

TITLE

# TEDDY IN SPACE: CHILDREN CO-CREATING A CLASSICAL MUSIC EXPERIENCE

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CREDITS

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SCHOOL OF DESIGN, COMPOSER NICKLAS SCHMIDT, PROGRAMMER RIKARD  
LUNDSTEDT, AND SUPER-USERS SAM, ESMERALDA, KLARA, MINNA, HEDDA,  
EBBA, NILS, AND THEIR PARENTS.

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# TEDDY IN SPACE: PLAYFUL EXPERIMENTS WITH A SYMPHONY ORCHESTRA'S CHILDREN CONCERT

- Audience Engagement Before, During and After Concerts



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## SUMMARY OF REPORT

During the spring of 2014, Malmö Symphony Orchestra, the composer Nicklas Schmidt, Medea, and the School of Arts and Communication (K3) at Malmö University together with the programmer Richard Lundstedt, explored how children can be involved in co-creation before, during, and after a family concert. It resulted in a classical music-composing application for smartphones and tablets and two interactive installations. The production, which involved children, parents and close others in the evaluation throughout the process, brought insights into qualities and drawbacks of stretching the concert in space and time to include before and after activities. This report accounts for the results generated from the experiments and the research and development process that lead to the experiments and the building of three interactive applications.

The children, parents and close other appreciated that the concert format extended into the foyer after the concert, which lead many concert-goers to stay in the concert hall for an hour after the concert ended. Combining calm, explorative, and compositional activities with more intense, goal-oriented and physical play activities proved to be a fruitful use of contrasting activities in the foyer. The children could move in and out of activities, which lowered the threshold of engaging with the interactive installations and the tablet application, which made them highly accessible. The music composing application focused on music making while the interactive installations – although enjoyed by the children and grown-ups – had a weaker connection to the music making. The installations emphasized collaborative play where children and grown-ups could share an experience together while the music application on tablets was to a larger degree a single person experience where close others had a more passive role. The foyer activities also show that audience engagement can be as simple as just being physically present. Although not extensively explored, the composition application showed that engage with it before the concert raises the level of engagement and increases the children's' recognition of the music performed and their attachment to the orchestra. It also shows that some children play the application several times a week for several weeks after the concert, extending the experience considerably. Simply 'being there' in the foyer opened up for a dialogue exchange that can strengthen the relationship between, the audience and Malmö Symphony Orchestra. New media can thus play a role in audience engagement. However, the experiments show that they need to be anchored in, or at least accompany, face-to-face activities in order to develop and sustain a long-term relationship with the audience. The audience holds a lot of knowledge, and it is evident that members of the audience are more than willing to share this knowledge if an opportunity is provided.

The children used the "The Teddy in Space" application to engage in creative composition as they played with and added their own recordings to pre-recorded music specifically composed

for the event. Co-creation therefor happened in two ways. They composed at times together with siblings and grown-ups, as the tablet allowed for collaborative engagement. To our surprise the application worked for a wide age span, which is difficult to achieve in interactive applications, as they easily become either too difficult or too easy if when an application targets four to ten year olds. However, for the most part the children composed on their own. It also, in a more indirect fashion, opened up for co-creation since they were building upon the composer's compositional elements that could be combined in new novel ways.

Research and Development processes as the “The Teddy in Space” inevitably involves many organizations, knowledge domains and competences that have different ways of working and values. On a general level the collaboration worked well as the outcome testifies to. The strengths of the collaboration were that a team constellation was created quickly, had the right mix of competences and everyone was open to find workarounds so that the project could move forward. All the partners were willing to learn from each other and compromise. Another strength was that the children were actively involved in throughout the process by providing creative input and showing us what did and did not work. Some of the drawbacks were that we had wanted to have more time to try out various solutions and fine-tune the concept. A considerable drawback was that the team could not meet face-to-face to the extent it wanted, which lead at times to that design decisions were not debated and anchored sufficiently among all partners.

## INTRODUCTION

As new media changes our consumption patterns, established and traditional culture forms – like classical music – are required to adapt to meet other demands from new audiences. Even though traditional arts are not seeing a decreased consumption, they tend to reach their audience through new media formats, like the CD or the mp3 playlist in the case of classical music, rather than the location-bound performance.

Different cultural forms have their own expressive elements, that more than often require some sort of ‘reading’ or ‘decoding’ effort to be made accessible. People who are not initiated, thus not able to ‘read’ the performance, are not able to construct meaning or add value to the experience. Without any kind of interpretive assistance, these ‘traditional arts illiterates’, often represented by younger generations, are excluded.

In a time dominated by active participation, the lack of interaction found in many stage-centered formats today is one important concern when designing for audience engagement. To be able to meet new audiences, art institutions face the challenge to transform and make their content relevant and accessible without losing what makes their art form unique.

Audience engagement is not simply about targeting the right audience with the right content formatted in the right way. Strategic thinking and careful planning are fundamental to reaching dynamic interactions and maintain sustainable relationships with an audience.

This report accounts for a case study where new media and traditional art forms have been used in confluence to explore novel ways to work with audience engagement in a classical music context. The study has been informed by traditional practice-based design research, and has been executed in collaboration with Malmö Symphony Orchestra, here on referred to as MSO.

Accounting for the design process and collaboration, the report aims to provide extensive documentation and evaluation of the production. On a general level, the report accounts for lessons learned from collaborative processes and organisational matters as new media formats intertwine with established art traditions. On a more detailed level, the specific design context – exploring audience engagement and co-creation in relation to children and classical music – is analyzed.

Targeting one of the recurring productions that MSO gives a couple of times a year, the case was centered around a children's concert format narratively fronted by a teddy bear called 'Nalle'.

## CASE

MSO's 'Nalle concert' has packaged classical music in a 'child friendly' format. Through collective gesture performances and sing-along of familiar songs accompanied by the orchestra, the children are encouraged to bring and involve their stuffed animals in the performance. An activity normally enjoyed with a grown-up relative and friends.

Although the actual performance on stage has been successful and engaging to the audience, the meeting between the audience and the music has normally been confined to the 45 minutes that one concert lasts. The main challenge in this case was to explore whether the audience could be further engaged, and if the musical experience could expand the time and place of the stage performance. This exploration was realized in the form of a production on March 29, 2014, as MSO gave a 'Nalle in space' themed concert.

## THE 'NALLE' CONCERT FORMAT

The 'Nalle' concerts are generally held together by a strong and prominent narrative starring Nalle, and is on stage fronted by a narrator who takes the audience through the performance. The

narrator (i.e., the concert presenter) is also the one who instructs the audience in the co-performative elements where the children sing and perform gestures with their stuffed animals. The story is communicated through the presenter as she instructs, narrates, and acts out parts of the story in dialogue with the Nalle character. The music works both as a more peripheral enhancement of the narrative, and, at times, as being at the center of attention to emphasize dramatic turns.

## PRODUCTION GOALS AND DESIGN PREMISES

One overarching project goal was to explore how the musical experience could be stretched beyond the concert, and include co-creation before, during, and after the concert. Other challenges concerned what dramaturgical and pedagogical formats could motivate children, how different age groups could be involved in lighter forms of co-creation, and how the parents could be engaged. MSO was willing to collaboratively engage in these questions, which made it possible to try ideas and explore possible answers through focused experiments.

It was decided that it wasn't the format on stage that was to be affected, but the whole experience of preparing for, being at, and digesting the event. We chose to treat the concert as the center of the event, but put our effort into places beyond the stage and the time of the actual concert. We decided to focus on the foyer, because we knew the concert guests would gather there and that the space would be big enough to house the whole audience. We also thought of ways in which the format could be extended in time. What could it mean if the concert experience started at home? And, could the children become co-creators?

## DESIGNING FOR ENGAGEMENT

We aimed to design both calm and more physically intense activities. Playful, physical activity could meet the kids' need for getting an outlet of their energy after 45 minutes of sitting still in the auditorium. Calmer activities could emphasize, for example, musical composition and more focused exploration.

As a way to let the musical experience 'leak out' into the foyer, students at K3 were encouraged to design for that very place. Two teams of interaction design master students, who worked with installations in the foyer, explored the interaction between children and music through workshops at a local school. The students were involved through the Malmö University course 'collaborative media', and were tutored by two people in the project team, as well as they were collaborating with stakeholders from MSO.

To expand the experience beyond the concert hall, we needed a format that could be moved and that allowed the user to move in and out of activity. Due to the demand for flexibility and mobility, as well as the demand for a format familiar to young children, an application for smartphones and tablets seemed most appropriate. As opposed to computer mouses for desktop computers, children are often more familiar to navigate and operate with touchscreen interaction. In contrast to the more still and potentially focused activity that the touchscreen could offer, the student teams also worked with installations and physical prototypes to engage the children in tangible and physical interaction, thus enabling physical activity.

## TEAMS AND ROLES

The team responsible for the smartphone/tablet application consisted of Nicklas Schmidt (composer), Rikard Lundstedt (programmer and sound designer), Erling Björgvinsson (interaction designer, researcher), Marie Ehrndal (interaction designer, research assistant), Karolina Rosenqvist (project manager), and Gabriella Bergman (producer at MSO). Gabriella was an important link to the actual event since she had produced Nalle concerts for several years. Since the app would centre around music and sound, programmer and sound designer Rikard Lundstedt was well suited for the development. The classical composer Nicklas Schmidt was involved early in the process, and was part of shaping the whole experience in close collaboration with the team.

The interaction design master students were split into two teams who worked on separate projects. One team consisted of Michelle Westerlaken, Dariela Escobar, Inge Van Hoppe, and the other of Tor Hellström, Juan Colino, and Jess Stubenbord.

## STUDENT INSTALLATIONS

As a complement to the app, and as a way to let the musical experience ‘leak out’ into the foyer, students at K3 were encouraged to design their own projects for the event. In tutoring sessions, the students got directions and support concerning design decisions for the specific context assigned. They conducted most of their design research by exploring for themselves, by attending the same concert format but with another theme, and by engaging in musically themed workshops with children from a local school made available by contacts in the team. This resulted in the students finding valuable data through research, and made them able to design proposals within the frame of their own design contexts and principles.

## THE NALLE IN SPACE APP

Starting out, there was a set of design principles that provided a frame and guided the design process of the app. Apart from having it center around classical music, we also wanted it to involve musical composition and a co-creative element. It was also important that the application was open and playful, since having a set goal – as that of a game – would limit creative exploration. The app was to be based on simple components that were easy to harmonize musically, but it was also important that the app did give space for creative freedom and experimentation. In the effort to extend the narrative universe of Nalle across time and space, it was also important to base the app on the actual concert. The space exploration theme and the idea of involving musical composition were integrated into an idea of using a solar system as an instrument for musical discovery. The children could not be expected to play with components that were too elementary, such as sounds of instruments, since that would most likely lead to cacophony rather than anything close to musical composition.



Fig.1: Early concept exploration sketches

The final result was a music sequencer, a ‘digital toy’, visualized as a solar system where the user was encouraged to interact with planets, the sun, and space rockets to manipulate, record, and create unique compositions. Each planet represented a collection of looped sound recordings, thematically tied together through the use of similar instrumentation. To switch between sounds, the user simply touched the planet. The planet would then change the hue of the texture to indicate that a change had been made. To better help the user distinguish between the planets, the shapes and basic colors of the planets were made diverse. The sounds were also sorted by instrument category to support the compositional activity.

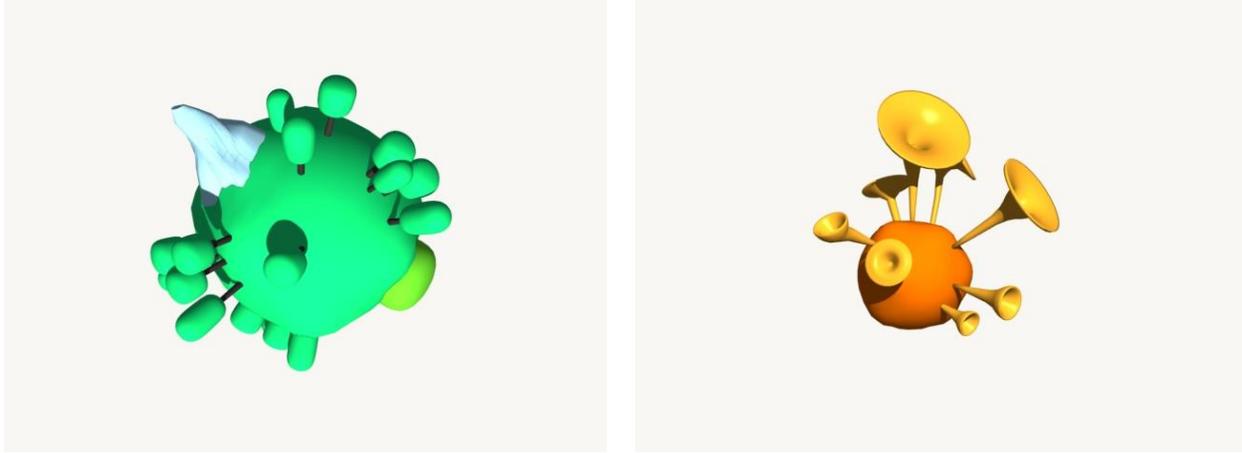


Fig.2: Early 3D concept exploration sketches of diverse planets

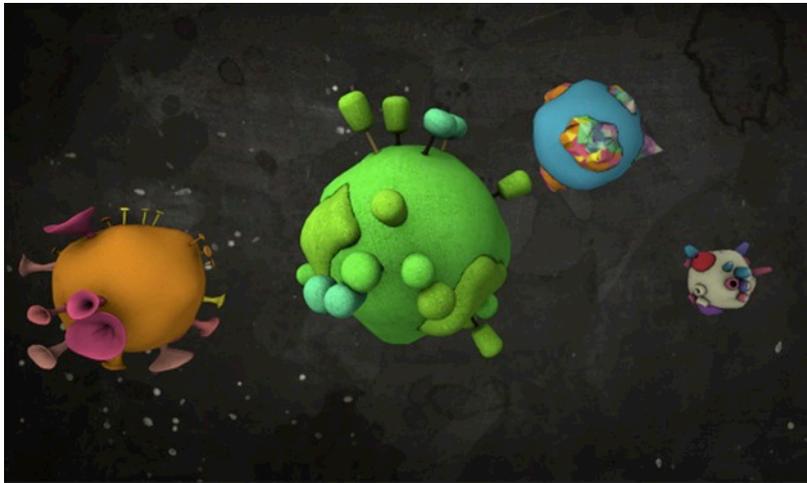


Fig.3: The diverse 3D models put together in the Unity game engine

To make the occurrence of an interaction clear, the planets were designed to scale up considerably as soon as a user tapped them. Apart from touching to switch sound, the user could also use swipe interactions to drag the planets across the interface. The swipe interactions were ‘stacked’ on each other in the sense that the same interaction could be performed in a slightly different manner to reach a different result. Swiping a planet in the opposite direction of its trajectory would make it move backwards and play the associated sound backwards. But, if the planet was swiped fast in another direction, it would be ‘thrown away’, which resulted in the planet becoming silent.



Fig.4: The 'Nalle in space' app, viewed on an Ipad.

To increase the playful qualities of the objects, the planets were also given a 'spring effect' that made them go back to the original orbit position if they were moved in any other direction than backwards. To better help the user distinguish between the sounds played back by the planets, they also changed size according to the rhythm of the music.

The functions of the app were to switch between different loops on the different planets, to turn the planets on and off, and to change the movement direction and playback mode of the planets. Apart from this, the app also featured a recording function that allowed users to record three different sounds. To clearly distinguish between the pre-recorded orchestra music, the recorded sounds were represented by space ships. The space ships were diverse in their shape and color to help the user keep track of which sound was connected to what object.

Initially, the application featured all the planets and space rockets from start, and did not offer any progression. Since introducing all the features at the same time made the children lose interest early, basic progression was introduced to provide bit-by-bit exploration. Unlocking one planet or rocket at a time, depending on the amount and variety of interaction, became the final progression. The rockets, that were unlocked last, enabled the user to record sounds.

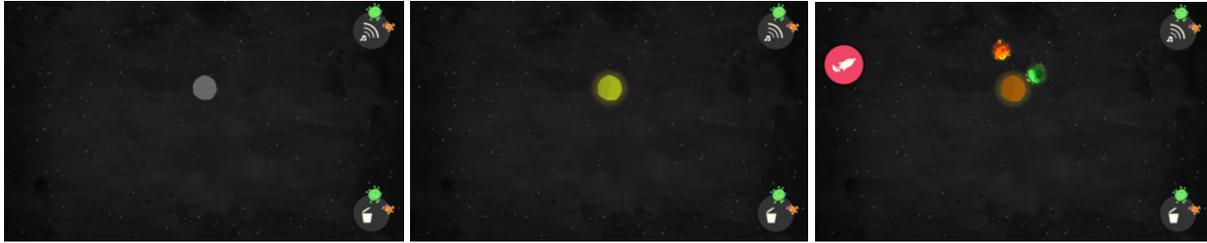


Fig.5: Progression from start and until the first two planets have appeared

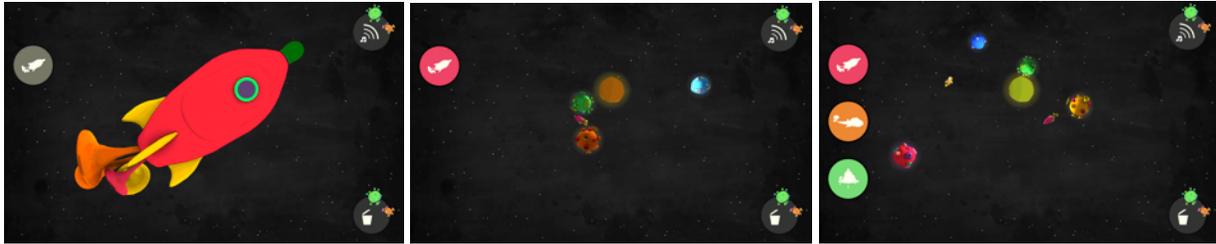


Fig.6: The left image shows how the first unlocked spaceship is recording

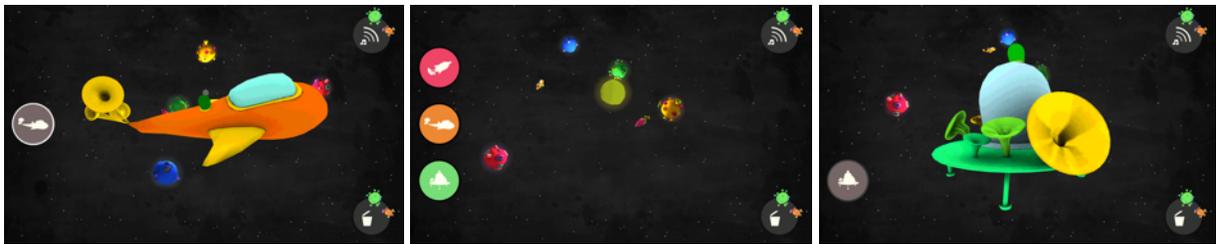


Fig.7: The screenshot in the middle shows the icons as all the spaceships have been unlocked

In the end, we implemented a function to ‘send’ the user-created composition to Nalle, as an attempt to further strengthen the narrative connection to the concert. This was also a way to bring closure to the activity of composing.

## 2D INTERFACE DESIGN

To avoid language limitations of younger and children not speaking Swedish, we aimed for a completely visual approach. Since we had such few functions in the app that needed to be represented by traditional 2D interface elements, we used illustrations to try and make the app understandable to younger children. We used the conventional paper bin metaphor to indicate that something would be thrown away, and an icon indicating that something was ‘sent’ or ‘beamed’ into space. The icons were also kept large in relation to the rest of the interface. This was to make the interface accessible and easy for younger children who might not have developed their motor skills to perform subtle and precise interactions.



Fig.8: 'Throw away' icon



Fig.9: 'Send music' icon

As the 'throw away' icon was pressed, a dialogue box covered the interface so that the user had to confirm or reject the option. To clarify the consequence, an illustration was added that showed how the planets would become colorless and empty if the action was to be proceeded.

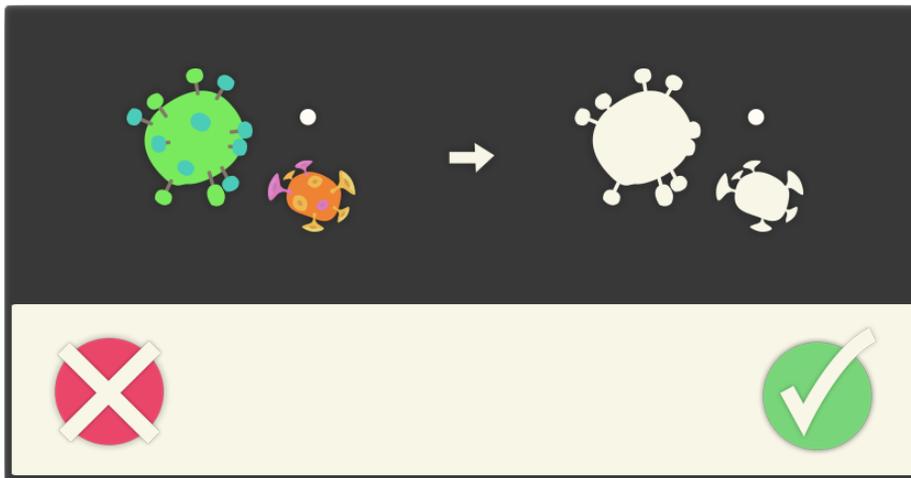


Fig.10: Pop-up window that confirms or rejects a 'reset'

As the 'Send music to space' button was pressed, an icon appeared with Nalle confirming the action with a wave of his paw. Both dialogue boxes used conventional symbols and color codes to indicate confirmation and rejection of the chosen action. To avoid any accidental presses on the wrong button, the icons were positioned with a generous amount of space between them.

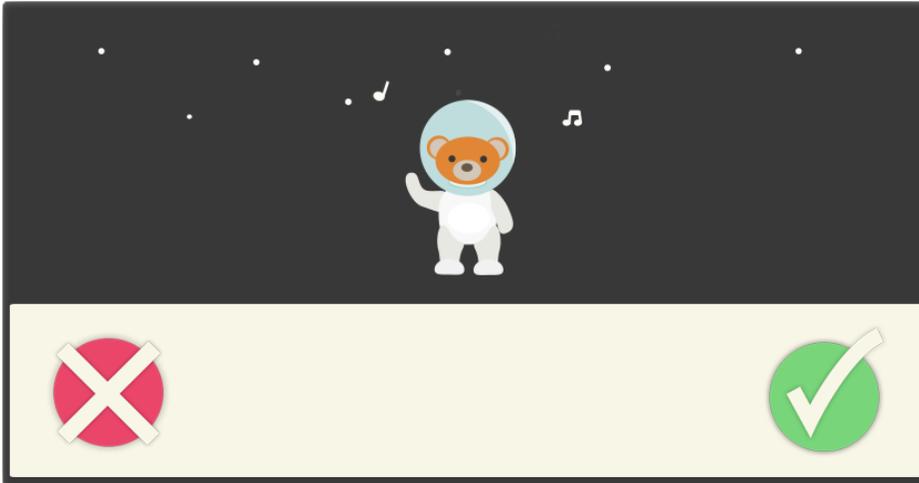


Fig.11: Pop-up window that confirms or rejects sending music to Nalle

To make a stronger connection between the app and the Nalle in space narrative, illustrations were created to convey the story visually. The illustrations were displayed on MSO's website along with the links where the app could be downloaded.



Fig.12: Illustrations that conveyed the narrative being told on stage

The illustrations were designed in conjunction with the interface icons and the application icon that represented the app on the devices, this to ensure a holistic aesthetic.

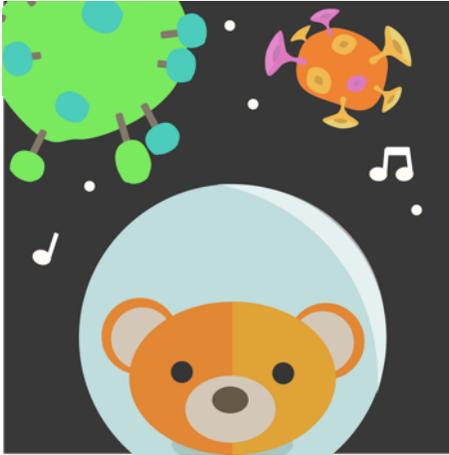


Fig.13: Nalle in space application icon

Initially, the Nalle in space application was supposed to be experienced before the concert. This had to be cancelled due to the strict time schedule. For the same reason, the app was designed for rather than with children. We gathered a handful of kids that were to make out a 'super user' group. The user tests were performed remotely. As we rapidly updated the app, new versions were pushed out to those people with short notice. Some parents ended up filming their children as they used the app. This proved to be especially helpful, since it allowed us to observe the children ourselves as well as take part in the parents' interpretation of what the kids were doing and how they were reasoning. Gathering children for thorough face-to-face evaluations would most certainly have been preferable, but the time schedule did not allow for this to be arranged. In the end, the last version of the app was still treated as a prototype.

## FROM STAGE TO FOYER

Except for the visual and musical theme from stage being present in the application, the narrative was also expressed and connected to the app at the end of the concert. The presenter, Vicky, briefly introduced the app with a few screenshots, and told the audience it was available through both 'Appstore' and 'Google Play'.



Fig.14: Vicky presenting the app on stage

The station where the app could be played with was a setup of eight tablets on a large table. The table was low in height, and the seats consisted of pillows on the floor, to make the space feel more like a casual hangout place rather than a testing lab. Three pedagogical instructors from the research and development team were ready to act as instructors and support during the play sessions.



Fig.15: The Nalle in space app station

As the concert ended and the foyer doors opened, hundreds of children crowded the space in an instant. The 45 minutes spent sitting down had taken its toll, and many kids displayed a strong

urge to move and be activated. The noise from the massive crowd of energetic and playful children provided a rough environment for focused, explorative, and more subtle activities to occur.



Fig.16: The Nalle in space app station

Despite the intense soundscape surrounding the station, most of the children were surprisingly calm and seemed to focus intensively as they used the app. The children were supported in their exploration of the application, as instructors helped them to get started.



Fig.17: Children exploring the app in the foyer

The amount of time the children were able to spend with and remain focused on the app was quite surprising. Most children spent around 5 to 15 minutes, despite the intrusive sound level and intense atmosphere surrounding them.



Fig.18: Children being supported by instructors, parents, and grandparents to learn the app

Most parents engaged in playing together with their children and tried to guide their children, while others avoided the pedagogical role by taking on a ‘the kid knows apps better than me’ attitude.

As some children were deeply immersed in the app, and spent a lot of time with it, other children could click around on the tablet and then move on without forming a deeper understanding of the app. If these differences between children’s behaviours had to do with personality or their mood at the time is hard and perhaps uninteresting to address. But the fact that the contextual factors were not optimal suggests that more children might have been able to focus longer on the app in another setting.

Most children were eager to understand and learn what the application was all about. They were mostly concerned with the 'what' and 'how' regarding the application. As they were introduced to the functions of the app, they did not seem to lack a narrative frame, purpose, or need to answer a 'why'.

Although a majority of the visitors who approached the app station were children plus parents, a big part of the audience consisted of grandparents who brought their grandchildren. The general age span among the children was between 3 and 10 years of age, and the app was anticipated to be too limited for that broad age category. At a point when something becomes too hard to understand for a 4-year-old, it at the same time risks being too simple and lack the complexity that would stimulate a 10-year-old.



Fig.19: Children exploring the app

To our positive surprise, no specific age or gender was overrepresented. We had 9-year-old boys getting intensely absorbed by the application, as well as small children appreciating the rich visual feedback as they pressed the buttons. This suggested that the app contained elements that appealed to very young children and at the same time offered some of the depth and emergent complexity that would potentially be demanded from older groups.

The youngest user was 6 months old. She was held by her mother and helped by the instructor to navigate the app. She alternated between clicking the planets for visual feedback, looking at the instructor and her mother as she smiled as to get the mutual experience confirmed.



Fig.20: The youngest app user

Some children started to perform gestures and made faces as they recorded their voices, suggesting that they were acting or dramatizing. This indicated that the app successfully connected to and extended the performative activities of the stage performance in the concert hall. The app would thereby not only work as a compositional instrument, but sometimes became a prop in smaller performative outbursts. This also suggests that touch and screen-based interaction can be physically engaging, and actively involve the whole body.

When the volume in the foyer allowed for it, children who had their siblings or friends with them often explored the app together, collaboratively. The interaction pattern of the app, however, only allowed for one touch and the lack of multitouch support became an apparent drawback. Some children took on pedagogical roles and taught other children how to use the application. The environment and setting somewhat hindered the social interaction between children and adults. Since headphones had to be worn in order to hear the sound, the experience was not shared between adult and child. This sometimes resulted in the adult becoming passive, especially when the kid found the exploration interesting for longer periods of time.

## THE INSTALLATIONS

The student installations provided a much needed outlet for physical activity, as children were engaged in playful challenges and tangible interaction. At the 'Nalle's magic hoops' installation, the children were challenged to throw their stuffed animals through rings hanging at different heights from the ceiling. As the children successfully heaved their animals through one of the

colorful rings, a musical piece was played as a rewarding feedback mechanism. This was less of an explorative, compositional activity, and more of physical, goal-oriented one.



Fig.21: 'Nalles magic hoops'

The 'Nalle's magic hoops' installation was much appreciated, and the children stood in line to throw their stuffed animals through the colorful hoops. Michelle Vesterlaken, who were one of the team members, learned a lot from the experience;

*"The children had fun, and it was very rewarding to see how engaged they were in the activity."*

The second student team made an installation called 'Nalle's space program'. It consisted of tangible objects, such as large buttons and wheels, that affected the behaviour of light and sound. The visual aesthetic of their piece was quite rough, and it was evident that this was a prototype. It suffered some technical difficulties, but the artifacts and colored buttons still engaged the children, and caught the attention of curious parents. Tor Hellström, who was one of the team members, was a bit disappointed about facing technical problems during the event, but still thought both his team and the audience seemed to appreciate it;

*"The kids seemed to have fun, and their parents seemed very curious to see how the installation worked."*



Fig.22: 'Nalles space program

## REFLECTIONS ON THE FOYER ACTIVITIES

It was clear that more physical activities can successfully be combined with calmer activities that demand focus and patience from the child. Since the range of activities were varied, most of the children seemed to find an activity they enjoyed. The need for an outlet of energy after the concert was met by the installations, and extending the musical experience beyond the stage transformed the foyer into a playground and a social meeting platform.

One of the design students described the experience of being involved in a sharp production in collaboration with an external organisation in a positive manner. She also described how valuable it was to be able to test the installation on spot, and how it gave the team insight to how the installation could be improved. From our observations, children had no problem focusing on a still and focused activity, such as musical composition, even though the environment did not seem optimal for this.

Several design flaws became apparent at the app station in the foyer. The illustrated icons were hard to grasp by young children, but most still succeeded in using the app by exploring and testing the interface. Restarting from blank and sending the music to 'Nalle' was too hard to differentiate between. It was also not clear that you from the start were supposed to touch and manipulate the sun to progress forward, and this had to be demonstrated to some of the users. There was also a slight lack of depth in the manipulation possibilities available when it came to musical composition. This affected the explorative qualities and limited the compositional possibilities of the app. It became evident that the recording function was as an essential feature since it allowed the children to add something of their own. This increased the depth and added longer lasting value to the application.

Some children, especially younger ones, found it amusing enough to simply touch the planets and throw them away. This suggests that the app was visually interesting, responsive, and had playful feedback qualities that invited to interaction.

## THE FOYER AS A MEETING PLATFORM

Extending the experience beyond the stage into the foyer proved to be a great 'platform' for deepened audience engagement. The foyer provided a much appreciated contact point for the visitors to meet and have a dialogue about the concert. It became evident that the audience appreciated being able to express their opinions about this concert, previous concerts, as well as recount for their relationship to MSO. One grandmother had been bringing her grandchildren regularly for about ten years, and this was something she brought up with great pride.

## AFTER THE CONCERT

As part of our evaluation, we sent out an online form to MSO's mailing list of guests who attended the concert. We also conducted in-depth phone interviews with a handful of visitors. What should be noted here is the apparent challenge to evaluate the experience from the children's point of view, since they are not the ones answering online forms. What the evaluations can be based on is our observations from the foyer and the ability of the parents or grandparents to interpret and speak for them.

## ONLINE EVALUATION

The online evaluation was sent out shortly after the concert. About 14 percent of the answering guests were first-time visitors. Since most of the recipients were not first-time visitors, a majority

of them had a range of concerts to ‘measure’ their experience against. A majority of the visitors, as much as 79 percent, were recurring visitors who attended concerts up to 6 times per year. 43 percent of the recipients could be seen as highly frequent guests since they visited similar concerts 4-6 times a year or more.

**Hur ofta besöker ni dessa eller liknande konserter tillsammans, ungefär?**



Fig.23: Representation of how often the recipients visit similar concerts

About 29 percent percent of the answering guests had come in contact with the app, while 5 percent were unsure. Of those who had tested the app, a majority had used it after the event rather than during the actual visit.

**Har ni testat appen 'Nalle i rymden'?**

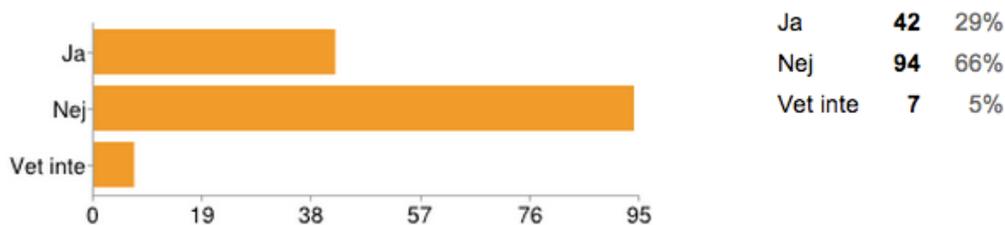


Fig.24: Representation of how many of the answering recipients had tried the app

**Beskriv när ni använt appen:**

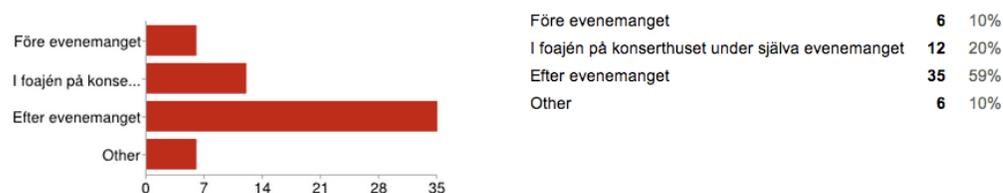


Fig.25: Staple diagram representation of when the recipients had used the app

The question ‘How did your child use the app?’ received a mix of answers. Most children had been left to play alone with the app, but some of the recipients noted that their children used it together with a grown-up. Some of the ones who had not tried the app in the foyer had a hard time understanding how it worked. In many of these cases, the children seemed to have been left to sort it out by themselves.

*“The 5-year-old thought it was fun to record sounds, also speech, and to listen to it afterwards.”*

*“The kid has used the app once but since he was disappointed at the Nalle concert he lost interest in the app”*

The usage of the app outside the concert hall seemed to span from everything between 10 minutes right after the concert to a couple of days in a row. It was clear from the answers that children spent more time with the app if they had been introduced to it at the app station, or if they had been playing together with a grown-up. Many described that the app was hard to understand, and that the children needed assistance to be able to figure it out.

*“Played for about 10 minutes in the car, unfortunately we couldn’t help her. She would have needed our help, since she didn’t grasp exactly what the app was about”*

*“The 6-year-olds tried it on the train before the concert but couldn’t figure out what to do. On the way home it went better. Since it’s my grandkids I don’t know if they’ve downloaded it at home”*

*“Played a little bit together but then the kids have played on their own. It is hard to figure out the app, but our son played it afterwards at home also ”*

*“Not more than within the course of two days after the concert. Lost interest”*

*“Tried it shortly after the concert, but it did not entice to further play.”*

In early April, 2014, the number of downloads from Appstore was 328. In late May, the number of downloads from Appstore was 430. In early June, the number of downloads from Google Play was 102.

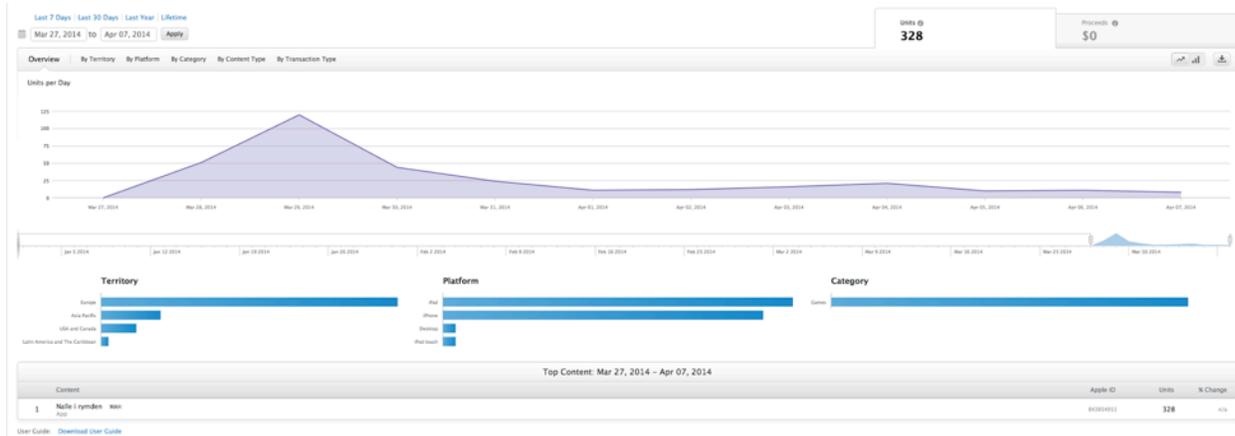


Fig.26: The number of downloads from Appstore in April

#  
#  
#

| date     | total_user_installs |
|----------|---------------------|
| 20140609 | 102                 |
| 20140608 | 102                 |
| 20140607 | 101                 |
| 20140606 | 101                 |
| 20140605 | 101                 |
| 20140604 | 100                 |
| 20140603 | 100                 |
| 20140602 | 100                 |
| 20140601 | 100                 |
| 20140531 | 100                 |
| 20140530 | 100                 |
| 20140529 | 100                 |
| 20140528 | 100                 |
| 20140527 | 100                 |
| 20140526 | 100                 |
| 20140525 | 99                  |
| 20140524 | 99                  |
| 20140523 | 99                  |
| 20140522 | 99                  |
| 20140521 | 99                  |

Fig.27: Total amount of installs extracted from Google Play

In many cases, the recipients were grandparents who could not account for whether the app had been used at home or not. Many of the grandparents said that they ‘thought so’, but that they could not know.

As observed at the event, many of the recipients’ children were eager to show other siblings, friends, and grown-ups their compositions. This was also something they seemed to do as they played with it at home.

*“The kids play by themselves and together, and like to show what they have created. To be kids that are generally quite uninterested in games, they have been very interested in this app!”*

*“Has played with grown-up, a couple of hours altogether”*

*“The children have played with a grown-up, then the 4 year old has played on his/her own. Once, and about half an hour.”*

*“Both for themselves and with grown-ups. They have been playing almost every day since.”*

To make sure the children had understood the app, we also asked the recipients to account for what they thought the kids thought the app was all about. With an exception for the very young children, the concept of musical composition had been understood by most children.

*“It was about music. You could build music (answer directly from 6-year-old).”*

*“Sending music to space.”*

*“I don’t think he grasped what it was about. I have explained.”*

*“Music in space! Liked the rocket function where you can record yourself.”*

*“They thought it was fun, and got the idea (4-year-old)”*

*“Thought it was very amusing to record sounds”*

*“They got quite a clear apprehension of what they could do with the app, they sat down for quite a long time and did not want to leave (the concert foyer). I think they will try it at home, with the help of their mother.”*

*“Music creation, composition. He liked that he could do what he wanted, and did not have to follow a certain path”*

The narrative was grasped by most of the recipients, probably because the connection between what happened on stage and what your goal was in the app had been made clear at the end of the concert. The balance between exploration and set goals was unclear to some users. While the app was supposed to work as a sequencer, this somewhat clashed with the concept of 'sending' music into space. The metaphor of 'sending' something seemed to imply that something 'complete', with a clear beginning and end, was to be delivered. This left many wondering how the music could be recorded.

*“We understood that we were supposed to send music to space. We clicked the planets och rockets, but we did not understand how we got the rocket away or how we could listen to the music we composed”*

This could also be tied to the icons not being clearly communicating, or a lack of feedback that the music had been 'sent' to Nalle.

Although some parents reported that their kids had used the app for ‘only half an hour’, it is important to note that this is almost the same amount of time as the duration of the actual concert. Half an hour of full focus is quite a long time for a 5-year-old child.

Many recipients had thoughts on the concert content, and shared feedback on everything from concert duration to choice of music. To complement our observations during the event, and to form a deeper understanding of the audience experience, we contacted three of the visitors for more in-depth, qualitative interviews.

## QUALITATIVE PHONE INTERVIEWS

To form a more in-depth understanding of how the participants experienced the event, we conducted a few qualitative telephone interviews. The participants contacted were audience members whom we had met at the app station. The interviews varied in duration between 20 and 60 minutes.

### KARIN AND LARS

Karin and Lars were interviewed on a shared speaker phone. They went to the concert along with their granddaughters who were 5- and 6-year-old cousins. They stated that they had visited similar concerts about 5-6 times per year, and that they were subscribers who always kept updated on new concerts from MSO. They were very talkative, and had lots of feedback to provide.

Karin was very positive, and thought that these types of initiatives were fantastic for the children. Their critique was appointed towards the content on stage. They stated that the activities in the foyer were more interesting than the actual concert, but that the concerts they had attended before had been of much greater quality. When asked which activity the children favoured, they answered that all activities had been equally appreciated by the kids. They described how they had enjoyed listening to music (which was their direct understanding of the purpose of the app), throwing animals, and playing around with 'Nalle's house' so much that they had a hard time getting the children to go home with them.

When it came to the app, this was something they expressed that the children appreciated a lot on spot. The children were at the app station both before and after the concert, and Karin pointed out that they would probably have spent more time if they didn't feel the need to take turns and leave space for other kids to try it out.

Lars also pointed out that the app station in the foyer was too small, and how this was problematic since it left him and Karin out of the experience. When they downloaded the app on their own, they could not see the connection between it and the concert at all. After some description of the app, it was clear that they had downloaded an old app made for another Nalle concert.

*"It is possible that the parents downloaded the correct app – they are very interested in music in general"*

If there had been room for Lars and Karin next to their grandchildren at the app station, they would probably come to understand that it was more to it than simple listening. They might also have been able to engage in co-creation and would most likely not have downloaded the wrong application after the visit to the concert hall.

Even though the messy impression Lars had seemed to partly stem from a misunderstanding, it was evident that a coherent experience was of great importance for Lars. They could not see any clear connection to many of the songs sung and the space theme. Lars especially mentioned the symphonic poem 'Also sprach Zarathustra' as something that had no relation to space whatsoever. Instead, he started to mention one symphony after another, that he thought could be related to the space theme. It was evident that Lars had great knowledge about classical symphonic orchestra music, as he mentioned at least ten works that he saw would fit this particular theme. He saw the space theme as a great opportunity to really explore many classical works, but was quite disappointed about the actual concert content.

On the question regarding the activities surrounding the actual stage performance, the response was overwhelmingly positive.

*"It was nothing but great. Amazingly fun to attend. Super exciting!"*

## BRITT-INGER

Britt-Inger attended the concert hall with her husband and three grandchildren in the ages 5, 7, and 8. She had been a subscriber and frequent attender of MSO concerts for several years. She thought that the Nalle in space concert was the best they had ever attended.

*"Very nice and appreciated, both from our side and the grandkids. The children tried out all the activities and thought they were entertaining. They thought that the whole event was more fun than usual."*

Britt-Inger and the children spent a lot of time on all activities in the foyer, both before and after the concert. When it came to the app, it was clear that the kids understood it, but unclear whether the app had been downloaded and used after the concert.

*"They said that they managed to create their own music. They are used to Ipads, so they thought it was great. We don't know if they downloaded the app, but we told them it was online. "*

She also described how she and her husband were not technically savvy, and that it would be up to the children to fetch the app on their own or to perhaps ask their parents for help.

## MARITA

Marita was accompanied by her partner and their three grandkids in the ages 3, 4, and 6. They had been to Nalle concerts before, and liked the format. She thought it was hard to engage the youngest kids in the concert.

*"The musical pieces just tend to pass them by at times. The youngest one fell asleep at the end of the concert."*

Although her youngest grandchild was hard to engage in the actual concert, the older children appreciated it greatly. She described the surrounding activities in a very positive manner, and accounted for how they had also successfully included her younger grandchild in the experience.

"The older children loved the concert, and everyone appreciated the concept as a whole. They were ecstatic to a point where they did not want to go home at all. "

She stated that this would be an experience they would not forget easily, and that they hoped similar activities would be present during upcoming concerts.

*"It was great that they could involve their stuffed animals, and the activities surrounding the concert really spoke to the children."*

## KRISTIN

Kristin's family are recurring guests at MSO's concerts, and she visited the 'Nalle concert' with her 4-year-old son Anders. Her 8-year-old daughter Eva did not attend the concert this time, but she still had some general feedback to MSO regarding previous concert experiences.

*"Eva thinks that the trumpets should not take over too much, but that they are allowed to be in the orchestra. I agree, they tend to take over. The other instruments are more subtle."*

As the attention was directed back to the specific concert evaluated, Kristin stated that the concept framing this concert was an especially rewarding experience for her son. Since they had been part of the 'super user group', Anders had already tried the app before the concert, and could to his delight recognize the piece as the orchestra played it. Kristin recall him shouting; 'It's the one I've made in the game!', as it was performed on stage.

*"I also reacted to this. The recurrence was enjoyable for both of us."*

At home they had been using the app on both Ipad and Iphone. As Kristin described how they used the app, it became apparent that she had been deeply involved in the children's exploration of the app.

*“Then we have been able to record one voice each. The four-year-old got really into it, and used the Star wars melody. Da-da-da-da. For him it's the connection to space. He records all three satellites in the app, and have them play simultaneously. It's a lot of fun.”*

For Kristin, Anders, and Eva, the app seemed to have successfully transformed into a platform for social interaction and co-creation. The app continued to be most interesting to 4-year-old Anders. Kristin described how Eva wished the game wouldn't have 'ended' that fast. She missed percussion, and as she recorded she mostly used her own voice. Apart from wanting to record more sounds, Kristin stated that Eva would also have liked to be able to change and manipulate the recorded sound.

*“Eva returns to the game every other day. Right now, it's her favourite game. Anders also. He is not allowed to play too much, but he has had it as a 'pause game'. They don't have anything like it. We have the games at 'Barnkanalen' and 'Findus'. The closest is the 'Radioapan' app. They really like the music in the Nalle in space app.”*

Kristin mentioned how her husband, who is a percussionist, as he was lying down to rest had said: 'Gosh, what a beautiful game. You can play that more often. Major difference from games that sound bad and are disturbing.'

Kristin said that they learned the game quickly, and that the children understood it faster than her. They used their own voices a lot, as they sang and made sound effects. She describes how Eva used the app as an instrument, rather than a compositional platform.

*“She used it more as a 'live' instrument. She has come up to me and said 'listen to this funny part', but she has not seen it as composition.”*

This was also true for how her son used the app, as he mostly liked to touch the planets and to record. Kristin mentioned how she thought one of the strengths with the app was the absence of elements that directed it towards a specific age group. This enabled the children to use the app together.

*“It was fun that there was no age difference in the game. They could do it together. They were on the same level, and didn't have to be able to read to understand it. Many games are very age specific. Either it's too hard or it's too childish.”*

Kristin also thought it would have been interesting if the game graphics had influenced the scenography and been more present on stage. She would also have liked to see more involvement from the musicians, and that they were a part of the performance.

*“To play the game before the concert, and listen to the music, was a great advantage for me and my son. I would have liked to go to ‘Nalle in space’ again. The theme could be repeated, with slight changes in the program. The connection between the game and the concert is fun. You could then prepare before the concert and then get tips on how to do other things in the foyer.”*

## REFLECTIONS ON INTERVIEWS

The fact that Lars, a grandparent, could not connect “Also sprach Zarathustra” to the space theme could be regarded as a generational gap. The mentioned symphony is strongly connected to the 1968 science fiction movie classic “2001: A Space Odyssey”, and the song is played in strong scenes depicting and conveying the vastness of space. This reference was more likely to reach the parents in the audience, and could be seen as a failure of the slightly impossible mission to meet the diverse mix of age groups in the audience. Except for that 'misconception', the fact that Lars has lots of knowledge to contribute to MSO is evident. Both online recipients and the interviewed guests shared lots of valuable feedback and brought forward suggestions that MSO could use for future productions. Providing temporary and more permanent meeting platforms to support and facilitate dialogue would at the same time strengthen the relationship between MSO and the audience.

Marita described that her youngest child had a hard time focusing during the concert, but how the child was instead involved in the surrounding activities. At the end of the concert she had fallen asleep, but after the concert she was actively participating. The theme and music became more relevant to her when the concert format and content was appropriated to conventions and modes of interaction she was used to, which supposedly made the ‘decoding’ or ‘reading’ less of an effort. This way, she could still be an included audience member, even though she did not always manage to 'decode' the actual concert.

Overall, the activities in the foyer seemed greatly appreciated since they involved children in active participation. The range of activities, engaging the children in physical play as well as creative composition, seemed to suit the varied taste of different age groups and personalities. The fact that the app was perceived as not being explicitly directed towards a narrow age group seemed to enable siblings and friends of different ages to explore it together, and have a shared musical experience.

It was clear that using the app before the concert was something that led to a ‘deeper’ concert experience for Kristin and her son Anders. The fact that Anders was able to listen to a symphony he had been tinkering with at home, as it was being performed by the orchestra live on stage, seemed to heighten both his and his mother’s sense of involvement.

## SUMMARY OF DESIGN CONTEXT REFLECTIONS

The initial goal, to stretch the musical experience beyond the performance on stage, provided a design frame for how to design diverse activities that harmonized with what happened on stage. The evaluation shows that the activities in the foyer were engaging to visitors, and that they indeed did extend the experience beyond the stage. The foyer was ‘transformed’ into a platform for social interaction among the visitors themselves, as well as between the audience and MSO. Apart from engaging in co-creative activities in the foyer, some children continued to enjoy the app beyond the walls of the concert hall, the foyer, and the time of the concert. The musical experience has therefore evidently been stretched beyond the time and space of the concert.

The evaluation shows that the audience wanted a coherent experience; they thought it was important that the concert and the surrounding activities linked to each other clearly. They seemed to appreciate flexible foyer activities that allowed them to move in and out of the activity, and that invited to active and more physical participation. As far as co-creation goes, the app did leave some space for composing music. But the compositional depth could have been greater, which would have opened up for greater and more unique musical expressions to be made by children. The app was often shared with others, but children were seldom using the same tablet to compose and explore. Those who tried to do this were limited by the fact that the app was not adapted to multi-touch purposes. The setup at the app station was not optimal to evaluate its co-creative possibilities. Parents and grandparents had a hard time finding room at the crowded app station, and the headphones forced the children into single-user experiences. This made it hard to make out whether the app could support social interaction between parents and their children, that is, to support meaningful collaborative and pedagogical exchange.

In this specific case, the children saw a familiar platform in the tablets, and for them easily understood app format could therefore be said to enable the actual content. New media does play a role in audience engagement, but has to be anchored in or at least accompany ‘face-to-face’ activities in order to develop and sustain long-term relationships with the audience. The fact that so many recurring visitors, who also were the ones to introduce their young relatives or friends to the concert format, expressed the need to share their opinions could be seen as a sign of them being 'starved for engagement'.

The observations from the foyer also show that physical activities can be combined with calmer activities that demand focus and patience from the child. Children were able to focus despite being surrounded by potentially intrusive elements such as noisy surroundings with intense movement.

The audience holds a lot of knowledge, and it is evident that they are more than willing to share this knowledge if the platform and opportunity is provided. The online forms, that were mainly

sent out to and answered by recurring guests, hold a lot of interesting feedback that would be useful for the organizations continuing development of both the app and the concert format itself. However, members of the audience did not only comment on the 'Nalle in space' concert, but referred to a collection of concert experiences that in many cases spun over several years. The unvented need for dialogue that surfaced through the evaluation demonstrates an apparent lack of communication with the audience.

## EVALUATION OF THE PRODUCTION PROCESS

The work on the 'Nalle in space' concert has been carried out by a project team with representatives from MSO, researchers and students from Malmö University, an external programmer, and an external composer. This section describes the challenges of working in cross-cultural contexts.

### DIVERGENT CULTURES OF CREATIVE PRACTICE

As most designers are aware of, design processes are characterized by experimentation and cyclical iteration processes. The first idea to come forward is seldom instantly acted upon, since it risks leaving important problems unconsidered or better alternatives unexplored. The range of possible design solutions are always explored within a frame of goals, be they general or specific. Since design work is creative and somewhat unpredictable, it also demands a certain amount of flexibility.

In our collaboration with the large traditional arts institution MSO, we would at times notice inflexibility as a hindrance for exploration. It was hard to engage the musicians in the collaboration, the communication would sometimes be lacking, and the different work approaches was at times expressed as being in conflict. Large organisations are at times inflexible. They are dependent on long-term planning, and organisational changes tend to be slow. This can often result in applying safe solutions and already tried ideas rather than making room for experimentation. But, MSO also proved to be surprisingly flexible to collaborate with. One such example is when the producer, with short notice, managed to involve a composer and set up a time with musicians for recording music to the app. Digital content creation is often flexible. 2D illustrations and 3D models are treated as materials and parts that can be re-worked, changed, and adapted depending on how the parts work together as a whole. Graphical material is assembled and re-assembled in a cyclical manner, to enable continuous evaluation. It is not the nature of the content so much as the culture of how things are done that affects the work process when it comes to design work incorporating digital materials. Even though 3D design is time-consuming when it comes to modeling, texturing, and machine-dependent light rendering, it is

still considered a flexible practice. The slowness and inherent resistance in the '3D material' becomes less prominent as it is pushed into a flexible and fast practice or work culture.

One of the deadlines faced throughout the app development phase was the set date for the recording of the musical composition. The activity of recording an orchestra makes one example of when traditional arts can be inherently inflexible. With the help of common digital music software that the composer was already familiar with, he could still sketch and iterate on the composition before it was recorded. This in turn meant that we, in the app prototype, could try out different versions of the music before it was recorded.

The deadline for the recording of the instruments was final, and the short time span did not allow the project to go through a satisfactory amount of test and iteration cycles. This did not leave much space for trying out different compositions as the prototype was tested and re-designed. What should be noted, though, is that the development phase was quite short overall, and that everyone involved kept very flexible in spite of the pressed situation.

The end result coming out of a design process has often emerged from and almost organically grown within a framed, explorative, and collaborative process. In contrast to this, many established cultural disciplines are traditionally practiced by individuals. Creative work within design practice is often intended to suit an external goal or purpose that is not intimately tied to personal values or goals. Since artistic work can be closely connected to personal expression, it can also be hard to criticize by anyone else than the creator during the work process. Sharing a critical opinion about someone's creative work risks being perceived as a violation that infringes on the dignity of the creator. This then renders the work hard to criticize. Instrumentalizing the process of 'reflecting and re-drawing' into effective cycles of evaluation and iteration is not always relevant to artistic work, and this diversion can often become visible as design and artistic practices collaborate.

As the composer was asked to appropriate the music to the app after a test session, this was not met with any discontent, but perhaps surprise. It was also a bit conflicting from our side to ask him for an adaptation, since it risked being perceived as some kind of critique of the artwork itself, which was of course not the case. A similar situation occurred later in the design process, as user tests had shown that children had a hard time to distinguish between the different tracks that were played. This led us to ask the composers to remove one of the sounds, in an effort to simplify and strengthen the contrast between them. This perhaps rendered his composition 'less beautiful', but more functional for the interaction purpose. As artistic expression is compromised for the 'greater whole', this could be seen as one example where conflicts between artistic expression and new-media design are made visible. As we evaluated the collaboration afterwards, the composer said he was comfortable with this and that he, as all of us, only wished we would have had more time to polish the whole application.

## THE COLLABORATION

Since the project team was put together for the purpose of exploration and experimentation, this would at times clash with the set long-term plans and day-to-day work routines that MSO had. At times, it was a challenge to engage them in a work process they were not used to. Everything from the communication with the marketing department to attempts to involve musicians outside their own schedules was met with slight resistance throughout the process.

Early on, the project suffered from MSO staff moving in and out of the collaboration to an extent where no one from MSO had an overview. Gabriella Bergman was the one representative from MSO's organisation who was deeply and actively involved throughout the whole process. In the capacity of being a musician and producer of the Nalle concert format, she was an important link between designers, musicians, and other project members. Her role was therefore necessary for the project to work out at all. The dependence of actively involved and dedicated individuals in these kinds of collaborative processes is not to be ignored or underestimated.

Large institutions who work on fixed, long-term schedules will always clash with the flexible ways of working kept by smaller organisations or teams. The goals to sustain a structure and a carefully planned work flow in the organisation are also in conflict with the overarching project goal of looking for opportunities to change, 'stir up', and experiment. It became evident that the different working methods at times became subject to conflict.

To bring closure to and evaluate the collaboration, we held a joint meeting to enable 'both sides' to air their opinions. Engaged conflict can be a constructive way to learn new things, and conducting evaluative sessions with open discussions gave everyone involved a chance to express their individual experiences of the collaboration and production. This allowed everyone to carry away other people's as well as their own lessons learned.

The differences seemed to stem from the 'planned and structured' work conventions within the institution being treated as conflicting with the more open and explorative 'design process' thinking. At times, different perceptions of organisation and structure would become visible. MSO were used to having clearly defined roles, while the Malmö University team, consisting of less people, had less prominent hierarchies and more space for flexible roles.

The greatest challenge was communication. Since the production was split between geographically dispersed participants, some parts of the production ended up being thematically incoherent. To give one example of this, students from the The Royal Danish Academy of Fine Art – The School of Design had been involved to create animations that could run in the background. These were not finished until one week before the concert, and the visual aesthetic of those differed dramatically from the 'look and feel' in the app and the installations in the foyer.

The planned scenography and props were not clear to everyone involved, and it might have enhanced the whole impression if everything was appropriated to a coherent whole. The reason for this occurring was a lack of communication between all involved parts, and this could easily have been avoided if all design materials had been shared throughout the process. This would have allowed the different parts to be created in parallel unison.

As the app-development team, consisting of Karolina, Erling, Marie, Rikard, Nicklas, and Gabriella, evaluated the design collaboration and practical production phase, many pointed to the importance of flexibility and open roles. Thanks to the flexible roles and ways of working embraced by everyone, the app was able to reach a high quality within a small time frame. To give an example of how the roles would adapt to the project, the project leader became a tester at times, wrote ‘privacy policies’, and interviewed children at the concert. The interaction designer and research assistant took on the role as graphic designer and 3D modeller, and the programmer – who also had knowledge in sound design – could view the application from the perspective of a musician. The communication seemed to work because the goal was clear to everyone involved, and since the match of competencies was very successful. Some fell out of the collaboration loop at times, but not in a way that seemed to affect the end result dramatically.

As it came to the overall production, everyone agreed it was successful but that the MSO musicians could have been involved to a greater extent. The distance between the stage performers and the audience was evident, as the musicians’ presence literally became merely instrumental. They could have met the audience in many different ways, by for instance simply interacting with them in the foyer.

## CLOSING NOTES

Despite the somewhat conflicting organisational cultures, MSO has been open for dialogue and has been willing to try new strategies through joint collaborative experimentation. With the specific design case described in this report, the musical experience has successfully been made accessible beyond the space and time of the stage performance. This has resulted in a sharp production that has enhanced the experience, engaged a wider range of the audience in a ‘deeper’ way, and that has enriched all stakeholders with new knowledge.