Normative data on teachers’ voice use in real-life situations

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Background – teacher’s voice

• Professional voice users with high vocal demands

• Increased risk of developing voice disorders

• Higher vocal load among teachers than among general population

• Several studies on teachers’ voice use

• Few studies have investigated potential differences regarding
  • teaching level
  • environment (professional vs. extra-professional)
Background – Voice dosimeter

• Used to objectively analyze vocal behavior over an extended period of time
  • Can record several vocal parameters for over 18 hours
• Ambulatory Phonation Monitor (APM) (KayPENTAX, Lincoln Park, New Jersey, USA)
  • uses an accelerometer as a voice sensor, mounted on a silicon pad which is adhered to the neck at laryngeal level

Fig. 1: Ambulatory Phonation Monitor
Aim of the study

To quantify vocal parameters of teachers and identify most at-risk conditions
Methods

- 76 French-speaking teachers
  - 15 males and 61 females
  - Age: between 23 and 59 years (M = 37; SD = 11)
  - No history of voice complaints
- Device: APM voice dosimeter
  - Worn for one workweek from early morning until late night
  - Data was saved on a computer each morning before new recording

Fig. 2: Subjects: Gender and teaching level
Methods

• Parameters:
  • Phonation time (%)
  • Voice SPL (dB)
  • Fundamental frequency or F0 (Hz)

• Influence of the factors
  • Gender
    → Mann-Whitney U Test
  • Teaching level
    → ANOVA, paired t-Tests
  • Environment (professional versus extra-professional)
    → Wilcoxon Test
Results – Phonation time

• Environment: higher phonation times in the professional environment compared to the extra-professional environment for both male ($p < .005$) and female ($p < .001$) subjects.
Results – SPL

• Gender: females spoke at higher SPL than their male colleagues in the extra-professional environment ($p < .05$)

• Environment: higher SPL in the professional environment compared to the extra-professional environment for both males ($p < .001$) and females ($p < .005$)
Results – F0

• Gender: higher F0 in female teachers (p < .001)
• Teaching level: significant F0 variation regarding teaching level (p < .05)
  • Kindergarten teachers > primary school teachers > secondary school teachers
• Environment: higher F0 in the professional environment compared to the extra-professional environment for both males (p < .005) and females (p < .001)
Conclusion

• Increase of vocal parameters at work compared to free time irrespective of gender
  • Confirms results of earlier studies
  • Demonstrates that teaching is an occupation with high vocal demands
• Lower educational levels were associated with higher F0
  • Adaptation to pupil’s F0
• Higher vocal load in female teachers than in male teachers

(Titze, Hunter & Svec 2007; Hunter & Titze 2010)
References


Thank You

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