

# INTERACCT

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<b>Aims of the activity/of the project</b>	The project aimed at solving a medical problem by means of an informatics solution: Children with a disease of the immune system, who are receiving aftercare after a hematopoietic stem cell transplantation, are at significant risk for complications after hospital discharge. The project INTERACCT mainly focused on the improvement of the communication between patients and clinicians in order to detect possibly life-threatening complications as soon as possible. In this context, compliance of patients to follow the treatments as well providing their health status to the clinicians are the main factors for survival.
<b>Persons responsible for the project</b>	Univ.-Prof. Dipl.-Ing. Dr. Helmut Hlavacs (University of Vienna, Faculty of Computer Science, head of the research group Entertainment Computing)
<b>Partner Institutions</b>	University of Applied Arts (ao. Univ.-Prof. Mag. art. Dr. phil. Ruth Mateus-Berr) Hospital: St. Anna Kinderspital (Dr. Anita Lawitschka) Industry partner: T-Systems (Ing. Michael Nebel)
<b>Cooperation partners</b>	Seven Viennese schools: GRG 21 „Bertha von Suttner“ – Schulschiff; OVS Kleistgasse; OVS Natorpgasse; NMS Hörnesgasse; Privatschule INFINUM; NMS Glasergasse; GRG2 Zirkusgasse

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## Project Description

The project, which was funded by the FFG (project runtime: May 2013 – April 2016), was developed by means of a multi-disciplinary approach at the interface of clinical research, design thinking and information communication technology (ICT). An E-Health platform was designed and developed specially focusing on juvenile hematopoietic stem cell transplantation (HSCT) patients in aftercare. INTERACCT aimed at supporting patients' compliance by making the design of the information and communication tool, which was developed as part of the project in the form of an APP, as child friendly as possible.

The children are asked to daily transmit specific data, which are required by the clinicians in their individual case (e.g. daily fluid or food intake, pain severity etc.), via the APP to enable early identification of behavioral changes which precede manifest symptoms of diseases. The children receive bonus points for transmitting their data, which they can then use to select fantasy monsters and equip them with skills for the exploration of a world of adventures within the APP. At this, a specific mechanism is used – collect and level up – which has a scientifically proven effect on long-term motivation.

In order to design the user interface as child friendly as possible workshops were conducted at seven Viennese schools. In a first wave, the children were asked what would make a gaming environment interesting and what this may look like. Subsequently, the children were asked to paint stories, fantasy monsters and other exciting ideas. These paintings were analyzed according to art-theoretical criteria in order to use them as templates for designing the APP by means of a user-centered design. In the design of the APP, hospital-associated stimuli such as white coats were

deliberately avoided, with the exception of a medication-system which reminds the child of taking his/her medication.

In addition, an online-database was implemented where healthy children and adults have the opportunity to upload “comfort-stories”. Children in HSCT aftercare receive one of these stories every day via the APP so that they do not feel as lonely at home.

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### Results/Impact

More than 200 children participated in the school workshops. The “comfort-story” database comprises around 250 stories of which the best ones were published in a book (<http://www.interacct.at/troestgeschichten/book.aspx> [only available in German]).

The project was presented at the 10 year celebration BRIDGE of the FFG in September 2015 and received the Occursus advancement award 2015 for communication in oncology (prize money 10.000 euro). The “comfort-story” initiative was in second place for the Bank Austria social award 2014. The media response to the project was enormous (see e.g. <http://www.interacct.at/project/presse.aspx> [only available in German]), which contributed considerably to the visibility and appreciation of the project within the University and externally.

The APP is available at the APP-store and can be downloaded by all interested persons. However, the APP is linked with the information system of the St. Anna Kinderspital (hospital), and thus a username and password are required to enter the APP. Therefore, meaningful use of the APP is only possible with a hospital as partner institution that can process transmitted data. In order to achieve sustainability several hospitals as partner institutions would be required. Some hospitals already expressed interest in a cooperation (e.g. in Bratislava), however these do not have the required financial resources to establish the system. The project management tries to integrate charity organizations for further financing. In addition, discussions are currently underway with the main association of social security carriers and contacts with pharmaceutical companies have been established.

In the long run the use of INTERACCT could lead to earlier diagnosis, and thus to a better quality of care after HSCT. Although INTERACCT focuses on juvenile HSCT patients, it is thought that the approach can be generalized to any child-related chronic disease. Such a measure has the potential to decrease the high costs for the health-care system related to chronic diseases and concomitant complications.

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### Quality assurance/Achievement of objectives

The end-users were included in the APP’s development process from the very beginning. Feedback from children was solicited in the context of the school workshops. Over 200 children participated in the kickoff meetings and nine children participated in a “Usability and Fun” study. Overall, the feedback was extremely positive.

Currently, a clinical study is underway with the aim to assess the communication quality in two samples (healthy children and children in HSCT aftercare). Both samples are being divided in two subgroups (overall currently around 50 children). In a cross-over design the first subgroup of each sample transmits their physical parameters first via a handwritten diary and in a second step via the APP; the second subgroup of each sample transmits the parameters in reversed order – first via APP and second via diary. This study is being financed with the prize money of the Occursus award.

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### Webpage/Publications

Project webpage INTERACCT: <https://www.interacct.at/project/english.aspx>