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# Introduction

**Autor:**

Schmitz, Hans-Christian & Wolpers, Martin

**Aufsatztitel:**

Introduction

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**Abstract:**

Today's society requires from its members high levels of knowledge, skills and competences to cope with the affordances of work and everyday life. Well educated employees are one of the cornerstones of successful companies. It is not enough to learn once in school and then apply the acquired skills and knowledge successfully for the rest of one's life. On the contrary, the affordances of work and everyday life change quite rapidly and thus demand a steady accommodation, that is, lifelong learning. However, lifelong learning has to be rendered possible somehow. It requires time, effort and other resources, both for learning and teaching, for more or less every member of our society, in its specific situation, regarding its individual possibilities, goals and preferences. It is obvious that this will not be achievable without technological support. Therefore, Technology Enhanced Learning (TEL) is an area in which intense research and development takes place – within funded, national and international research projects, in companies and in concrete application areas that demand immediate solutions.

The aim of the present volume is to give an insight into the current trends in TEL, with a focus on language, namely language processing and language learning. All papers of this volume (they appear in alphabetical order according to the first author's surname) are related to language – either via the application of natural language processing (NLP) techniques, or because they deal with computer-assisted language learning (CALL). The paper of Lindstaedt and colleagues belongs to the NLP group: it addresses the exploitation of existing knowledge-resources for work-integrated learning. The authors define a knowledge artefact lifecycle from the identification of knowledge resources, their semantic annotation and contextualized delivery, to their presentation to users and their evaluation through user feedback. Niemann's and Wolpers' paper belongs to this group, too: via the MACE portal ([portal.mace-project.eu](http://portal.mace-project.eu)) learning resources on architecture can be accessed. The authors describe the automated construction of so-called 'real world objects' – representations of buildings, architects, etc. – that are automatically related to learning resources using NLP technologies. Via real-world objects users can find appropriate learning resources, they are thus a means of improving information retrieval. The paper of Scheffel and colleagues stands in between the two groups: it is a technical paper as it defines the notion of a Responsive Open Learning Environment (ROLE) and presents both a technical and an institutional proof of concept that show how ROLES and their components can be developed and integrated into existing learning environments. However, it also addresses computer-assisted language

learning since the proofs of concept are defined within language learning scenarios. The papers of Lemke and Antomo and colleagues, finally, address language-learning at schools: Lemke's article describes the successful implementation of a computer-supported distance learning service for small schools on islands (Halligen) in the North-Sea. Antomo and colleagues present the interactive multimedia project *Die SprachChecker*. The aim of this project is to foster reflection on language and on multilingualism in particular and thereby to improve the general language awareness and sensitivity of pupils. Quite clearly, linguistic technology already makes contributions within the domain of TEL. Nevertheless, the issue aims to invite linguists to further participate and improve technologies of TEL, for example regarding issues of multilingualism, didactics and evaluation of learning progress, not only for the design of specific e-learning courses but also for the design of entire TEL frameworks.

# Die SprachChecker – Language Awareness, Multilingualism, and Linguistic Diversity at School

**Autor:**

Antomo, Mailin, Hübl, Annika & Steinbach, Markus

**Aufsatztitel:**

Die SprachChecker – Language Awareness, Multilingualism, and Linguistic Diversity at School

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**Abstract:**

This paper presents the interactive multimedia learning project *Die SprachChecker*. The project focuses on language awareness, multilingualism and linguistic diversity and challenges pupils to look into their own linguistic identity. Pupils become more conscious language users and their sensitivity towards linguistic and cultural variation grows.

In diesem Beitrag wird das interaktive multimediale Lernprojekt *Die SprachChecker* vorgestellt, das die Sprachenvielfalt in deutschen Klassenzimmern als Chance nutzt und Schülerinnen und Schüler spielerisch an die zentralen Themen Sprache, Sprachbewusstheit, Mehrsprachigkeit und interkulturelles Lernen heranführt mit dem Ziel, die eigene sprachliche Identität zu hinterfragen und das Bewusstsein über sprachliche und kulturelle Variation zu schärfen.

# **A case-study on implementing a web based learning environment to enhance foreign language teaching on small islands (Halligen) in the North Frisian Wadden Sea**

**Autor:**

Lemke, Jens

**Aufsatztitel:**

A case-study on implementing a web based learning environment to enhance foreign language teaching on small islands (Halligen) in the North Frisian Wadden Sea

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23-30

**Abstract:**

This paper presents the interactive multimedia learning project Die *SprachChecker*. The project focuses on language awareness, multilingualism and linguistic diversity and informs about a unique field experience in Schleswig-Holstein, in which the pupils of five small islands – Halligen – receive additional foreign language teaching using synchronous and asynchronous web-tools. The aim of this project is to enable a mixed-age class taking successfully part in standardized examinations.

Der vorliegende Bericht informiert über ein bundesweit einzigartiges Projekt, in dem Schülerinnen und Schüler von fünf Halligen ergänzenden Englischunterricht als Blended-Learning Szenario erhalten. Dabei werden sowohl synchrone wie auch asynchrone Weblösungen eingesetzt, um die hochheterogene Lernergruppe erfolgreich auf die zentralen Abschlussprüfungen vorzubereiten.

challenges pupils to look into their own linguistic identity. Pupils become more conscious language users and their sensitivity towards linguistic and cultural variation grows. This article

# Applying Language Technologies to Support Work-Integrated Learning

**Autor:**

Lindstaedt, Stefanie, Beham, Günter, Stern, Hermann, Prettenhofer, Peter & Scheir, Peter

**Aufsatztitel:**

Applying Language Technologies to Support Work-Integrated Learning

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31-48

**Abstract:**

This paper presents the interactive multimedia learning project Die *SprachChecker*. One key challenge for supporting work-integrated learning (WIL) involves the repurposing of existing knowledge resources (both textual and multimedia) from the organizational memory for automatically creating learning content. Since WIL is highly contextualized to the work tasks as well as to the competences of the knowledge worker in question, manual learning content creation is not feasible here. We present a knowledge artefact lifecycle which starts with the identification of knowledge resources, involves their semantic annotation and contextualized delivery, and concludes with their presentation to users and the consideration of user feedback. We have employed a suite of language and semantic technologies to automate many of the lifecycle steps in order to reduce efforts when instantiating a WIL support environment for a specific application domain. A summative evaluation of the WIL environment has shown that contextualized recommendation of knowledge artefacts can improve task performance and enables learners to advance their competences during work.

Eine der größten Herausforderungen im Bereich des arbeitsintegrierten Lernens (work-integrated learning, WIL) besteht darin, das bereits in einem Unternehmen vorhandene Wissen automatisiert in Lerninhalte (hier als Knowledge Artefacts bezeichnet) umzuwandeln. Eine manuelle Erstellung von Lerninhalten, die genau auf Tätigkeitsfeld und Vorwissen jedes einzelnen Benutzers zugeschnitten sind, ist aufgrund der großen Menge an vorhanden Informationen nicht mehr möglich. In diesem Paper stellen wir einen Knowledge Artefact Lifecycle vor, der alle Schritte beginnend von der Erstellung über die Annotation mit semantischen Konzepten bis hin zur Suche und Visualisierung dieser Knowledge Artefacts beinhaltet. Viele dieser Schritte laufen durch eine Reihe von sprachbasierten und semantischen Technologien automatisch ab; dadurch kann der Aufwand bei der Einführung einer neuen WIL Umgebung in einem Unternehmen drastisch reduziert werden. Eine abschließende summative Evaluation des Systems hat gezeigt, dass auf Tätigkeiten und Vorwissen maßgeschneiderte Lerninhalte wesentlich zur Verbesserung der Arbeitsleistung beitragen, und die Kompetenzentwicklung direkt am Arbeitsplatz fördern.

# Connecting Contents in Distributed Repositories through the Use of Real World Objects

**Autor:**

Niemann, Katja & Wolpers, Martin

**Aufsatztitel:**

Connecting Contents in Distributed Repositories through the Use of Real World Objects

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34

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49-63

**Abstract:**

The MACE project provides advanced graphical metadata-based access to learning resources in architecture. Through the digital representation of real world objects in our system, we are able to bridge the various repositories of architectural learning material and facilitate graphical information retrieval. In order to create the real world object representations, we apply computational linguistics technologies of information retrieval that ensure a high precision. We outline the generation and usage of real world object representations within the MACE system and present the results of the evaluation of our approach.

Das MACE Projekt bietet Studenten der Architektur einen innovativen, graphischen und auf Metadaten basierenden Zugang zu Lernmaterialien. Durch die Nutzung von digitalen Repräsentationen von Real World Objects verbindet das MACE System Lernmaterialien aus dem Architekturbereich, die in verschiedensten Repositorien gespeichert sind, und vereinfacht hierdurch die graphische Informationssuche. Zur Erzeugung dieser Real World Objects verwenden wir computerlinguistische Technologien der Informations-beschaffung, welche eine hohe Präzision sicherstellen. In diesem Artikel beschreiben wir die Erzeugung und Verwendung der Real World Object Repräsentationen innerhalb des MACE Systems und stellen die Ergebnisse der Evaluierung unseres Ansatzes vor.

# Responsive Open Learning Environments for Computer-assisted Language Learning

**Autor:**

Scheffel, Maren, Schmitz, Hans-Christian, Shen, Ruimin, Ullrich, Carsten & Wolpers, Martin

**Aufsatztitel:**

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65-80

**Abstract:**

Responsive open learning environments (ROLEs) compile contents and services in such a way that service widgets can communicate with each other. ROLEs thus enable existing learning management systems to enhance their learning offers which in turn become part of the ROLE. As a technical proof of concept we – by means of a language learning prototype developed as a technical proof of concept in the context of the European project ROLE – first show how interoperability of widgets can be achieved and then present how the implementation of language learning widgets into a running learning environment at the Shanghai Jiao Tong University in China serves as an institutional proof of concept for the applicability and acceptance of ROLEs.

Responsive open learning environments (ROLEs) stellen Inhalte und Dienste so zusammen, dass Widgets miteinander kommunizieren können. ROLEs ermöglichen es existierenden Lernmanagementsystemen, ihre Lernangebot zu verbessern und dadurch Teil des ROLE zu werden. Als technischen Machbarkeitsnachweis zeigen wir anhand eines Sprachlernprototypen, der im Rahmen des europäischen Projekts ROLE entwickelt wurde, zunächst, wie die Interoperabilität von Widgets erreicht werden kann, und präsentieren dann, wie die Implementierung von Sprachlernwidgets in eine laufende Lernumgebung an der Shanghai Jiao Tong University in China als institutioneller Machbarkeitsnachweis für die Anwendbarkeit von und Zustimmung zu ROLEs dient.