Yannis A. Dimitriadis
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Groupware: Design, Implementation, and Use

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Preface

This volume constitutes the proceedings of the 12th International Workshop on Groupware (CRIWG 2006). The conference was held in Medina del Campo, Spain. The historic and scenic venue provided an excellent environment to continue the traditions of the workshop. The size of the conference was relatively small, the discussions were lively and constructive during and between sessions, and the level of collaboration was high both socially and in making new connections for research ideas.

The previous eleven CRIWG workshops were held in Lisbon, Portugal (1995), Puerto Varas, Chile (1996), El Escorial, Spain (1997), Buzios, Brazil (1998), Cancun, Mexico (1999), Madeira, Portugal (2000), Darmstadt, Germany (2001), La Serena, Chile (2002), Autrans, France (2003), San Carlos, Costa Rica (2004), and Porto de Galinhas, Recife, Brazil (2005).

This 12th CRIWG received a record number of submissions, attesting both to the continuing importance of groupware as a field and the many interesting issues for research that surround it. Groupware researchers from 21 different countries submitted a total of 99 papers. Each paper was double-blind reviewed by at least three members of an internationally known Program Committee supplemented with additional reviewers. We appreciate all their work. The Program Chairs performed a "meta review" of all the reviews, to ensure that each paper got the best and fairest chance in its assessment. Based on reviewer recommendations and the Program Chairs' judgements, 34 papers were accepted, 21 of which were long papers representing mature work, and 13 short papers describing work in progress. The accepted papers were grouped into the following clusters: computer-supported collaborative learning, groupware development frameworks and toolkits, mobile collaborative work, collaborative applications and group interaction, Web-based cooperative environments, collaborative workspaces, languages and tools supporting collaboration, group awareness, and collaborative design.

In addition to the papers, we were very pleased to have groupware pioneer Clarence *Skip* Ellis of the University of Colorado-Boulder to provide the keynote talk for the conference. A doctoral colloquium was also held the day before the conference began.

CRIWG 2006 would not have been possible without the work and support of a great number of people. First we thank all those who submitted to the conference and who continue to support it from year to year with leading-edge research in groupware. We also extend very special thanks to the Program Committee and additional reviewers for their diligent and constructive reviewing. We are grateful to the CRIWG Steering Committee for their on-going advice and support, as well as all members of the Local Organizing Committee. Special acknowledgement and thanks go to our sponsors: the Spanish Ministry of Education and Science, the Regional Government of Castilla and León, the University of Valladolid

and its Computer Science Department and Signal Theory, Communications, and Telematics Engineering Department.

Finally, we thank the attendees for their enthusiastic commitment and we hope that all participants and readers of these proceedings continue to find excitement and learning opportunities in their continuing work on groupware.

September 2006

Yannis A. Dimitriadis
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Task Analysis Based Methodology for the Design of Face to Face Computer Supported Collaborative Learning Activities

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Abstract. This paper shows how Task Analysis can be a powerful tool for the design of collaborative applications supported by wirelessly interconnected handhelds. We define a methodology for the design of such activities. It basically consists in performing a Task Analysis on an Interaction Model to obtain the set of all possible interactions between actors. Then a class of activities is defined by selecting a subset of tasks. These, applied to a specific topic, determine a set of specific tasks which constitute an instance of the class of activities. The specific tasks build the desired activity and define the possible face to face interactions that can happen during the activity execution. These specific tasks also allow us to define an observation guideline that assists the system validation. We show with an example how such a methodology is applied for a collaborative learning activity mediated by a teacher and wirelessly interconnected handhelds.

Keywords: Task Analysis, face to face Computer Supported Collaborative Learning.

1 Introduction

Collaborative Learning (CL) environments have shown benefits in the achievement of learning objectives, social aims, positive interdependence and motivation, acquiring student new skills, ideas and knowledge by working together [6]. CL, however has shown to have coordination, communication, organization and synchronization problems, which can be solved with face to face computer supported collaborative learning [5]. In this environments students work each with a handheld machine wirelessly interconnected [4].

Face to Face collaboration involves two dimensions: the human nature of communication [1] and the activities carried out in the shared workspace [2]. In the second dimension, we can distinguish the team work (making it happen collaboratively) and the task work (doing the actual job) [3]. Both the team and the task work have to be understood as interconnecting elements with the actors of the activity. Task Analysis allows us to decompose in basic building blocks the team and

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the task work, which can later be used in the design of a face to face computer supported collaborative learning activity. This analysis helps us also to extract an observation guideline of the face to face interactions we can observe during the activity and provides a concrete representation of the actions taken towards user goals and the logical relationship between those actions [7]. So, obtaining from an abstract Interaction Model a set of tasks or building blocks, we can construct many different collaborative activities. This technique is well utilized to understand the usability of interactive systems and to understand users' work with a system in the abstract [8]. But there is no research about how this analysis can facilitate the whole design and development of face to face collaborative activities and how it can assists the later validation.

We propose a Methodology based on Task Analysis for the design of an effective human-human relation that involves the team and the task work for a collaborative classroom, supported by wirelessly interconnected handhelds. This methodology has to assure that the interactions selected for the activity are going to happen. Through the methodology steps we can design the activity by tasks, defining classes of tasks and sets of specific tasks. We can also extract an observation guideline from the same analysis, to indicate what to observe during the activity to validate the system, verifying that the observed interactions are the set of valid tasks defined in the design process. In this way for collaborative activities, we can study what sets of tasks we can use for the design of an activity to generate better social interactions, and recognize what interventions are necessary to change the social and communication behavior between actors to achieve a specific aim.

2 Task Analysis

To define how and between whom information flows in a classroom technologically mediated by mobile devices connected to a wireless network with students that work collaboratively, we use a generalized Interaction Model [9] for the main classroom components, showed in Fig. 1. Here we assume interaction to be the basic unit that occurs among various actors that work collaboratively.

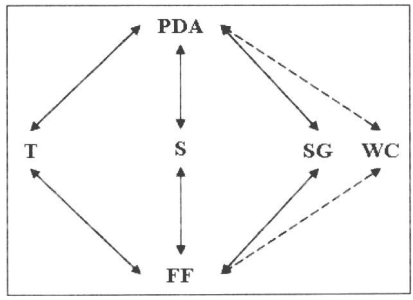

Fig. 1. Interaction Model