✓	✓

Obj. 3: Perceptions of eSight

Positive and negative themes emerging from the interviews regarding eSight trial

		+	-
Efficiency / Ease of use	Visibility of sheet music	✓	✓
	Musical performance	✓	✓
Comfort		✓	✓
Ease of adjustment		✓	✓
Dimension / Weight / Appearance		✓	✓
Procedures to obtain assistive technology		✓	✓

DISCUSSION

Obj. 1: Use of various aids, adaptations, and strategies

Obj. 2: Significant difficulties related to MAGNIFICATION

Obj. 3: eSight allows participant to:

+ Read / interpret regular musical notation

+ Overcome difficulties related to magnification

+ ↓ preparation delays

But:

- Cost = OBSTACLE

- Training required



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