

6. Performance evaluation

MEGA events, second year:

Roberto Doati concert, 13 march 2002, Genova, Italy

Virtual Scratches/Moving Grooves, 27 September 2002, Stockholm, Sweden .

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The MEGA project has been focused on the engineering and development of multi-sensory interfaces, which are new innovations for the interaction between audio and vision. Basic research on both music and dance has been gathered from different European research groups in psychology, technology and computer engineering. The output from this cooperation has also revealed several ideas or innovations for practical applications in social, artistic and communicative entertainment. However, it should be noted that even the most careful preparation of empirical research and computer engineering, could never care for how artists actually would feel, and how their audience would react, to new innovations and tools for expressive communication in its practical use. The purpose with the evaluation is, therefore, to get feedback from the audience and the artists who have been acquainted with MEGA. This information is important for the progress of the project, to be able to modify both present applications and to improve strategies for new innovations. The purpose with the evaluations, in the longrun, is also to gather data from many different kind of MEGA events to elucidate advantages/ disadvantages of different types of applications and public arrangements.

There are several issues that can be discussed with regard to man-machine interaction. First of all, new techniques have always been treated with some skepticism regardless of what kind of technique that is in question. The novelty, as such, may be perceived as a threat towards the existent. Research in psychology has also shown how preferences in general are changing in positive direction over time with repeated exposure to phenomena such as musical styles. It may also be the case that information and knowledge about technical applications improve preferences for an innovation. Even though the innovations and application, as such, once has been accepted by users, there may still be aspects of dislike and confusion with regard to the very feel and sense of a

particular device. The development of application in MEGA could be regarded equivalent with the development of sophisticated musical instruments.

Method.

This year, two public events have been evaluated by questionnaires distributed to the audiences, at the Roberto Doati concert in Genova and the Virtual Scratches/ Moving Grooves in Stockholm (See description of technical setup above). In the Roberto Doati concert the same performance appeared twice, before and after an oral presentation and discussions with the composer, the actress and A. Camurri. This arrangement enables to measure the audiences' impression and reaction with and without relevant information about aesthetic/artistic and technological issues. A one-page questionnaire was distributed to the audience after each performance.

At the event Virtual Scratches/ Moving Grooves in Stockholm a presentation by the staff (A.Friberg) was followed by a short demo-performance in which volunteers in the audience also were invited to try out the system. The concert performance was held later the same evening and the same one page questionnaire was distributed to the audience at both performances.

The questionnaire used at both events was designed to measure first reaction and attitudes to the application and also see to what extent communication had occurred between the artist and the audience. Both fixed and open-ended response alternatives were used in the questionnaire.

In Genova 60 peoples in the audience (22 female and 38 male) and in Stockholm 20 peoples (11 females and 9 males) gave responses. The majority of those who answered the questionnaire were educated at university, mean age 33 year in Genova and 35 years in Stockholm.

Results

Genova, Dorati concert

After the very first performance the audience immediate impression were measured on a ten-point scale. (very negative 0 to very positive 10) ” Figure 1 (left bar) shows the positive mean 6.0 and narrow confidence interval 5.5 - 6.5 indicating agreement of the audience and statistically significant reach above the center level five on the scale. The second bar from left shows perceived strength of experience, which was judged from very weak 0 to very strong 10. Mean 5.9 and

confidence interval 5.3 -6.4 are indicating a common strong experience of the performance among peoples in the audience.

After the second performance (and discussion with the staff) the change of the impressions in accordance to the audience's first impression were judged from *more negative* 0 to *more positive* 10. The change of strength in the experience of the performance was similarly judged from *more weak* 0 to *more strong* 10. This means that the center scale-level five defines *no change* according to the former performance. Mean 5.8 and confidence interval 5.4-6.2 (third bar from left) shows that information and discussions with the staff indeed had a significant effect on the audience's impression of the concert's second performance. However, the strength of experiences was also affected but not to the same extent, mean 5.4 and confidence interval 4.9-5.9 (fourth bar from left).

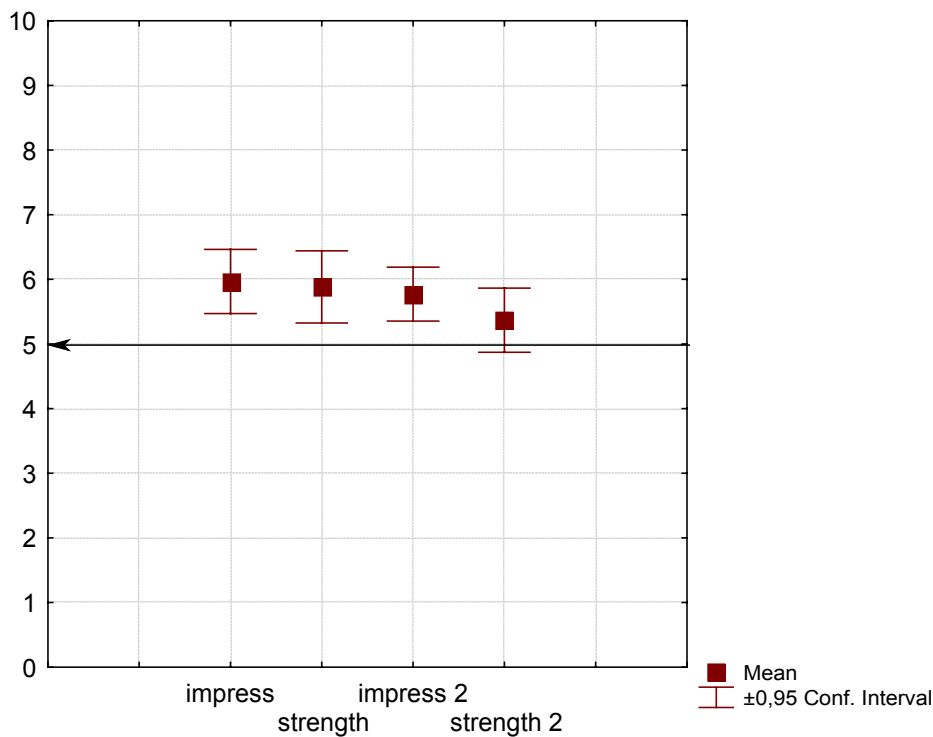


Figure 1. Mean and 95% confidence interval for the audience's perceived first impression of the performance (first bar, from left), strength of experience (second bar), and to what extent the impression (third bar) and strength (fourth bar) has been changed at the second performance after discussion with the staff.

Stockholm, Virtual scratch/ moving groove

The impression of the performance in Stockholm was rated with mean 7.8 and with confidence interval 6.9-8.7 (Figure 3, left bar). This means that the audience impression was very positive to the present *Virtual scratch/ moving groove* application. (The dancers had the same questionnaire and her own impression was 10 “very good”, and a volunteer in the audiences who tried out the system responded the same). The strength of the audience experience was also high mean 6.7 and confidence interval 5.9-7.5 (middle bar). (The dancer’s own experience of the performance she scored 9, and the volunteer she scored 7). A complementary question to this event regarded to what extent the audience perceived that the dancer had control of the sound events by her bodymotions, *very bad control 0 to very good control 10*. Right bar shows that the audience experienced that the dancer was able to control the music to a very large extent, mean rating 7.6 and confidence interval 6.6 - 8.6. (The dancer’s own perception of her ability to control the sound she scored 5, and the volunteer she scored 6).

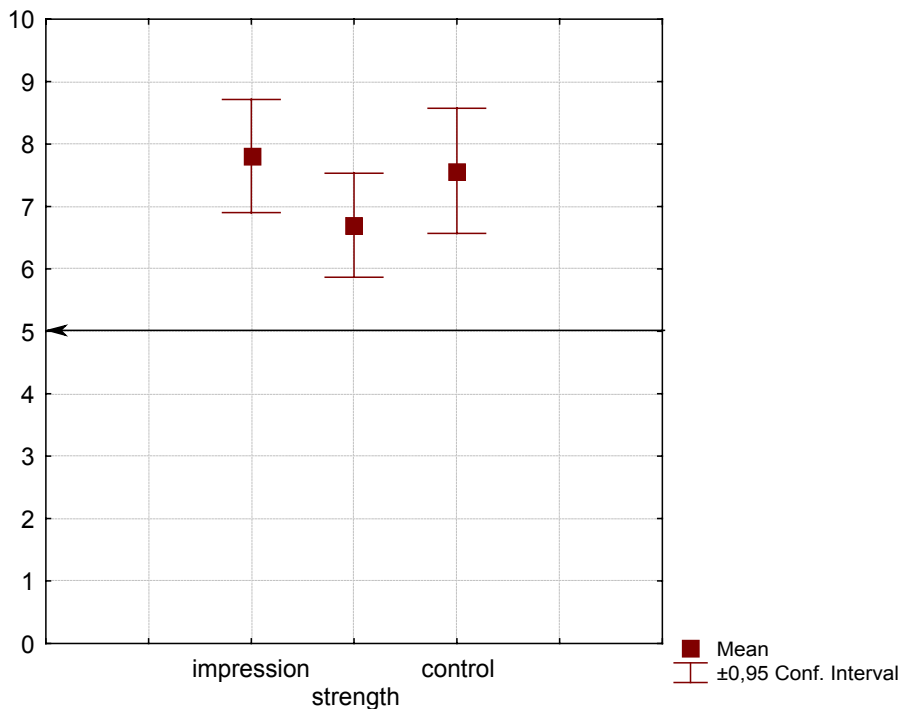


Figure 2. Mean and 95% confidence interval for the audience’s perceived impression of the performance (left bar), strength of experience (middle bar), and to what extent the dancer seemed to be able to control the music (right bar).

Both events

At both events the audience reported what they experienced or perceived during the performance. Table 1 shows the fixed response alternatives (patterns of sound, motions, emotions, beauty, tension/relaxation and association to events). Since the applications used are very different it is interesting to compare the outcome of frequencies. All spectators (100%) in Stockholm perceived "patterns of sound" and "motions". This was not unexpected since the very core of the show was to control the music by body motions. The same scores in Genova were 68% for sound patterns and 33% for motions. Tension/relaxation had higher percentage in Genova than in Stockholm, 58% compared to 52%. Interestingly, emotions were perceived to a large extent at both events, 43% in Stockholm and 33% in Genova.

Table 1 Frequencies (in percent) with which various response alternatives were selected by the audience in response to the question "What did you experience or perceive during the performance?"

	Patterns of sound	Motions	Emotions	Beauty	Tension/Relaxation	Associations to events
Genova	68%	30%	33%	15%	58%	20%
Stockholm	100%	100%	43%	29%	52%	15%

A set of contrasting response alternatives was used to measure the overall attitudes and future beliefs of MEGA. (funny-boring, interesting-uninteresting, something for the future, -nothing for the future, I enjoyed it-I did not enjoy it) Table 2 shows the percentage of frequencies ("No" equals to frequencies of the opposite negative alternative). The outcome from both MEGA events is very satisfying. "Interesting" is the most frequently selected response alternative, 68% in Genova and 86% in Stockholm. Differences in types of application can also be inferred. *Virtual scratch/moving groove* application seem to be perceived as "funny" probably affecting the rating for "I enjoyed it" as well. As much as 70% of the audience in Genova did not choose any of the

alternatives funny and boring, which is an indication that this pair of words, per se, did not make any sense at all to the Doati concert. That is, the purpose with a concert needs not always to be “funny” entertainment.

Table 2. Frequencies (in percent) with which various response alternatives were selected by the audience in response to the question “ What do you think about the MEGA application?”

Genova	Yes	No	Missing
Funny	13%	17%	70%
Interesting	68%	5%	27%
Something for the future	55%	3%	42%
I enjoyed it	31%	11%	58%
Stockholm	Yes	No	Missing
Funny	81%	0%	19%
Interesting	86%	0%	14%
Something for the future	67%	4%	29%
I enjoyed it	81%	0%	19%

Discussion

The evaluation of both events shows surprisingly positive responses from the audience. This should be regarded to the very fact that the application *is* new, innovative, and used only as “first” prototypes. However, the good responses from audiences do not mean that these applications have reached full accuracy in technical set-up, or that there is nothing more to develop. Rather, the positive first impressions should be seen as a kind reception of new artistic devices that are able to combine audio and vision at public events. For instance the body of dancer have now got an extension to the expressive output of the music. This must of course be a perceived as a special moment for the artist who wants to express her/ himself in front of the audience. In the forthcoming year of MEGA artists, dancers, musicians and composers that have been involved, and those who are to be involved, will be interviewed with regard to qualitative details of MEGA and its expressive potentials.