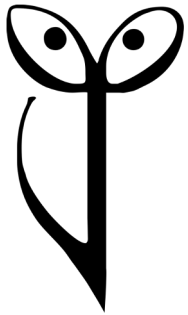


MITIS - Musical Information Technology in Schools

Introducing Notysing

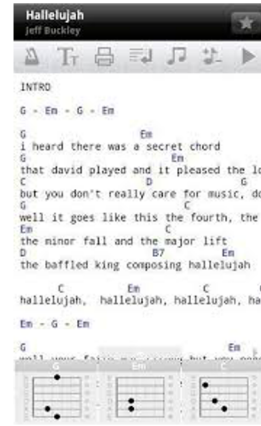


How can interactive music technology be used to support learning of *music literacy*?

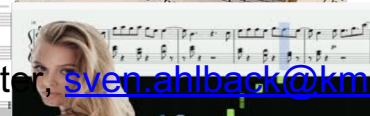
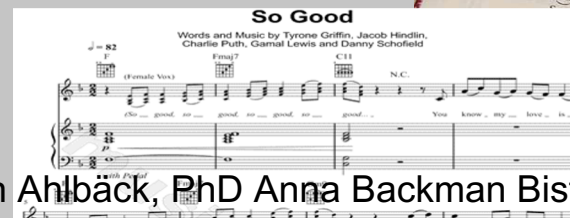
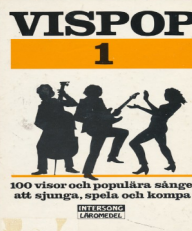
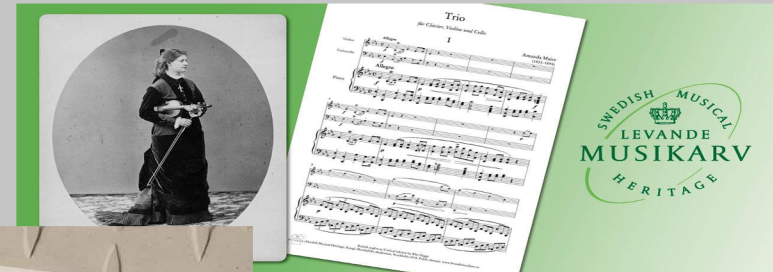
<https://youtu.be/hLAh-VTRdYk>

www.notysing.com





Is music literacy obsolete today?



Musical Literacy should be for everybody - not just for the privileged few

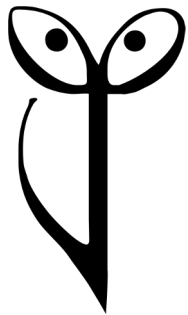
Brother Tor



Knowledge open doors
Knowing gives confidence
Read
Write
Communicate
Create
Develop
Heritage
Cognitive skills



What if we use new digital technology to support learning of Musical Literacy?

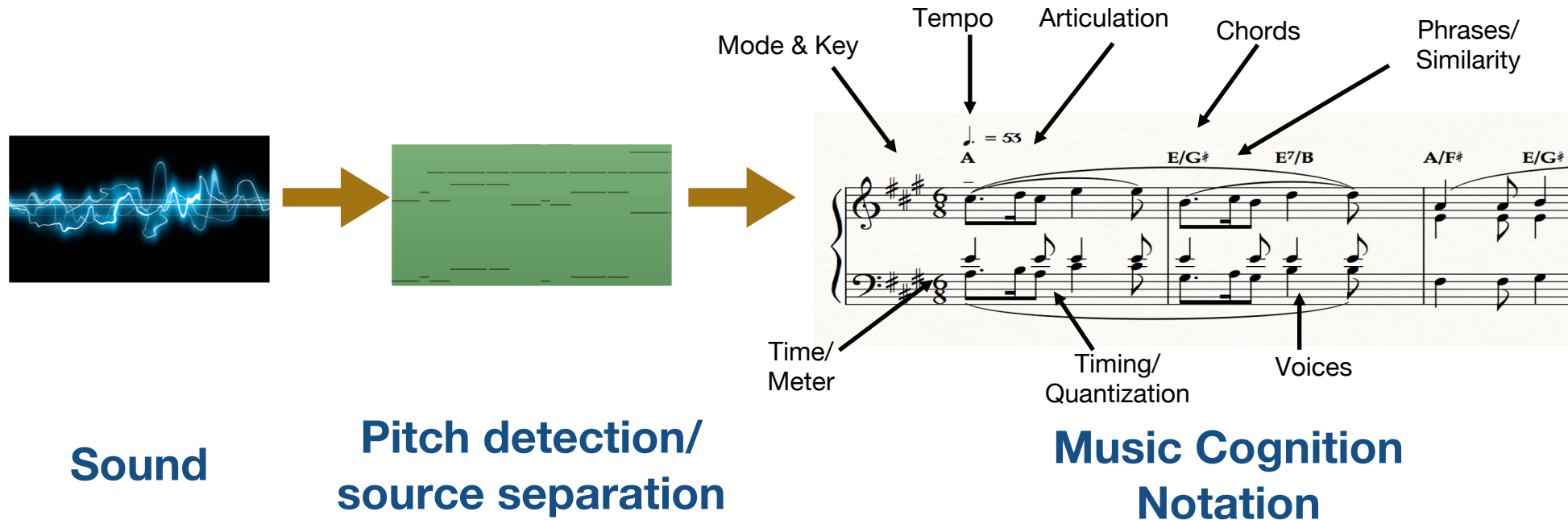


Music technological foundation

DoReMIRs virtual listener

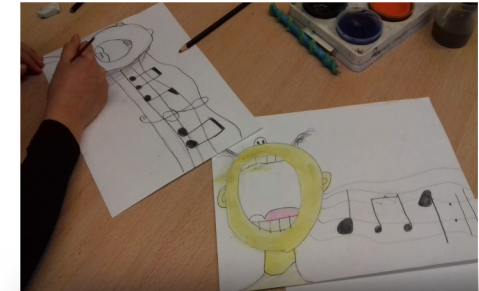


A system for automatic interpretation of sounding music



MITIS - a collaboration between Royal College of Music, Stockholm (KMH) & Doremir Music Research

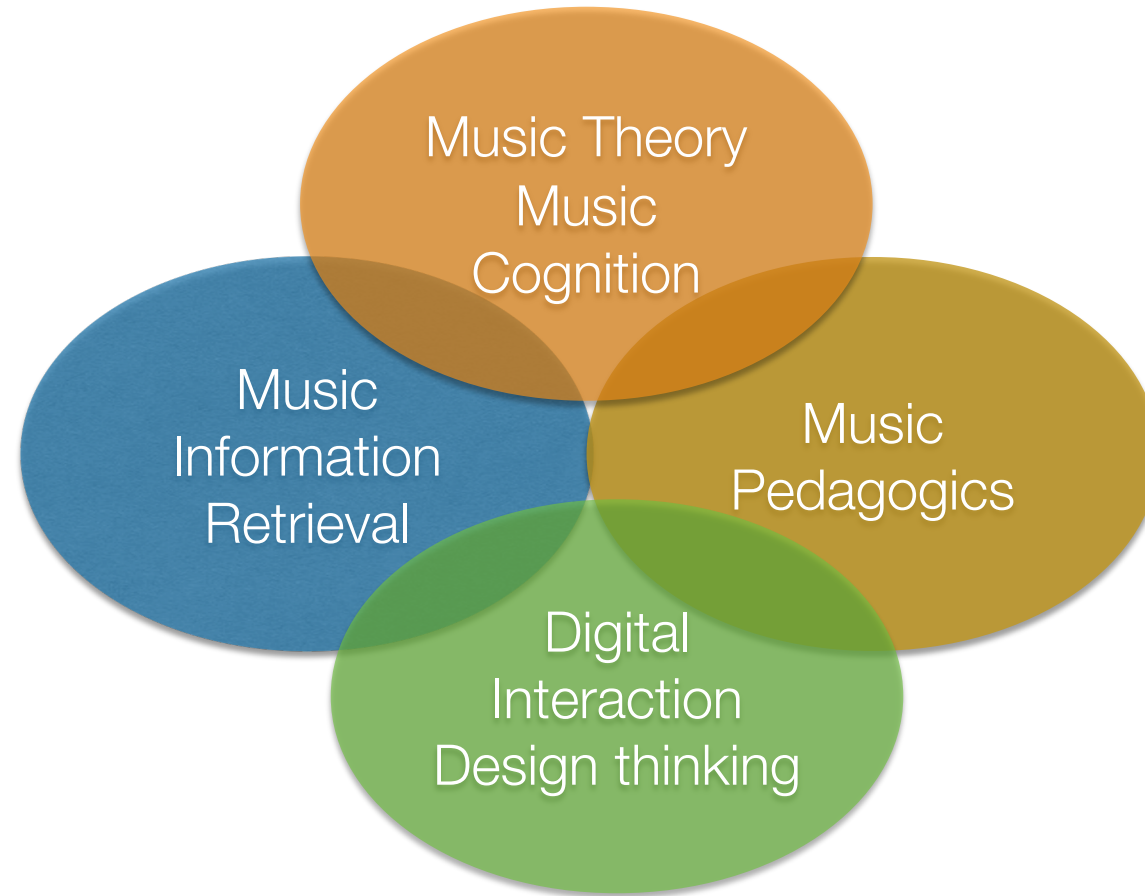
- Develop solutions for and study learning of music literacy supported by automatic digital notation
- Contribute to development of knowledge within the field of digitally assisted music learning
- Teachers and students at KMH and music teachers in the field are involved in the development of the tools, developing the knowledge basis
- Support music teaching in general, in the general school system, in the music schools and in society
- External financing through Marcus & Amalia Wallenberg foundation



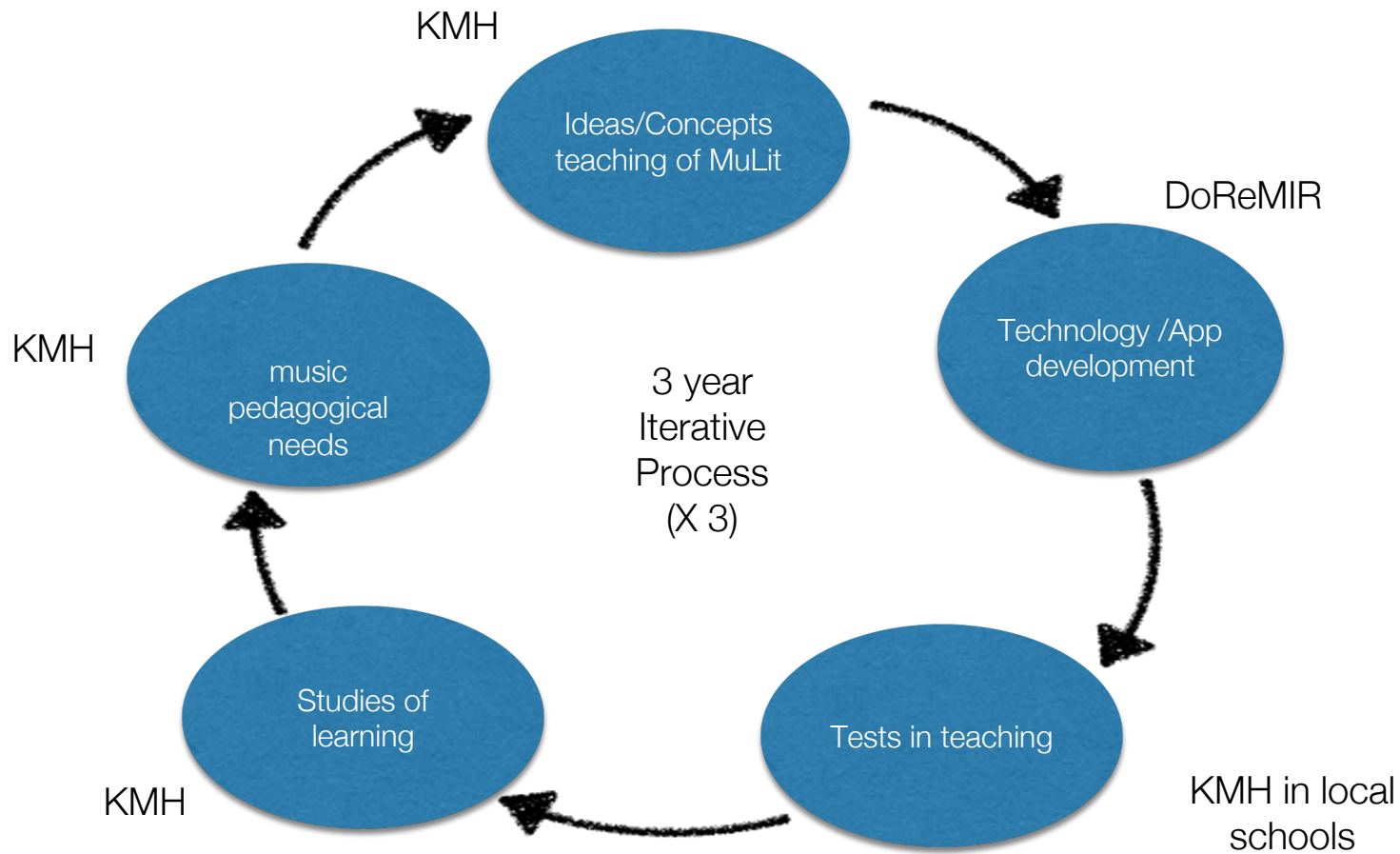


- A collaborative project between DoReMir Music and the Royal College of Music in Stockholm
- A project group was formed working with with creating the app
- Testing it in a smaller group of music teachers and lecturers at the Royal College of Music
- A collaborative work including music teachers, app developers and music education researchers

Cross-disciplinary project



MITIS - musical IT in Schools - project design



Music Technology Development from needs in Music Education

- 3 year project
- Centred on general school teaching
- Iteratively collaborative project - development cycles
- Music Educators are active in development of Digital Teaching media
- Evaluation in real-world teaching
- Adaptation to Curriculum

Challenges

- How can we use this technology for automatic interpretation of music structure to support learning of musical *literacy*?

What does literacy mean with regards to language and literature?

"The literary process is the dynamic interaction between the reader and the text. The readers enjoyment begins when he himself become productive, involving comprehension, interpretation and imagination. Literature as such arises from bridging the gaps between the literal significations of the text."
(Iser 1978)

Analogy:

To sing from music notation require imagination

How can we support this by digital tools?

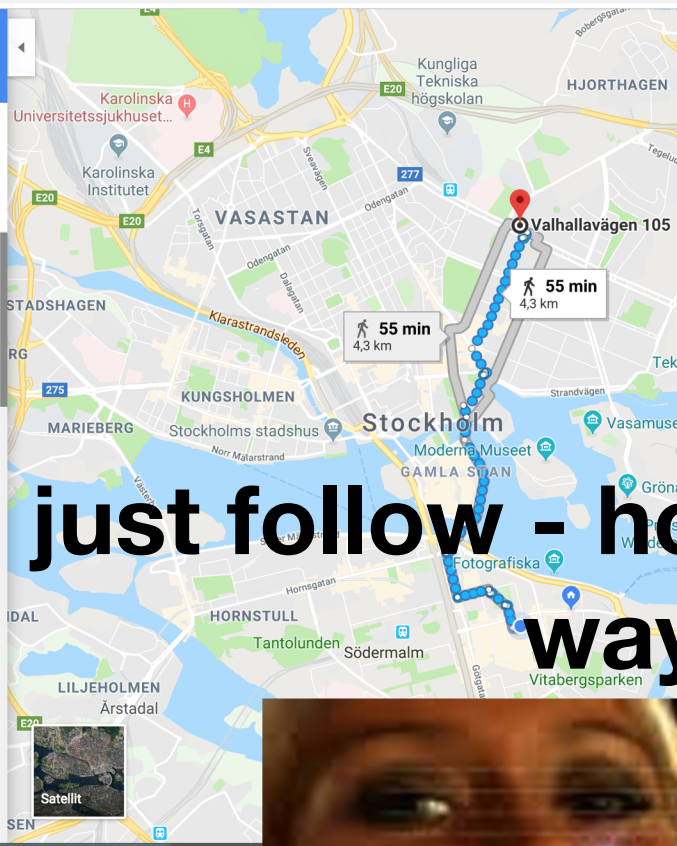
← från Din position
till Valhallavägen 105, 115 51 Stockholm

55 min (4,3 km)
via Grev Turegatan
Mestadels plant

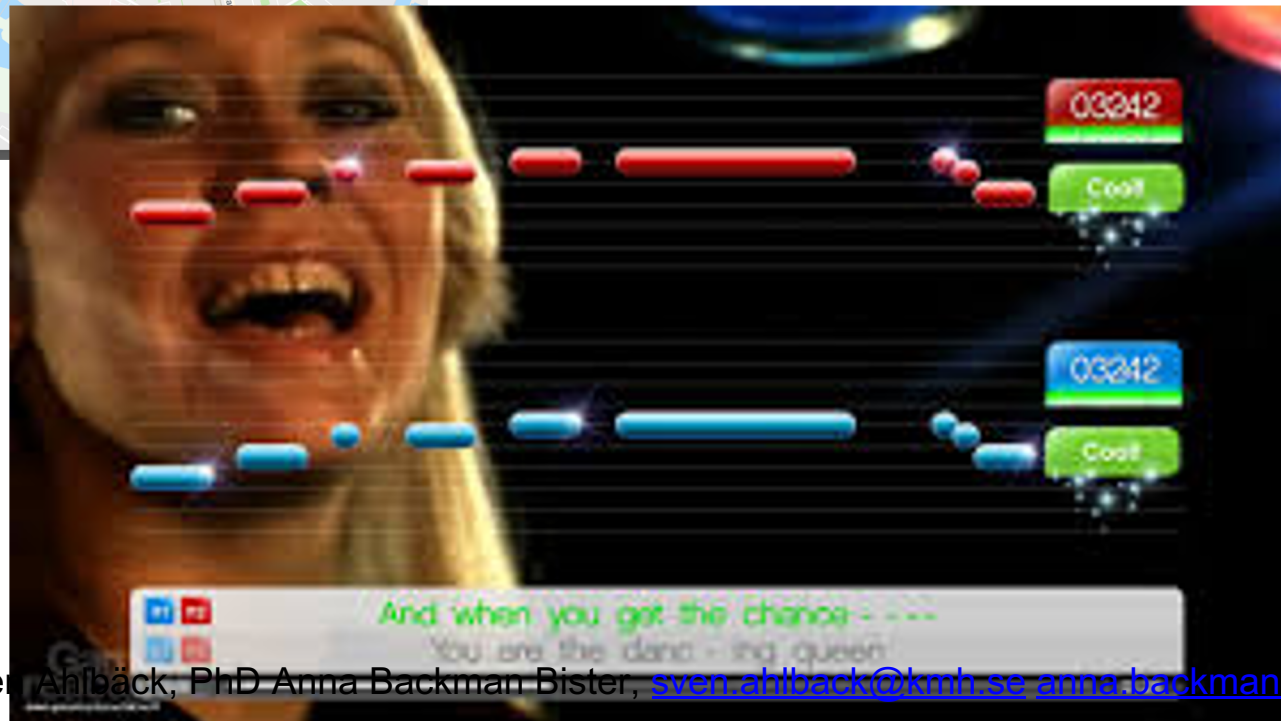
⚠ Var försiktig – vägbeskrivningar till fots motsvarar inte alltid verkliga förhållanden

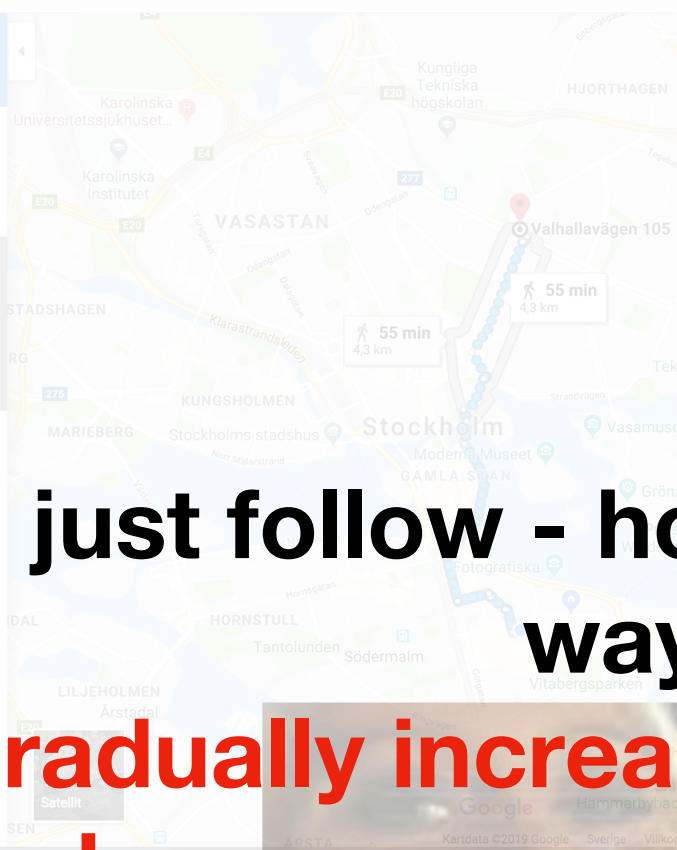
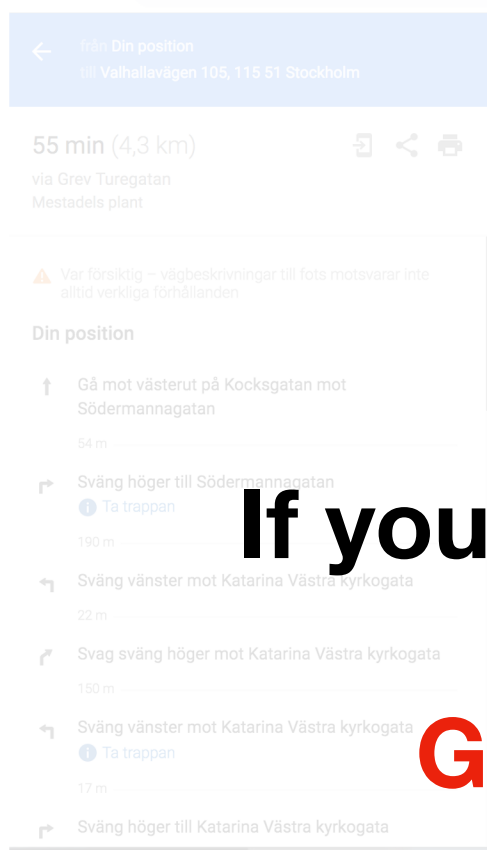
Din position

- ↑ Gå mot västerut på Kocksgatan mot Södermannagatan
54 m
- ➔ Sväng höger till Södermannagatan
Ta trappan
190 m
- ↙ Sväng vänster mot Katarina Västra kyrkogata
22 m
- ➔ Svag sväng höger mot Katarina Västra kyrkogata
150 m
- ↙ Sväng vänster mot Katarina Västra kyrkogata
Ta trappan
17 m
- ➔ Sväng höger till Katarina Västra kyrkogata



If you just follow - how can you learn to find the way yourself?



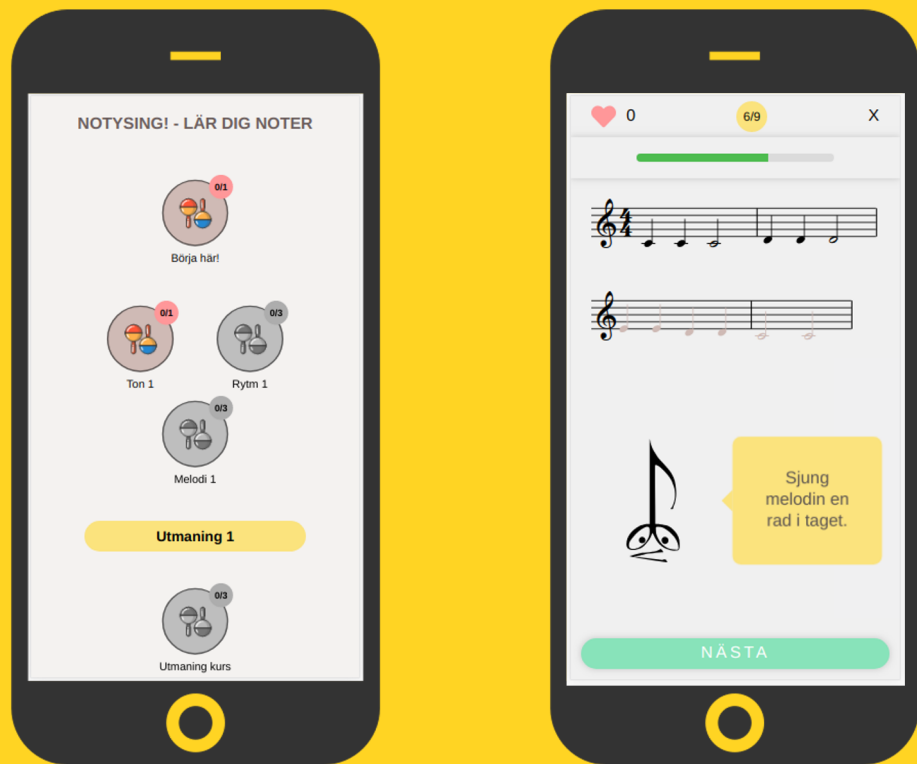


If you just follow - how can you learn to find the way yourself?

Gradually increase space for imagination and memory exercise



Notysing!



Modern music pedagogy

Interactivity, multimodal, inspiring learning

Instant feedback

Your personal instructor
Modular assignments combined to lessons

At your level

Adapted to individual level, starting from singing a single note

Activity based learning

sing, listen, imitate
learn theory indirectly

Multimodal

Multiple learning channels
symbols - sounds - activity.
visual, auditive

Notation with music

Music notation connected to the sound of music

Gamification

challenges, variation,
collect your musical treasure

Musical AI

AI-based analysis,
assistance, variation and repetition

Extendable and modular

A flexible tool kit a social community for the music

Tests/Evaluation

Built in evaluation tests
adapted to grading system

Notysing!

Singing songs is for everyone - tonal songs are everywhere!

Get "real skills" - goal orientation toward systematic knowledge and tangible skill

Music theory connected to practice
Learn 'grammar' in connection with speaking and writing
Theory on a "need-to-know" basis
There is a multitude of symbols - when to explain?

Music from the first lesson, not just notes

Learning music notation should be fun - music is game and play

Let teachers interact and develop

Modern music pedagogy
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Lunch workshop



- In August 2019 all the music teachers in our teacher training network in Sthlm were invited to lunch and workshop at the College
- Invited to try the app and bring feedback

A photograph of a young child with brown hair, seen from the back, wearing a white shirt. The child is sitting on a dark blue, textured surface and looking at a tablet. The tablet screen displays a colorful, block-based programming interface with various colored blocks (green, purple, blue, orange) and icons. A small blue robot with orange eyes is visible on the surface next to the tablet.

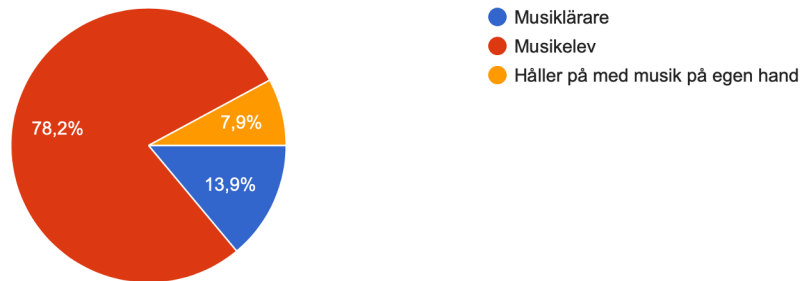
First studies in schools, "survey-study"

- In autumn 2019 a number of music teachers choose to test to work with the app in school, pupils from two junior high schools and one high school worked with the app and also answered a survey
- Stockholm 195 answers San Diego 30 answers

Who tested and on what device?

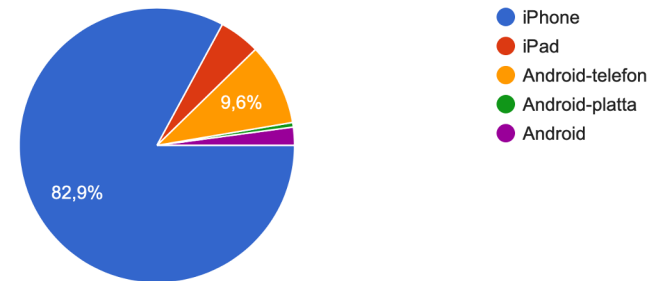
Vem är du?

165 svar



Har du testat på iPhone, iPad eller Android?

187 svar

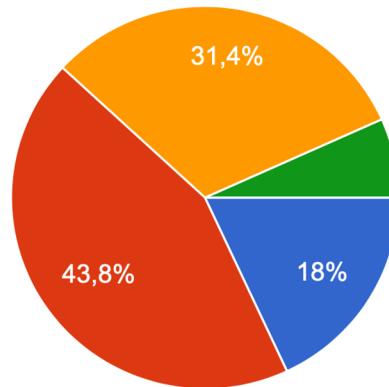


Feedback from survey – “Likes”



Hur rolig var appen?

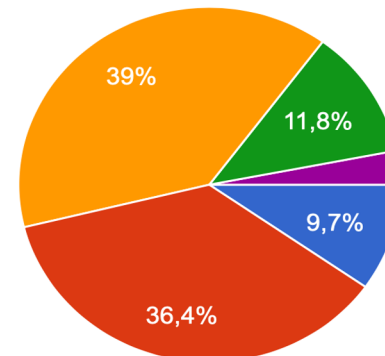
194 svar



- Väldigt rolig
- Ganska rolig
- Lite rolig
- Inte rolig

Vad tycker du om appen?

195 svar

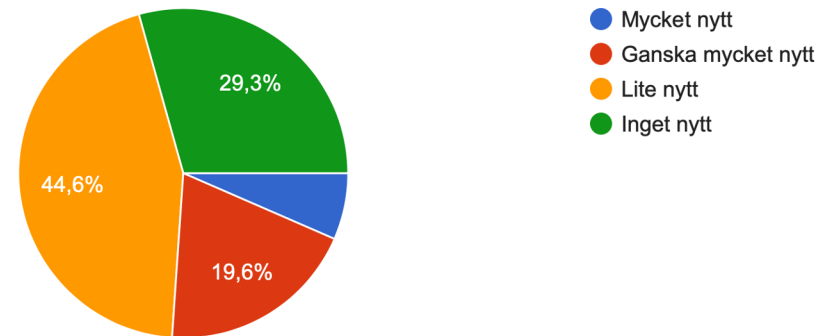


- ★★★★★ (högsta betyg)
- ★★★★★
- ★★★
- ★★
- ★ (lägsta betyg)

Feedback from survey – “learning & interaction”

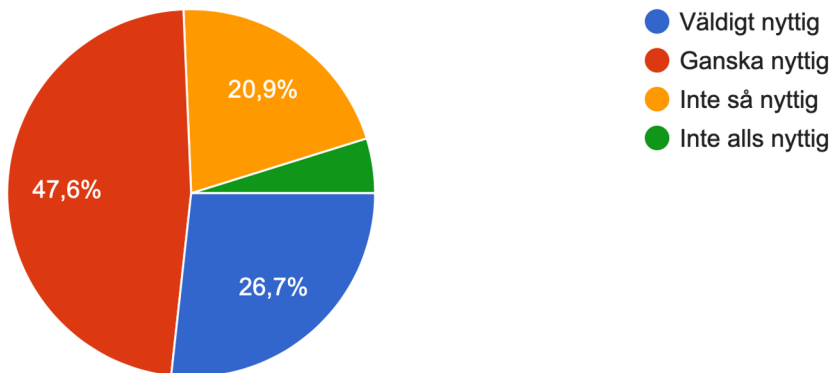
Har du lärt dig något nytt?

184 svar



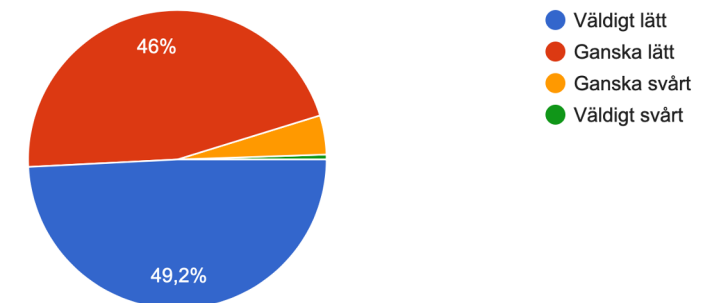
Hur nyttig, värdefull, användbar är appen

187 svar



Hur lätt var det att förstå instruktionerna?

189 svar



Positive feedback from survey

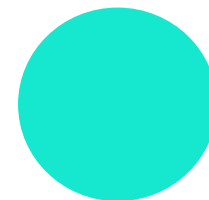
- Possibilities to differentiate, to skip levels
- Fun, easy to sing by the app
- Intuitive design
- Great that you had many chances to do right
- Fun to sing!
- Fun to sing from notation
- Fun to sing real songs
- Easy to navigate
- Gamification



Feedback to work with from survey

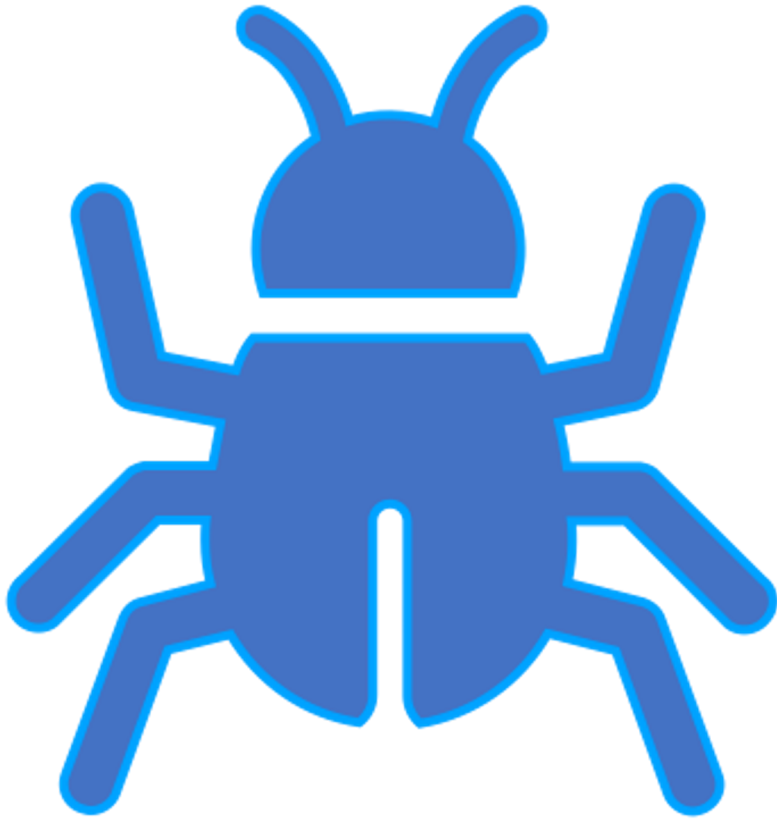
- Possibilities to differentiate, to skip levels and exercises or to stay longer at the same level, or go back
- Repeat starting tone
- More feedback
- Drums/bass
- Possibility to compete
- More rewards
- Save-possibilities
- More gamification
- Extra lifes
- Google Classroom integration

Wishes:



To change:

- Crashes
- Bugs
- Performance & analysis



Feedback to work
with from survey



Public Release in App Store 2020

Difficult to test collaboratively with pupils and teachers due to that several municipalities IT departments does not allow for use of material that is not released in marketplace or app-store. Catch 22, since you don't want to release an unfinished product, but at the same time want the feedback from pupils and teachers.

Dashboard for Educators

Music teachers, choir and band leaders: you can use Notysing with your students and track their progress through the Notysing Dashboard.

Notysing performs best as a complement to teacher-led music education. With Notysing, your students can meet the goals of the curriculum regarding music literacy, music notation and the understanding of how music can be represented and organized. Each student has their own development path so you can give relevant feedback and get a basis for assessment.

Notysing Dashboard

Dashboard

Groups

+ Create new group

MY GROUPS

Class 1A

Class 1B

Class 1A

Anna A	12	100												
Boris B	93					54				96				
Cornelia C	100	100							58					
David D		25		52	37									
Emma E	12	10												

User ID User display name **ADD TO GROUP**

Prof. Sven Ahlbäck, PhD Anna Backman Bister, sven.ahlback@kmh.se anna.backman@kmh.se

Present study; What do you learn with Notysing?

- Planned with one junior high school and one high school, but the high school had to back out due to Covid 19.
- Diagnostic test
- Work with the app for three weeks
- Diagnostic test
- The test was unfortunately not completed due to technical, logistical/organisational issues, but the study is continuing during 2021.



What have we learned?

- The importance of technical matters
- Difficult to cooperate in app-development with schools due to technical/logistical problems and rules at IT-departments
- A great interest from both pupils, teachers and school leaders, but sometimes lack of technical equipment and/or network and/or skills and/or access



Thank you for your attention!

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anna.backman-bister@kmh.se

www.notysing.com

