

12th International Conference on Mobile Learning 2016 CONFERENCE PROGRAM

Saturday 9th, April 2016

08:30-19:00 Welcome Desk

**09:45-10:00 Session O – Opening Session
(Room: Tejo 1)**

OPENING SESSION

Profs. Inmaculada Arnedillo Sánchez and Pedro Isaías

**10:00-11:00 Session KL1 – Keynote Presentation
(Room: Tejo 1)**

CO-CREATIVE COMPANIONS FOR CYBER-SOCIAL TEAMING

Prof. Dr. Prof. h.c. Andreas Dengel, Scientific Director at the German Research Center for Artificial Intelligence (DFKI GmbH), Kaiserslautern, and Professor, University of Kaiserslautern, Germany

Abstract

The momentum of the modern world increasingly requires more and more a rapid and situational learning of new skills. Due to the growing information intensity, the adoption of competences progressively replaces factual knowledge. In order to enhance performance and productivity, computers act as learning partners supporting our individual handling of diverse information sources and exploring synergies between large communities. In such a field of tension where cyber-social environments continuously gain diverse technological pushes, new potentials for co-creative systems are emerging, assisting users in understanding, learning, and memorizing. This talk discusses the various factors and presents examples of current research and development that will affect our way of learning in the near future. It is trying to give some answers to the following questions: What is competence and what is the prerequisite for it? What factors influence the creation of competence today? How can technology be used as associative memories for supporting knowledge work in cyber-social settings? How to support knowledge sharing? Can you measure and anticipate information needs? How to employ interactive learning aids for co-creation?

11:00-11:30 Coffee Break

**11:30-12:55 Session FSRP 9.1
Pedagogical approaches, models and theories for mLearning
(Room: Tejo 1)**

Chair: Andreas Dengel

MOBILE DEVICES AND SPATIAL ENACTMENTS OF LEARNING: IPADS IN LOWER SECONDARY SCHOOLS (F069)

Bente Meyer

Abstract

Based on ethnographic studies of students' learning, this paper investigates how new spatial enactments of learning that include mobile technologies engage students in specific ways that enable them to learn. Data used in the paper have been collected in three lower secondary schools (7-9th form, ages 13-15) where students and teachers have been working with a unique combination of iPads and stationary auditorium based screens for collaboration and learning through videoconferences. Videoconferences have been significant for the schools as they are all based in rural areas where cultural institutions, connections to others and local experts are scarce, and where video-based interactions can open up for new perspectives and resources in learning. In the schools tablets have been used both for video interaction and as a ubiquitous personal device for everyday learning in school and at home, providing students with a digital format that is at hand and accessible for learning. Findings of the research indicate that learning is much more flexible, personalized and diverse when students use their tablets to work with knowledge and that new mobile enhanced body-technology relationships contribute to transforming ways of seeing and knowing in schools.

CONCEPTUALIZING AN M-LEARNING SYSTEM FOR SENIORS (S066)

Matthias Teine and Marc Beutner

Abstract

In accelerating fast changing knowledge-based and information societies such like the European Union technology dominates most facets of our everyday lives, and learning activities as well. Unfortunately, particularly seniors and elderly people suffer the risk to be left behind, and that the digital divide becomes bigger. This is problematic because seniors and elderly can benefit massively from using new media, particularly in the field of learning. Therefore, this paper presents an approach that shows how bite-sized learning units can be structured in a thought through way, and how such a structure can be applied to an innovative m-learning tool. As a closure, we will present and discuss evaluation results with seniors that had insights into the concepts.

SENSORIMOTOR DISTRACTIONS WHEN LEARNING WITH MOBILE PHONES ON-THE-MOVE (S100)

Soledad Castellano and Inmaculada Arnedillo-Sánchez

Abstract

This paper presents a discussion on potential conflicts originated by sensorimotor distractions when learning with mobile phones on-the-move. While research in mobile learning points to the possibility of everywhere, all the time learning; research in the area suggests that tasks performed while on-the-move predominantly require low cognitive processing. This work uses Bloom's taxonomy to identify low and high order thinking activities associated to the functionalities of a mobile phone. It also provides preliminary results from a survey identifying correlations between high and low cognitive processing tasks and locations involving users' sensorimotor engagement.

MOBILE LEARNING: EXTREME OUTCOMES OF EVERYWHERE, ANYTIME (R039)

Giuseppe Cosimo De Simone

Abstract

Mobile learning, if considered in its most enthusiastic versions, promises to transform the world of learning. It seems that mobile devices will lead to overcome the narrow limits of the classroom to achieve ubiquitous learning. But if we analyze critically the promise of the everywhere, anytime, suspending judgment on its feasibility, interesting pedagogical issues arise: the relationship, on the one hand between formal and informal dimensions of learning and, on the other hand, between learning and information.

13:00 – 14:30 Lunch Break**14:30-15:20 Session FSP 9.2****Innovative mLearning approaches**

(Room: Tejo 1)

Chair: Stephen Mcneill

NETENQUIRY – A COMPETITIVE MOBILE LEARNING APPROACH FOR THE BANKING SECTOR (F063)

Marc Beutner, Matthias Teine, Marcel Gebbe and Lara Melissa Fortmann

Abstract

Initial and further education in the banking sector is becoming more and more important due to the fact that the regulations and the complexity in world of work and an international banking scene is increasing. In this article we provide the structures of and information on NetEnquiry, an innovative mobile learning environment in this field, designed and tested in different theory-practice-co-operations with all parts of the German universal banking system. It includes a competitive approach in which teams of learners have to solve complex scenarios. This article starts with the focus on mobile learning and the challenges for the banking sector. Taking this as a basis it provides an overview on the NetEnquiry tool, and its integration in vocational education and training. General evaluation and the usability results are presented at the end of the text to be taken as hints for future chances and challenges in this field.

PERSONAL BIOMETRIC INFORMATION FROM WEARABLE TECHNOLOGY TRACKED AND FOLLOWED USING AN EPORTFOLIO A CASE STUDY OF EHEALTH LITERACY DEVELOPMENT WITH EMERGING TECHNOLOGY IN HONG KONG HIGHER EDUCATION (S057)

Michele Notari, Tanja Sobko and Daniel Churchill

Abstract

In this paper we will show our research approach and discuss potential outcomes. The research project started in January 2016. To understand eHealth literacy development in higher education in Hong Kong, the researchers will conduct a multiple case study including 20 students from an undergraduate course. Each of them will use a wearable device over a period of five months, reflect on emerging personal data, document their thinking and action in an ePortfolio-based journal, and engage in an online forum. The ePortfolio, specifically developed for this research, will allow the students to critically reflect on their progress and for the researchers to intervene at any time on the issues related to the participants' postings. Evidence regarding change in eHealth literacy at the beginning and end of the intervention will be collected with a well-established questionnaire. To understand the qualitative aspect of these changes, semi-structured interviews pre and post intervention will be conducted. Interviews and data from reflections and forum posts will be analyzed and triangulated to understand emerging issues influencing the development of eHealth literacy. After establishing a case report for each of the participants a cross-case analysis will be performed. The study will deliver theoretical and practical recommendations for researchers, teachers and policy makers in higher education to track, support and explore development of new literacies, and in particular, development of eHealth literacy. It will also investigate the applicability of the ePortfolio as a reflective and autonomous learning tool. Furthermore, it will create opportunity for further research on learning using emerging wearable technologies.

15:30-16:30 Doctoral Consortium

(Room: Tejo 1)

Chair: Inmaculada Arnedillo Sánchez

FORMS OF THE MATERIALS SHARED BETWEEN A TEACHER AND A PUPIL (D060)

Libor Klubal and Kateřina Kostolányová

Abstract

Methods of using ICT is hereby amended. We merge from the original model of work on one computer to the model of cloud services and mobile touch screen devices use. Way of searching for and delivering of information between a pupil and a teacher is closely related with this matter as well. This work detects common and preferred procedures of pupils during their communication and work with information in connection with the school preparation. A significant shift towards using mobile touch screen devices instead of common desktop computers is clearly visible.

MOBILE TOUCH SCREEN DEVICES AS COMPENSATION FOR THE TEACHING MATERIALS AT A SPECIAL PRIMARY SCHOOL (D055)

Vojtěch Gybas and Kateřina Kostolányová

Abstract

Compensation for teaching materials at the special primary school is carried out in many different ways. Using of modern ICT could become one method of compensation. Especially using of mobile touch screen devices is ranked among such modern ICT tools. Do teachers really use mobile touch screen devices during their lessons as one of the tools of compensation for the missing teaching materials?

16:30-17:00 Coffee Break

17:00-19:00 Tutorial
(Room: Tejo 1)

PLANNING FOR ETHICAL CHALLENGES IN MOBILE LEARNING RESEARCH

by Dr. Jocelyn Wishart, University of Bristol, UK

Abstract

Ethical issues in researching mobile learning are a concern as:

- handheld, personal devices such as mobile phones provide multiple opportunities for access to personal information including images;
- their portability creates issues with boundaries such as those between home and school or college;
- they link both real and virtual contexts including social media and
- the full range of their capabilities are often poorly understood.

In addition, the classic approach of adhering to a fixed professional code of conduct or having your proposed methods first evaluated by an ethics committee does not deal well with the rapidly changing contexts so often found in mobile learning research. Previous work (Andrews, Dyson & Wishart, 2015) concludes that collaborative scenario generation framed by an agreed ethics structure is an effective way forward for supporting researchers planning data collections in mobile learning contexts. This proposed tutorial will introduce researchers to current ethical questions relevant to researching mobile learning and educational uses of social media using specific case studies. The participants will then work collaboratively to learn how to generate an appropriate contemporary ethics framework to be used to support the development of potential scenarios. The intended outcome is a deeper understanding of the ethical concerns that should first be considered when a researcher, who may well also be a class teacher, designs or investigates any learning opportunity that involves mobile devices and online tools including social media.

19:00-19:30 - Welcome Cocktail

Sunday 10th, April 2016

08:30-15:00 Welcome Desk

09:15-10:00 Session FRP 10.1

Strategies and challenges for integrating mLearning in broader educational scenarios

(Room: Tejo 1)

Chair: Otto Petrovic

M-LEARNING CHALLENGES IN TEACHING CROSSCUTTING THEMES IN THE EDUCATION OF YOUNG PEOPLE AND ADULTS (F082)

Marcos Andrei Ota and Carlos Fernando de Araujo Jr

Abstract

The challenges faced in using new technologies in the classroom are numerous, but contributions generated with their resolution can proportionately provide original and efficient teaching practices more in tune to students' eager learning needs. This article presents some strategies developed to help teachers in transversal themes classes using m-learning. The use of mobile devices and the choice of applications in teaching revealed important data, indicating that the expansion and intensification of the use of these devices in the classroom is possible. In Young and Adult Education, the situation emerges as an opportunity to make up for lost time and space in the restitution of studies, as well as furthering advancement in teaching, itself. Competent m-learning practice rises to situations that reach beyond the concept of technological resources. They imbue teaching with intrinsic characteristics that facilitate and motivate teaching and learning situations to the benefit of all participants. As result, we present several strategies for help teachers in transversal themes classes using m-learning. Therefore, these contributions allow the application in other fields of knowledge.

LEADERSHIP FOR NURSING WORK-BASED MOBILE LEARNING (R032)

Dorothy (Willy) Fahlman

Abstract

This paper reflects on work-based mobile learning in the Canadian healthcare system for registered nurses' ongoing skills development and continuing professional development. It calls on distributed leadership to address the organizational contextual factors for making this mode of learning sustainable.

10:00-11:00 Panel Session
(Room: Tejo 1)

BEYOND THE COURSE MANAGEMENT SYSTEM: SOCIAL MEDIA AND MOBILE LEARNING

Jake McNeill and Erin L. Ryan

Abstract

While many universities are working to adapt existing course management systems to a mobile learning environment, educators are using social media as a substitute or an extension of the online classroom. Blogs serve as course homepages, class discussion takes place via Twitter hashtag, and students use sites like Pinterest or Soundcloud to share their work with peers as well as scholarly and professional communities at large.

Unlike many educational mobile apps or platforms, social media apps are free, have well developed responsive design, and are already in use by a significant number of students.

This panel will discuss the landscape of social media apps and the potential uses for educators, as well as relevant issues including privacy and pedagogy. The panel will also discuss results of interviews with students and educators about the use of social media for course content, delivery, and interaction.

11:00-11:30 Coffee Break

11:30-12:55 Session FSRP 10.2

Evaluation and assessment of mLearning

(Room: Tejo 1)

Chair: Inmaculada Arnedillo Sánchez

DESIGN, DEVELOPMENT AND EVALUATION OF A FIELD LEARNING VIDEO BLOG (F005)

Otto Petrovic

Abstract

The research question in this paper is how a Field Learning Video Blog (FLvlog) has to be designed in order to optimize learning processes taking into account changed everyday communication habits of students. The system is designed to meet pedagogical as well as functional requirements for learning in fieldwork settings. The main difference to

state-of-the-art learning management systems (LMS) is the ability of the FLvlog to upload fieldwork videos via smartphones and annotate them in graphical and textual form directly on the spot. A further difference is the ability to use dedicated smartphone applications for ethnographic research for data capturing with full integration into the FLvlog via software interfaces. During the fieldwork the students analyzed the experience of customers of parcel delivery companies using innovative delivery technologies as alternatives to traditional home delivery. Videos of the customer behavior were recorded and annotated by the students. The main learning aim was the application of technology acceptance models to analyze customer experience. After the fieldwork of several months, students evaluated the FLvlog in comparison to traditional paper-based case study learning. They examined the FLvlog with regard to activation, emotion, and satisfaction with the learning process, perceived learning success, and satisfaction with the FLvlog software superior to paper-based cases. From these results, implications for further improvement of the FLvlog were derived.

AN INITIAL EVALUATION OF TABLET DEVICES & WHAT ARE THE NEXT STEPS? (S097)

Tracey McKillen

Abstract

This paper describes an evaluation of tablet devices for a Graduate Entry Medical School (GEMS). The purpose of this evaluation is to assess what type of tablet device could meet the needs of a GEMS student. GEMS requirements for the evaluation include; using the tablet device to replace paper teaching resources in lectures and tutorials and students must be able to edit the electronic resources in class. The tablet device is also considered for its suitability on clinical placements in third and fourth years, where students need a tablet device that allows them to take notes and access GEMS resources. The study evaluates four leading tablet devices; Apple iPad Air & iPad Mini, Samsung Galaxy Tab S 10.5 and Microsoft Surface Pro 3. The methodology section will cover the assessment criteria used to compare tablet devices from the student, technical and GEMS management perspective. A questionnaire was also developed to gather feedback from students at the end of their time with each tablet device. Time constraints and tablet device availability meant that testing was carried out with a small number of medical students. The iPad Mini was chosen by GEMS as the overriding opinion was to go with the interface and device size most favored by the student participants in the evaluation. The author concludes with three standout challenges to consider; changing perceptions, network infrastructure and training and support.

INFORMATION LITERACY ON THE GO! ADDING MOBILE TO AN AGE OLD CHALLENGE (S090)

Alice Schmidt Hanbidge, Nicole Sanderson and Tony Tin

Abstract

Integrating information literacy skills is fundamental to learning in all contexts. The nexus of mobile devices and information literacy lessons to learn these skills is an innovative pedagogy in higher education explored in this Mobile Information Literacy Tool (MIL) project. Currently, the project's second stage of data collection and analysis is underway with Canadian undergraduate students in seven different classes majoring in psychology, social work, English or social development studies. The purpose of this stage is to test the MIL tool and determine the effectiveness of using mobile technology to enhance students' information literacy skills and learning experiences. Pre and post-test measures will generate quantitative and qualitative data where data analysis will indicate a degree of change in frequency of mobile device information literacy access and fluency in digital literacy skills. Our hypothesis was that digital literacy skills increase with the use of the mobile technology information literacy tool. The research project's preliminary successes and experiences with overcoming the barriers to support anytime, anywhere student mobile information literacy training to engage and enhance mobile learner's experiences are discussed. Based on our stage one research findings (Hanbidge Sanderson & Tin 2015), gaps in participants' information literacy knowledge lead us to advocate that information literacy be an explicit part of the core content in classroom curriculum.

REFLECTIONS ON WAYS FORWARD FOR ADDRESSING ETHICAL CONCERNS IN MOBILE LEARNING RESEARCH (R037)

Jocelyn Wishart

Abstract

This paper reflects on a decade of discussions about the range of ethical issues arising in mobile learning research. Research into the educational potential of mobile, handheld technologies to enhance teaching and learning has been regularly frustrated by lecturers' and teachers' concerns about how their students might use such devices. At other times researchers have been surprised by the extent of the personal information made available to them. It presents the use of co-created ethics frameworks and scenario generation as a potential way forward that is more aligned with participatory research ethics than the traditional one-off pre-project approval by an ethics committee.

13:00 – 14:30 Lunch Break

14:30-15:20 Session FSP 10.3

Strategies and challenges for integrating mLearning in broader educational scenarios

(Room: Tejo 1)

Chair: Erin L. Ryan

EXPLORING MOBILE AFFORDANCES IN THE DIGITAL CLASSROOM (F044)

David Parsons, Herbert Thomas and Jocelyn Wishart

Abstract

This article reports on a survey of teachers undertaking a postgraduate applied practice certificate in digital and collaborative learning. The survey was intended to capture how mobile learning was currently being used by the teachers both on the course and in their own classrooms. The objective was to investigate to what extent mobile learning was being used by our teachers, and which particular mobile learning activities were, or were not, being integrated into teaching and learning in their own classrooms. We also wanted to explore how interested the teachers might be in seeing new mobile learning activities embedded within the course. Our results suggested that teachers and their students are frequently engaged in activities that utilize mobile learning affordances, but that these activities focus on simple, supplementary activities such as taking photographs and making videos. However, our results also indicate that there was significant interest among our teachers to explore more sophisticated mobile learning activities such as outdoor discovery activities. One conclusion we might draw from this study is that, despite many years of research into mobile learning and how it can be used both inside and outside the classroom, teachers need to be explicitly guided and supported to adopt these approaches in their schools. The feedback from this survey will be used to help to develop the course curriculum to integrate new elements of mobile learning.

THE USE OF DIGITAL TOOLS BY INDEPENDENT MUSIC TEACHERS (S049)

Rena Upitis, Philip C. Abrami and Karen Boese

Abstract

The present paper explores two aspects of independent music teachers' views and practices: (a) their views on the importance of self-regulation and (b) how they use tools available on mobile devices to enhance their students' learning. A survey involving 1,468 Canadian teachers revealed that most teachers are comfortable using digital technology. Further, many value the use of digital tools to enhance student self-regulation. However, while some teachers embrace these technologies for music teaching, there are others who firmly resist using digital tools in music lessons. Both types of responses are explored in the present paper.

15:45 – Conference Tour and Dinner

April 11th, April 2016

08:30-13:00 Welcome Desk

09:20-11:00 Session FSP 11.1

mLearning in and across formal and informal settings // Other

(Room: Tejo 1)

Chair: Jocelyn Wishart

VISUAL ENVIRONMENT FOR DESIGNING INTERACTIVE LEARNING SCENARIOS WITH AUGMENTED REALITY (F094)

José Miguel Mota, Iván Ruiz-Rube, Juan Manuel Dodero and Mauro Figueiredo

Abstract

Augmented Reality (AR) technology allows the inclusion of virtual elements on a vision of actual physical environment for the creation of a mixed reality in real time. This kind of technology can be used in educational settings. However, the current AR authoring tools present several drawbacks, such as, the lack of a mechanism for tracking the students' activities, the capability of detecting collisions among virtual objects, allowing establish only one-to-one relationships between trackers and virtual objects, etc. In this paper, we present VEDILS, a visual tool based on the MIT App Inventor 2 environment for designing interactive learning scenarios that include Augmented Reality (AR) resources and can be deployed on Android devices. We have extended the App Inventor block language to include AR resources and obtain information about users' interaction with such resources. Furthermore, a use scenario consisting in the development of an example of learning scenario for Engineering students is included. With this prototype students can visualize 3D models of the mechanical parts with augmented reality in a mobile device, providing a better perception of the model 3D shape and improving the ability of making the 2D orthographic views and perspectives that they study in the first year of mechanical engineer.

THE DEVELOPMENT OF AN INTERACTIVE MATHEMATICS APP FOR MOBILE LEARNING (F075)

Mauro Figueiredo, Beata Godejord and José Rodrigues

Abstract

Low achievement in mathematics education has been an increasing problem in the recent years in some countries. According to a 2010 study from the U.S. Department of Education, blended learning classes produce statistically better results than their face-to-face. There is also an increasing number of students using smartphones and tablets in schools. Mobile devices gained popularity as an educational tool and there are many schools that use them frequently in educational activities to improve learning. In this paper, we present the development of an application for smartphones and tablets to provide activities that students can do outside the classroom or at home and increase the time they spend learning and practicing mathematics. With this app students solve mathematic activities and are helped by the presentation of videos with the problems resolutions.

DEVELOPMENT OF A MATH INPUT INTERFACE WITH FLICK OPERATION FOR MOBILE DEVICES (S002)

Yasuyuki Nakamura and Takahiro Nakahara

Abstract

Developing online test environments for e-learning for mobile devices will be useful to increase drill practice opportunities. In order to provide a drill practice environment for calculus using an online math test system, such as STACK, we develop a flickable math input interface that can be easily used on mobile devices. The number of taps required on a mobile device is considerably reduced using the new math input interface.

SMARTWATCHES AS A LEARNING TOOL: A SURVEY OF STUDENT ATTITUDES (S048)

Neil Davie and Tobias Hilber

Abstract

Both teachers and students of language learning are keen to make use of new technologies to enhance their learning. At the latest, the launch of the Apple Watch has made the general public aware of the smartwatch and the possibilities, at least according to the marketing hype, that these wearable computers offer. The sales of smartwatches are predicted to increase rapidly in the next years and many of the adopters of this technology will undoubtedly be students or teachers. Based on a non-representative sample of higher education students this paper explores student attitudes towards the use of smartwatches as learning tools. It also offers a new definition of a smartwatch and provides an overview of the types of educational smartwatch apps already available. The analysis of the questionnaires show that both smartwatch owners and non-owners are not overly convinced that smartwatches can be used for educational purposes. As the questionnaire was purely quantitative it is however impossible to discuss how the participants have so far experienced smartwatches, if at all. A further study using qualitative methods is therefore recommended to provide further insight into how and why students are using smartwatches, if at all, to aid with their studies. The predicted growth in smartwatch ownership means it would be prudent to examine the possibilities offered by these devices whilst their use can still be shaped by educators.

11:00-11:30 Coffee Break**11:30-12:30 Session FP 11.2****Strategies and challenges for integrating mLearning in broader educational scenarios**

(Room: Tejo 1)

Chair: David Parsons

MOBILE LEARNING: PEDAGOGICAL STRATEGIES FOR USING APPLICATIONS IN THE CLASSROOM (F045)

Anna Helena Silveira Sonego, Leticia Rocha Machado, Cristina Alba Wildt Torrezan and Patricia Alejandra Behar

Abstract

This article aims to outline different pedagogical strategies with applications (apps) in the classroom. Every year the use of mobile devices like tablets and smartphones increases. At the same time, applications are being developed to meet this demand. It is therefore essential that educators investigate their use as an motivational technological medium that can possibly be used in the classroom. Apps can be used both as a source of information as well as a tool for creating material. Thus, this article will present the results of a study applying teaching strategies in different contexts. It therefore highlights the importance of mobile learning as a viable alternative in the classroom. In order to do so, there was a multiple case study in the undergraduate pedagogy program and a digital inclusion course for seniors, both offered in the second semester of 2015 at the Federal University of Rio Grande do Sul (UFRGS). Educational applications and examples of teaching strategies using apps were created in these classes. Educational applications offer the possibility to bring innovations to teaching practices, as well as new forms of communication, interaction and authorship, thus contributing to the process of teaching and learning.

EXPERIENCING A MOBILE GAME AND ITS IMPACT ON TEACHERS' ATTITUDES TOWARDS MOBILE LEARNING (F093)

Hagit Meishar-Tal and Miky Ronen

Abstract

This paper describes a workshop held as part of preparations for a large scale implementation of a mobile game designed to support learning of the topic "my hometown". The study reveals teachers' attitudes towards the incorporation of smartphones in teaching and learning in school and whether these attitudes changed after experiencing the game. The findings show that the attitudes of the teachers towards the game were positive in all aspects. They thought it was enjoyable, promoted collaboration and created motivation to win. The game was evaluated as contributing to knowledge and the application as easy to use. The study revealed that teachers' attitudes towards the use of smartphones for learning were changed after experiencing the game as participants. Perceptions about the potential of smartphones for learning strengthened and there has been an increase in the willingness to adopt them as part of the student's personal learning toolkit.

12:30 Best Paper Awards Ceremony and Closing Session

(Room: Tejo 1)

Profs. Inmaculada Arnedillo Sánchez and Pedro Isaías