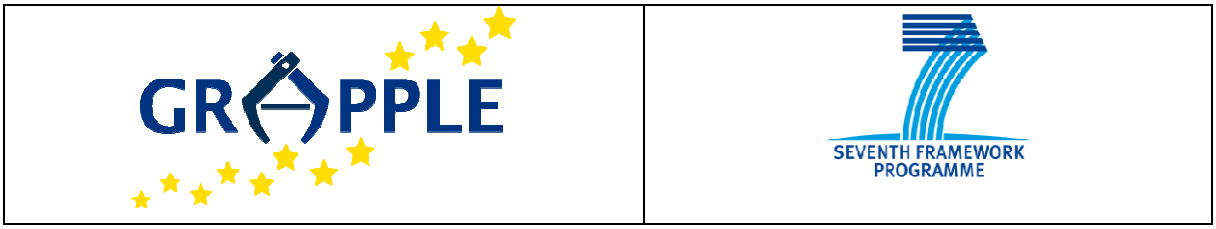

GRAPPLE

D11.2 Version: 1.0

GRAPPLE public event

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Abstract: This deliverable describes the GRAPPLE public event. This event introduced the GRAPPLE framework to the public. During the event we held presentations about the Grapple system and organised workshops for people to get a hands-on experience with the GRAPPLE system. We used this hands-on experience to get some feedback and do some evaluation of the system, which is also described in this document.

Keyword list: grapple, event, public, presentations, workshop, evaluation

Summary

This deliverable describes the preparation of the GRAPPLE Public event. It also lists the actual event participants and gives a photographic overview of the event. Next to that it describes the execution of a small evaluation experiment and its results with the people that participated in the hands on workshops.

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List of Acronyms and Abbreviations

ALE	Adaptive Learning Environment
CAM	Conceptual Adaptation Model
DM	Domain Model (this includes the Adaptation Model)
GALE	GRAPPLE Adaptive Learning Environment
GAM	GRAPPLE Application Modelling (Language)
GAT	GRAPPLE Authoring Tool
GRAPPLE	Generic Responsive Adaptive Personalized Learning Environment
GEB	GRAPPLE Event Bus
GUMF	GRAPPLE User Model Framework
LMS	Learning Management System

1 Introduction

D11.2 is described in the GRAPPLE Annex as follows:

D11.2 GRAPPLE public event (TUe, M33)

This trade-show-like event, with keynote talks, workshops, exhibition and hands-on training sessions will mark the *market-introduction* of the GRAPPLE technical infrastructure. It will include presentations of on-going evaluation experiments in different institutes and companies, using different LMSs.

Instead of organising the Public Event in Month 33 (i.e. October), we decided to move it to the end of the project. This allowed us to present it is as the final framework after bug fixes and streamlining of our implementation.

We decided to organise the public event on 24 January in Eindhoven.

2 Invitation and agenda

We invited all our partners to come to the public event. We specifically invited a number of speakers within the project that could present a story that was interesting to the general public. This means that the focus of the talks was not so much technical details of the framework, but more an explanation of the technologies and what this would mean for the public!

We wanted to find people who are potentially interested in our framework and might be using it in the future. Therefore we sent an invitation to several relevant mailing lists in the teaching domain, included university wide invitations to the teachers in our institutions and sent an invitation to mailing lists that are relevant for the domain, so that we could also reach potential researches that might be interested our resulting software in their future experimentations.

We also approached people in our professional network directly and stimulated all our partners to do the same.

Next to that we put a general invitation on the GRAPPLE Website and included a link to the event on the main homepage (Figure 1 is a screenshot of invitation).

GRAPPLE Public Event

Posted by Kees van der Sluijs at Dec 10, 2010 11:10 AM | Permalink

24 January the University of Technology of Eindhoven will host the GRAPPLE Public Event.

After 3 years of design, programming and evaluation the GRAPPLE project is coming to an end! And we want to share our results with you!

The GRAPPLE public event is for anyone who is interested in the future of E-learning. We present our results in the field of adaptive e-learning and show how anyone can author adaptive courses for their students. The technological framework that we built can be integrated in current Learning Management Systems and we show several of these integrated solutions, both commercial and academic solutions.

Besides talks about the technology we created you can also get hands on experience. Browse around in literally dozens of adaptive applications and get an idea of what adaptive e-learning could improve your course and your student's lives. The program of the day is as follows:

```
9:30-10:00 Coffee and Welcome

10:00 Paul De Bra: Welcome and Introduction to Grapple
10:15 Kees van der Sluijs: General Overview of the GRAPPLE Infrastructure
10:45 Paul De Bra: Adaptive Courses in GALE
11:15 Jonathan Foss : Authoring an Adaptive Course using the GRAPPLE Authoring Tools
11:45 Olga De Troyer: Adaptivity in Virtual Reality using the GALE engine

12:20 Lunch

13:50 Patrick Pekczynski: Extending Commercial LMSs with Adaptivity
14:30 Hands-on Authoring Workshop

16:30 - 17:30 Drinks and closing
```

If you are interested in this event, please fill in this participations form and we're happy to greet you on 24 January in Eindhoven! Participation is free of charge but you must register in order to participate. The number of participants is limited.

The meeting will be held in "de Zwarte Doos" on the TUE Campus. For information on how to get there, please click here.

Log in to add comments

Figure 1: Screenshot of the GRAPPLE public event on the GRAPPLE website

3 Participants

Below is a list of participants in order of registration time. With a total number of 50 participants we think we had a good number of interested people. Given the workshop room sizes this was about the maximum that we could handle, if everyone would stay for those workshops.

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4 During the event

The goal of the public event was to give lay users an overview of the GRAPPLE framework. That meant mainly presenting the tools with GUIs.

Paul De Bra gave a presentation in which he described what adaptation actually is and how it is useful. Kees van der Sluijs then presented the main technologies in the framework, and in which way these technologies can be useful for users. Paul De Bra then presented how adaptation is done in the framework and gave an outline of the possibilities of our adaptive engine. Jonathan presented the GAT tools, the main GUI that teachers will use if they design adaptive applications for the GRAPPLE framework. Next, Olga DeTroyer presented a different take on the GRAPPLE framework and its flexibility, by presenting how it can be used to adapt Virtual Reality in an educative setting. The set of presentations was closed by Patrick Pekczynski, who explained in his talk how the GRAPPLE framework helped IMC's commercial LMS to incorporate adaptation.

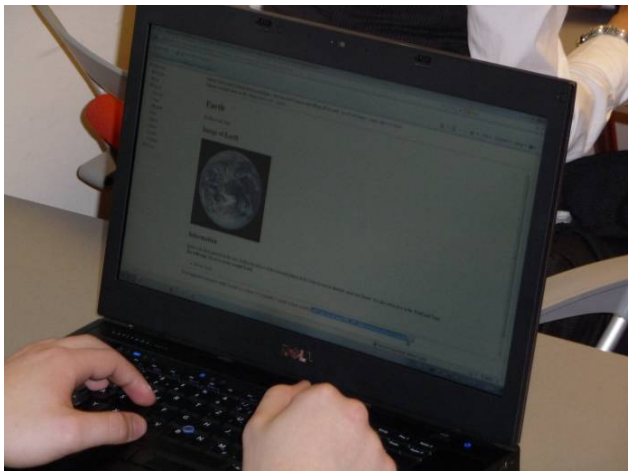
The workshops in the afternoon allowed the participants to create their own adaptive course. They were guided by the experts from the GRAPPLE team.

In terms of participation and atmosphere the event was definitively a success. The following photos give some impression of the event.


January 24, 2011
Slide 32


Virtual Reality (VR)
3D visualizations
3D environment with 3D objects
Objects may have behaviors
User can interact with objects
User can navigate through the space
GRAPPLE - Public Event
Eindhoven NL
January 22, 2011
Slide 3


www.role-project.eu



5 Evaluation at the GRAPPLE Event

The GRAPPLE Public Event was taken as an opportunity to realize a demonstration evaluation (as specified in the D8.2b Refinement and Improvement of Evaluation Guidelines), i.e. to gather general-level feedback with respect to usability and user acceptance from users based on their impression of the GRAPPLE tools. The evaluation was carried out in the scope of the authoring workshops at the GRAPPLE event, where participants had the chance to actually work with GAT. Subsequently to working on an authoring task workshop attendees were asked to provide a subjective assessment based on their actual experience with the tools. As a result, the main target of this evaluation was the GRAPPLE authoring toolset.

5.1 Method

5.1.1 Participants

The target audience of the evaluation were the people attending the authoring workshop at the GRAPPLE event. In total, approximately 30 persons took part in these workshops. All participants attending the two parallel workshop sessions were requested to contribute to the evaluation by filling out the short online survey at the end of the workshop. Unfortunately, a few participants had to leave the workshop before it ended and therefore did not respond to the questionnaires. In total, 10 participants completed the questionnaire. Three of the respondents were members of the GRAPPLE consortium, seven were external people.

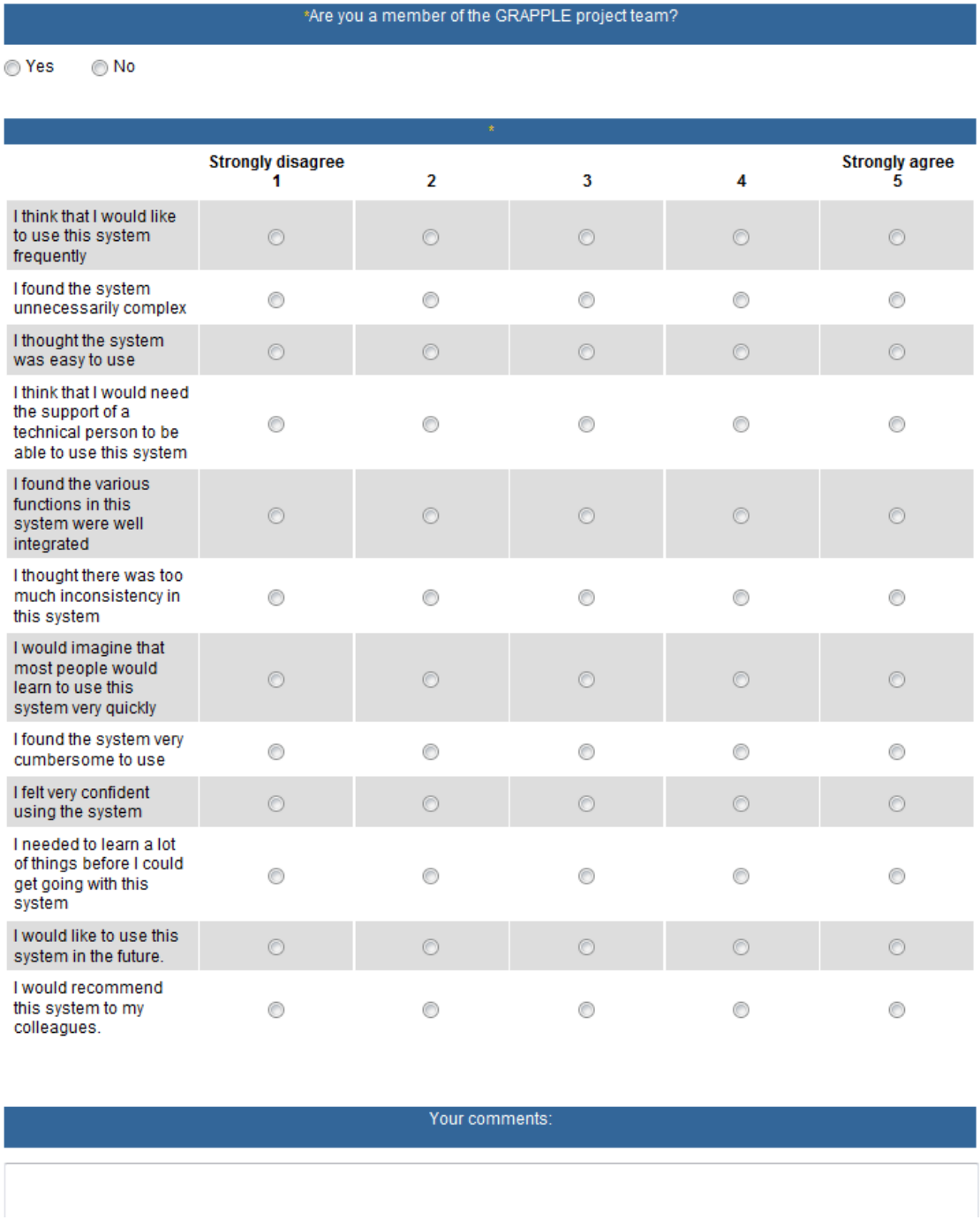
5.1.2 Evaluation Material

The evaluation questionnaire (User Feedback Questionnaire) applied covered questions on usability and user acceptance, as well as an open comments section for qualitative feedback. The questionnaire was deliberately selected as an instrument allowing easy and quick responding, because of the limited time

available for evaluation, on the one hand, and in order to enhance participants' willingness to take part in the evaluation, on the other hand. The questionnaire was administered via the LimeSurvey online survey facilities.

In the very beginning of the questionnaire, a question was added that queried whether the respondent was a member of the GRAPPLE project consortium or not. In this way it should be ensured to be able to separate feedback from project internal and external people, and to contrast the responses of these two groups.

Usability was targeted by the ten items of the System Usability Scale (SUS; Brooke, 1996). This is a short questionnaire for gathering a general subjective assessment of usability. Items are answered on a 5-point rating scale from '1 strongly disagree' to '5 strongly agree'. In addition, the questionnaire included two items on user acceptance, which had to be responded using the same answer scale. The open comments section should provide participants the possibility to leave further qualitative feedback on the authoring tools. This was, though, not mandatory. A screenshot of the user feedback questionnaire listing the individual items can be found in Figure 2.



*Are you a member of the GRAPPLE project team?

Yes No

*

	Strongly disagree 1	2	3	4	Strongly agree 5
I think that I would like to use this system frequently					
I found the system unnecessarily complex					
I thought the system was easy to use					
I think that I would need the support of a technical person to be able to use this system					
I found the various functions in this system were well integrated					
I thought there was too much inconsistency in this system					
I would imagine that most people would learn to use this system very quickly					
I found the system very cumbersome to use					
I felt very confident using the system					
I needed to learn a lot of things before I could get going with this system					
I would like to use this system in the future.					
I would recommend this system to my colleagues.					

Your comments:

Figure 2: Screenshot of the user feedback questionnaire used in the evaluation at the GRAPPLE event.

5.1.3 Procedure

The evaluation was realised as the concluding point on the agenda of the authoring workshops, which had a total duration of 2 hours. During the workshops, participants were requested to work on an authoring task which consisted in the creation of an adaptive course using the CAM tool for a given domain model. The authoring workshops built upon a set of presentations of the GRAPPLE infrastructure, adaptive courses in GALE, and authoring adaptive courses using GAT and thus, realised a hands-on experience and training with and on the facilities they had been presented during the GRAPPLE Event.

After completing the authoring task, participants were requested by the workshop session leaders to give a quick feedback on GRAPPLE by filling out the online survey under the indicated URL.

In the short instruction of the questionnaire participants were instructed to record their immediate response to each item, rather than thinking about it for a long time. This should ensure to elicit participants' spontaneous reaction and impression, while avoiding thinking about the intention of assessment of the questionnaire and social desirability biases of answers. They were asked to respond to all items and to check the centre point of the scale if they had the feeling they cannot answer a particular item. After submitting the questionnaire an end message expressed thanks for the participation and made a reference to the GRAPPLE homepage for further information on the GRAPPLE project. After participants had completed the questionnaires the workshop was closed.

5.2 Results

From the 10 participants who had responded to the evaluation questionnaire 3 people indicated to be a member of the GRAPPLE project team, and 7 answered to be external people.

For the 10 items on usability an overall usability score was calculated according to the scoring scheme of the system usability scale (SUS). First, the scores for each item were calculated by transforming the responses to a score range from 0 to 4. For odd items the score contribution was the rating scale position minus 1, for even items the contribution was 6 minus the rating scale position. The sum of scores multiplied by 2.5 results in an overall usability value for the system which has a possible range from 0 to 100, with higher values indicating a better result. For the overall sample a mean score of 53.5 (SD = 13.85) resulted; the median was with a value of 53.75 nearly the same (for an overview of results see Table 1). When considering the scores of project members and external people as two different groups, for the GRAPPLE consortium members a higher mean score resulted (M = 64.17, SD = 10.41) than for external people (M = 48.93, SD = 13.06). The general finding of an average usability assessment near the centre point and just in the upper half of the scale indicates a medium quality of the GRAPPLE tools.

	group	*N*	*M*	*Std.*	*MEDIAN*
Usability	GRAPPLE member	3	64.17	10.41	67.50
	external	7	48.93	13.06	52.50
	Total	10	53.50	13.85	53.75
User acceptance	GRAPPLE member	3	4.17	0.58	4.5
	external	7	3.43	0.89	3.5
	Total	10	3.65	0.85	3.5

Table 1: Overview of results on usability and user acceptance.

When considering the score contributions of the individual items (compare Table 2), it can be seen, that particularly the items 7, 9 and 10 scored comparably low (with mean or median < 2.0). Item 7 (SUS07) refers to the learnability of the tools ("I would imagine that most people would learn to use this system very quickly"), i.e. participants had the impression that learning how to use GAT takes time. Item 10 (SUS10) queries learnability in terms of the extent of learning in order to properly use the tools ("I needed to learn a lot of things before I could get going with this system"); the rather low median indicates that the majority of the participants had the impression that a lot has to be learned to be able to use GAT. Item 9 (SUS09) refers to the confidence in handling the tools ("I felt very confident using the system."); the result suggests that they did not feel highly confident in using the tools. The best result could be identified for item 6 (SUS06) – this item refers to the consistency of the tool ("I thought there was too much inconsistency in this system"). The result proposes that participants consider the authoring tools satisfactorily consistent.

	SUS01	SUS02	SUS03	SUS04	SUS05	SUS06	SUS07	SUS08	SUS09	SUS10
M	2.20	2.30	2.10	2.00	2.40	2.90	1.50	2.20	1.80	2.00
MEDIAN	2.00	2.50	2.00	2.00	2.00	3.00	2.00	2.00	2.00	1.50
Std.	0.79	1.34	1.37	1.41	0.84	0.57	1.43	0.79	1.03	1.41

Table 2: Results for the individual items on usability.
(Note: Possible score rang 0 to 4 with higher values indicating a better result)

For user acceptance, an acceptance score was calculated by averaging across the two items. A mean score of 3.65 (SD = 0.85, MEDIAN = 3.5) resulted (see Table 1). With a possible score range of 1-5 with higher values indicating a better result, this argues for a medium to good user acceptance. When considering the two groups of participants separately, GRAPPLE members provided a tendentially better assessment of acceptance (M = 4.17, SD = 0.58, MEDIAN = 3.5) than external people (M = 3.43, SD = 0.89, MEDIAN = 3.5), but the average scores of both groups are located in the upper half of the scale. User acceptance and usability score resulted to be significantly positively correlated ($r = .681$, $p<.05$), which means that a good assessment of usability goes along with a good user acceptance measure.

There were only three participants who provided additional feedback in the open comments section of the questionnaire. All of them were external people. One person pointed out that he/she likes the idea behind the tools, but pointed out that he/she has the feeling that the "system is not yet idiot proof". Another person indicated that he/she "Would like to study documentation and play a little more for a good judgement. The workshop was for me too short for that, but certainly gave a flavour of the system." This person explicitly mentions the flexibility to use different domain models as a basis for an adaptive course in the CAM tool, but points to the fact that when one uses only one domain having to select the domain model every time (when filling a CRT socket with concepts) seems a bit irritating. One person criticised that the persons guiding the workshop were not well trained.

5.3 Discussion

The main purpose of the authoring workshop was the demonstration of authoring adaptive courses in GRAPPLE and to provide interested and potential future users of the GRAPPLE system with a hands-on authoring experience and training on handling the authoring tools. Working on an example authoring task with a concrete course example allowed participants gaining insight in the authoring process with GAT and how pedagogical intentions are translated into adaptive story lines and realised as actual adaptive courses.

The small scale evaluation that has been carried out at the GRAPPLE event argues for a medium usability of the authoring tools as well as a medium and satisfactory user acceptance. This suggests an appropriate overall quality of the tools, however with potential and room for further improvement.

When contrasting the responses of members of the GRAPPLE consortium with those of external people it becomes evident that the GRAPPLE members provided by tendency a more positive assessment of the GRAPPLE tools and system. On the one hand, this might be due to the fact that project members have a generally more positive attitude and thus, are positively biased, towards the GRAPPLE system. On the other hand, the more positive assessment might also be due to the fact that the respective people were already more familiar with the tools and handling them.

The consideration of the individual items on usability indicated that participants perceive GAT as appropriately consistent. With respect to learnability the authoring tools seem to feature some flaws – participants' responses argue for rather high effort that is required for learning how to use the tools. Regarding participants' confidence in handling the authoring tools also rather low assessments could be identified. This is supported by one person's remark that he/she conceived the workshop as too short. As a result, more intensive and longer term trainings on the tools would be desirable and would probably be able to enhance people's confidence in using the system.

It has to be taken into account that the number of participants in this evaluation was of course very small. The outcomes therefore only reflect the opinion and assessment of this specific sample. The evaluation results must not be generalised and are not representative for potential GRAPPLE users. Due to this small number and the unequal distribution to the two groups of participants, a systematic comparison between project members and external people was actually not possible. Overall, the obtained results may only be used as an indication and suggestive general assessment of GRAPPLE. For more conclusive evidence of the quality of GRAPPLE, this evaluation should be complemented by larger scale evaluation data and results.

In the formative evaluation phase a similar user survey on GAT with project members and external people was conducted using the same questionnaire for gathering user feedback on usability and acceptance (for a detailed report please refer to D9.3 First empirical evaluation in higher education settings). The comparison of these formative evaluation outcomes with the summative evaluation results gained from the GRAPPLE event are presented in Table 3. As can be seen, the results in the summative evaluation phase, i.e. for the final implementation of the GRAPPLE tools, are slightly better for both, usability as well as user acceptance. In the formative evaluation medium usability and user acceptance could be identified. Although the summative evaluation outcomes show no statistically significant difference in the usability and acceptance scores, the respective assessments represent by tendency a more positive result.

	group	*N*	*M*	*Std.*	*MEDIAN*
Usability	formative evaluation	21	47.95	12.55	50.00
	summative evaluation	10	53.50	13.85	53.75
User acceptance	formative evaluation	21	3.21	0.89	3.00
	summative evaluation	10	3.65	0.85	3.50

Table 3: Overview of results from the GRAPPLE event (summative evaluation) and the first user survey on GAT (formative evaluation).

6 Conclusion

The GRAPPLE public event was a success in terms in participation and atmosphere. Potentially interested teachers could sample this new technology and assess if it might be interesting for their future courses. Interested researches could see if this technology could be something to use as part of their own research.

In terms of user evaluation of the GAT authoring tools the results are slightly mixed. Handling complexity and improving the steep learning curve remain hard problems to solve in this complex field of adaptive behaviour. However, it also offers leads for what research directions should be probed in future research.

In terms of dissemination the next step is making the software and the last deliverables available to the public, which will be done through the GRAPPLE website. Large parts of the software are already available, but at the end of the project everything will be disclosed. Hopefully this will allow a continued improvement of the tools as well as a continued exposure under our target audience.

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