Structural Knowledge Techniques For Representing Conveying And Acquiring Structural Knowledge Research Special Publication 30


Intelligent Knowledge-Based Systems

The modern knowledge-based economic model demands highly qualified specialists who are capable of solving complex problems and seeing relationships between phenomena, events, and objects. This book highlights the development of the structural knowledge of university students as a necessary precondition for preparing labour market experts, as it facilitates significant cognitive processes, effective problem solving and expert-level performance. The volume considers structural knowledge as an object that should be regularly assessed and further developed in the formative assessment process by using concept mapping as an assessment instrument. It describes concept mapping, the theoretical foundations of structural knowledge, and its formative assessment, and provides a set of practical scenarios validated in instructional practice. It is intended primarily for the administrative and educational staff of higher education institutions who wish to improve the quality of education with the aim of bringing students' structural knowledge closer to experts' knowledge, and thus ensuring better preparation of students for their professional activities.

Handbook of Cognitive Task Design

This publication comprises material on recent studies on quality management in agri-food chains. Due to several food crisis's (e.g. BSE, Foot-and-Mouth disease) and growing demands for food quality and safety, quality management systems and quality assurance schemes have been widely adopted in different countries in recent years. Scientific knowledge about the features, the acceptance and the effectiveness and efficiency of these newly introduced quality management initiatives, has remained scarce until now. The material by experts in the field, focuses on the evaluation of quality management systems and quality assurance schemes. The main issues are the costs and benefits of quality management given the influence of the public sector and consumers' expectations about food quality and safety. Not only are benchmarking and harmonisation methods examined with regard to their impact on the effectiveness of quality assurance schemes, but, also the role of trust, cooperation and integration for efficient quality management is discussed. Different economic theories such as microeconomics, organization and marketing theory as well as advanced statistical methods are applied. Concepts are discussed from the various points of view of industrialised, export-oriented and developing countries throughout the book. The information in this book give a comprehensive review of quality management concepts in food chains and highlight future research directions from a global perspective. This book is of interest to all those who concern themselves with the topic, be it in academia or in the professional sector.

Social Computing: Concepts, Methodologies, Tools, and Applications

This book provides students and practising teachers with a solid, research-based framework for understanding creative problem solving and its related pedagogy. Practical and accessible, it equips readers with the knowledge and skills to approach their own solutions to the creative problem of teaching for creative problem solving. First providing a firm grounding in the history of problem solving, the nature of a problem, the process of creative problem solving and its conceptualisation, the book then critically examines current educational practices, such as creativity and problem solving models and common classroom teaching strategies. This is followed by a detailed analysis of key pedagogical ideas important for creative problem solving: creativity and cognition, creative problem solving environments, and self regulated learning. Finally, the ideas debated and developed are drawn together to form a solid foundation for teaching for creative problem solving, and presented in a model called Middle C. Middle C is an evidence-based model of pedagogy for creative problem solving. It comprises 14 elements, each of which is necessary for quality teaching that will provide students with the knowledge, skills, structures and support to express their creative potential. As well as emphasis on the importance of self regulated learning, a new interpretation of Pólya's heuristic is presented.

Artificial Intelligence Supported Educational Technologies

Mapping Biology Knowledge addresses two key topics in the context of biology, promoting meaningful learning and knowledge mapping as a strategy for achieving this goal. Meaning-making and meaning-building are examined from multiple perspectives throughout the book. In many biology courses, students become so mired in detail that they fail to grasp the big picture. Various strategies are proposed for helping instructors focus on the big picture, using the 'need to know' principle to decide the level of detail students must have in a given situation. The metacognitive tools described here serve as support systems for the mind, creating an arena in which learners can operate on ideas. They include concept maps, cluster maps, webs, semantic networks, and conceptual graphs. These tools, compared and contrasted in this book, are also useful for building and assessing students' content and cognitive skills. The expanding role of computers in mapping biology knowledge is also explored.

Mapping Biology Knowledge
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The basic ideas underlying knowledge visualization and information vi-alization are outlined. In a short preview of the contributions of this volume, the idea behind each approach and its contribution to the goals of the book are explained. 2 The Basic Concepts of the Book Three basic concepts are the focus of this book: “data”, “information”, and “knowledge”. There have been numerous attempts to define the terms “data”, “information”, and “knowledge”, among them, the OTHEG/"Hopper’s “Data, Information, Knowledge, and Wisdom” (Bellinger, Castro, & Mills, see http://www.system-thinking.org/dikw/dikw.htm): Data are raw. They are symbols or isolated and non-interpreted facts. Data rep- sent a fact or statement of event without any relation to other data. Data simply exists and has no significance beyond its existence (in and of itself). It can exist in any form, usable or not. It does not have meaning of itself.

Contribution Map-Based Formative Assessment of Students’ Structural Knowledge

Uncovers the growing and expanding phenomenon of human behavior, social constructs, and communication in online environments.

Structural Knowledge

This book contains the proceedings of the 11th European Conference on Technology Enhanced Learning, EC-TEL 2016, held in Lyon, France, in September 2016. The 26 full papers, 23 short papers, 8 demo papers, and 33 poster papers presented in this volume were carefully reviewed and selected from 148 submissions.

Quality management in food chains

Learning and Instructional Technologies for the 21st Century gathers research which identify models and approaches to improve learning through the inclusion of technology. These papers, from leading researchers and thinkers in instructional technology, begin by refuting the idea that education can be improved through more or better technology. Instead, the contributors emphasize specific, research-based ideas, which re-evaluate learning, reorganize schools, redesign technology, and provide instruction. Acknowledging the critical role of technology, these contributions explore technology’s main advantage—its ability to enable advanced learning designs and emerging paradigms as well as to evolve learning interactions. While each paper explores a specific aspect of the role of technology, the collection shares this common theme. Without sufficient consideration to the process of learning and its many facets, technological availability alone will not provide a sustained impact on the educational process. Originating from the first AECT Research Symposium, Learning and Instructional Technologies for the 21st Century will be of interest to researchers and practitioners alike.

Designing Cooperative Systems

Cognitive task analysis is a broad area consisting of tools and techniques for describing the knowledge and strategies required for task performance. Cognitive task analysis has implications for the development of expert systems, training and instructional design, expert decision making and policymaking. It has been applied in a wide range of settings, with different purposes, for instance: specifying user requirements in system design or specifying training requirements in training needs analysis. The topics to be covered by this work include: general approaches to cognitive task analysis, system design, instruction, and cognitive task analysis for teams. The work settings to which the tools and techniques described in this work have been applied include: 911 dispatching, faultfinding on board naval ships, design aircraft, and various support systems. The editors’ goal in this book is to present in a single source a comprehensive, in-depth introduction to the field of cognitive task analysis. They have attempted to include as many examples as possible in the book, making it highly suitable for those wishing to undertake a cognitive task analysis themselves. The book also contains a historical introduction to the field and an annotated bibliography, making it an excellent guide to additional resources.

Graph Structures for Knowledge Representation and Reasoning

This book introduces the concept of a hypothetical kind of knowledge construction -- referred to as structural knowledge -- that goes beyond traditional forms of information recall to provide the bases for knowledge application. Assuming that the validity of the concept is accepted, the volume functions as a handbook for supporting the assessment and use of structural knowledge in learning and instructional settings. It’s descriptions are direct and short, and its structure is consistent. Almost all of the chapters describe a technique for representing and assessing structural knowledge acquisition, conveying knowledge structures through direct instruction, or providing learners with strategies that they may use to acquire structural knowledge. These chapters include the following sections in the same sequence: * description of the technique * and its theoretical or conceptual rationale * examples and applications * procedures for development and use * effectiveness -- learner interactions and differences, and advantages and disadvantages * references to the literature. The chapters are structured to facilitate access to knowledge representation as well as to illuminate comparisons and contrasts among the techniques.

Handbook of Visual Languages for Instructional Design: Theories and Practices

In visualization design has increased in recent years. While there is a large body of existing work from which visualization designers can draw, much of the past research has focused on developing new tools and techniques that are aimed at specific contexts. Less focus has been placed on developing holistic frameworks, models, and theories that can guide visualization design at a general level—a level that transcends domains, data types, users, and other contextual factors. In addition, little emphasis has been placed on the thinking processes of designers, including the concepts that designers use, while they are engaged in a visualization design activity. In this book we present a general, holistic framework that is intended to support visualization design for human-information interaction. The framework is composed of a number of conceptual elements that can aid in design thinking. The core of the framework is a pattern language—consisting of a set of 14 basic, abstract patterns—and a specific syntax for describing how the patterns are blended. We also present a design process, made up of four main stages, for creating static or interactive visualizations. The 4-stage design process places the patterns at the core of designers’ thinking, and employs a number of conceptual tools that help designers think systematically about creating visualizations based on the information they intend to represent. Although the framework can be used to design static visualizations for simple tasks, its real utility can be found when designing visualizations with interactive possibilities in mind—in other words, designing to support a human-information interactive discourse. This is especially true in contexts where interactive visualizations need to support complex tasks and activities involving large and complex information spaces. The framework is intended to be general and can thus be used to design visualizations for diverse domains, users, information spaces, and tasks in different fields such as business intelligence, health and medical informatics, digital libraries, journalism, education, scientific discovery, and others. Drawing from research in multiple disciplines, we introduce novel concepts and terms that can positively contribute to
visualization design practice and education, and will hopefully stimulate further research in this area.

Professional Knowledge Management

This book constitutes, together with its companion LNCS 1606, the refereed proceedings of the International Work-Conference on Artificial and Neural Networks, IWANN’99, held in Alicante, Spain in June 1999. The 91 revised papers presented were carefully reviewed and selected for inclusion in the book. This volume is devoted to applications of biologically inspired artificial neural networks in various engineering disciplines. The papers are organized in parts on artificial neural nets simulation and implementation, image processing, and engineering applications.

Design of Visualizations for Human-Information Interaction

This is the first book to provide a step-by-step guide to the methods and practical aspects of acquiring, modelling, storing and sharing knowledge. The reader is led through 47 steps from the inception of a project to its conclusion. Each is described in terms of reasons, required resources, activities, and solutions to common problems. In addition, each step has a checklist which tracks the key items that should be achieved.

Text Representation

“This book addresses how we can make the Web more useful, more intelligent, more knowledge intensive to fulfill our more and more demanding learning and working needs? It is based on the premise that representing knowledge visually is key for individuals and organizations to enable useful access to the knowledge era” – Provided by publisher.

Situational Awareness

The Instructional Design Knowledge Base: Theory, Research and Practice provides ID professionals and students at all levels with a comprehensive exploration of the theories and research that serve as a foundation for current and emerging ID practice. This book offers both current and classic interpretations of theory from a range of disciplines and approaches. It encompasses general systems, communication, learning, early instructional, media, conditions-based, constructivist design and performance-improvement theories. Features include: rich representations of the ID literature concise theory summaries specific examples of how theory is applied to practice recommendations for future research a glossary of related terms a comprehensive list of references. A perfect resource for instructional design and technology doctoral, masters and educational specialist certificate programs, The Instructional Design Knowledge Base provides students and scholars with a comprehensive background for ID practice and a foundation for future ID thinking.

Improving Training Effectiveness in Work Organizations

CGIE TC

Cognitive Task Analysis

The main assumption behind the COOP conferences is that co-operative systems design requires a deep understanding of the co-operative work of dyads, groups and organizations, involving both artefacts and social conventions. The key topic of COOP 2000 was The Use of Theories and Models in Designing Cooperative Systems. Two opposite methodological approaches to co-operative system design can be clearly identified - a pragmatic approach or an approach based on theories and models. Objectives of the COOP 2000 Conference included: clarifying the reasons why one needs or does not need to use a theory or a model for design, comparing the pragmatic and the theory/model-based approaches, and identifying possible joint points between them, discussing the relevance of the theories/models with respect to the design of co-operative systems, to better delimit the respective application fields of the various theories/models, and to identify their possible joint points.

Manual of Simulation in Healthcare

This fully revised and updated edition of Learning, Creating, and Using Knowledge recognizes that the future of economic well being in today's knowledge and information society rests upon the effectiveness of schools and corporations to empower their people to be more effective learners and knowledge creators. Novak's pioneering theory of education presented in the first edition remains viable and useful. This new edition updates his theory for meaningful learning and autonomous knowledge building along with tools to make it operational - that is, concept maps, created with the use of CMapTools and the V diagram. The theory is easy to put into practice, since it includes resources to facilitate the process, especially concept maps, now optimised by CMapTools software. CMapTools software is highly intuitive and easy to use. People who have until now been reluctant to use the new technologies in their professional lives are will find this book particularly helpful. Learning, Creating, and Using Knowledge is essential reading for educators at all levels and corporate managers who seek to enhance worker productivity.

Human-Computer Interaction. Interacting in Various Application Domains

The 13th International Conference on Human-Computer Interaction, HCI Inter- tional 2009, was held in San Diego, California, USA, July 19-24, 2009, jointly with the Symposium on Human Interface (Japan) 2009, the 8th International Conference on Engineering Psychology and Cognitive Ergonomics, the 5th International Conference on Universal Access in Human-Computer Interaction, the Third International Conference on Virtual and Mixed Reality, the Third International Conference on Internet- alization, Design and Global Development, the Third International Conference on Online Communities and Social Computing, the 5th International Conference on A- mented Cognition, the Second International Conference on Digital Humanities Modeling, and the First International Conference on Human Centered Design. A total of 4,348 individuals
from academia, research institutes, industry and governmental agencies from 73 countries submitted contributions, and 1,397 papers that were judged to be of high scientific quality were included in the program. These papers - dress the latest research and development efforts and highlight the human aspects of the design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of human-computer interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas.

**Meaningful Online Learning**

This book constitutes the thoroughly refereed post-proceedings of the Third Conference on Professional Knowledge Management - Experiences and Visions, WM 2005, held in Kaiserslautern, Germany in April 2005. The 82 revised papers presented were carefully reviewed and selected from the best contributions to the 15 workshops of the conference. Coverage includes intelligent office appliances, learning software organizations, learner-oriented knowledge management and KM-oriented e-learning.

**Learning, Creating, and Using Knowledge**

“This book explores how social software and developing community ontologies are challenging the way we operate in a performative space”--Provided by publisher.

**Adaptive and Adaptable Learning**

**New Directions in Cognitive Information Retrieval**

This book constitutes the thoroughly refereed post-conference proceedings of the Third International Workshop on Graph Structures for Knowledge Representation and Reasoning, GKR 2013, held in Beijing, China, in August 2013, associated with IJCAI 2013, the 23rd International Joint Conference on Artificial Intelligence. The 12 revised full papers presented were carefully reviewed and selected for inclusion in the book. The papers feature current research involved in the development and application of graph-based knowledge representation formalisms and reasoning techniques. They address the following topics: representations of constraint satisfaction problems; formal concept analysis; conceptual graphs; and argumentation frameworks.

**Handbook of Educational Psychology**

Practising fundamental patient care skills and techniques is essential to the development of trainees' wider competencies in all medical specialties. After the success of simulation learning techniques used in other industries, such as aviation, this approach has been adopted into medical education. This book assists novice and experienced teachers in each of these fields to develop a teaching framework that incorporates simulation. The Manual of Simulation in Healthcare, Second Edition is fully revised and updated. New material includes a greater emphasis on patient safety, interprofessional education, and a more descriptive illustration of simulation in the areas of education, acute care medicine, and aviation. Divided into three sections, it ranges from the logistics of establishing a simulation and skills centre and the inherent problems with funding, equipment, staffing, and course development to the considerations for healthcare-centred simulation within medical education and the steps required to develop courses that comply with 'best practice' in medical education. Providing an in-depth understanding of how medical educators can best incorporate simulation teaching methodologies into their curricula, this book is an invaluable resource to teachers across all medical specialties.

**Classroom Interactions and Social Learning**

This five-volume set clearly manifests the great significance of these key technologies for the new economies of the new millennium. The discussions provide a wealth of practical ideas intended to foster innovation in thought and, consequently, in the further development of technology. Together, they comprise a significant and uniquely comprehensive reference source for research workers, practitioners, computer scientists, academics, students, and others on the international scene for years to come.

**Learning Support Systems for Organizational Learning**

Today's classroom presents a wealth of opportunities for social interaction amongst pupils, leading to increased interest in teachers and researchers into the social nature of learning. While classroom interaction can be a valuable tool for learning, it does not necessarily lead to useful learning experiences. Through case studies, this book highlights the use of new analytical methodologies for studying the content and patterns of children's interactions and how these contribute to their construction of knowledge. Classroom Interaction and Social Learning will be of interest to students and in service teachers and researchers concerned with classroom discourse and learning.

**The Instructional Design Knowledge Base**

Meaningful Online Learning explores the design and facilitation of high-quality online learning experiences and outcomes through the integration of theory-based instructional strategies, learning activities, and proven educational technologies. Building on the authors' years of synthesized research and expertise, this textbook prepares instructors in training to create, deliver, and evaluate learner-centered online pedagogies. Pre- and in-service K-12 teachers, higher education faculty, and instructional designers in private, corporate, or government settings will find a comprehensive approach and support system for their design efforts.

**Task Analysis Methods for Instructional Design**
Geographic Information Science and Technology (GISc&T) has been at the forefront of education innovation in geography and allied sciences for two decades. Teaching Geographic Information Science and Technology in Higher Education is an invaluable reference for educators and researchers working in GISc&T, providing coverage of the latest innovations in the field and discussion of what the future holds for GISc&T education in the years to come. This book clearly documents teaching innovations and takes stock of lessons learned from experience in the discipline. The content will be of interest both to educators and researchers working in GISc&T, and to educators in other related fields. More importantly, this book also anticipates some of the opportunities and challenges in GI Science and Technology education that may arise in the next decade. As such it will be of interest to chairs, deans, administrators, faculty in other subfields, and educators in general. Innovative book taking a look at recent innovations and teaching developments in the course provision of GI Science and Technology in higher education. Edited by leaders in the field of GISc&T who have been at the forefront of education innovation in GI Science and allied science subjects. Provides coverage of GISc & Technology in a range of institutional settings from an international perspective at all levels of higher education. An invaluable text for all educators within the field of GISc&T and allied subjects with advice from experts in the field on best practice. Includes coverage and practical advice on curriculum design, teaching with GIS technology, distance and eLearning with global examples from leading academics in the field.

Scaled Worlds

Situational awareness has become an increasingly salient factor contributing to flight safety and operational performance, and the research has burgeoned to cope with the human performance challenges associated with the installation of advanced avionics systems in modern aircraft. The systematic study and application of situational awareness has also extended beyond the cockpit to include air traffic controllers and personnel operating within other complex, high consequence work domains. This volume offers a collection of essays that have made important contributions to situational awareness research and practice. To this end, it provides unique access to key readings that address the conceptual development of situational awareness, methods for its assessment, and applications to enhance situational awareness through training and design.

Computer-Based Diagnostics and Systematic Analysis of Knowledge

The chapters of this volume are all based on papers presented at the International workshop on text representation: Linguistic and psycholinguistic aspects, held at Utrecht University. The theme of this title is text representation at this more specifically the linguistic and psycholinguistic aspects thereof. Text representation is a cognitive entity: a mental construct that plays a crucial role in both text production and text understanding. In text production it is the basis for lexical retrieval and for producing and combining the discourse units. In text understanding it is the result of the decoding of the linguistic information in a discourse. This book characterizes a field of study in which the two disciplines, linguistics and psycholinguistics, are growing together.

Engineering Applications of Bio-Inspired Artificial Neural Networks

New Directions in Cognitive Information Retrieval presents an exciting new direction for research into cognitive oriented information retrieval (IR) research, a direction based on an analysis of the user's problem situation and cognitive behavior when using the IR system. This contrasts with the current dominant IR research paradigm which concentrates on improving IR system matching performance. The chapters describe the leading concepts and models of cognitive IR that explore the nexus between human cognition, information and the social conditions that drive humans to seek information using IR systems. Chapter topics include: Polyrepresentation, cognitive overlap and the boomerang effect, Multitasking while conducting the search, Knowledge Diagram Visualizations of the topic space to facilitate user assimilation of information, Task, relevance, selection state, knowledge need and knowledge behavior, search training built into the search, children’s collaboration for school projects, and other cognitive perspectives on IR concepts and issues.

Leadership and Personnel Management: Concepts, Methodologies, Tools, and Applications

This Handbook serves as a single source for theories, models, and methods related to cognitive task design. It provides the scientific and theoretical basis required by industrial and academic researchers, as well as the practical and methodological guidance needed by practitioners who face problems of building safe and effective human-technology s.

Knowledge Acquisition in Practice

Presents languages and notation systems of ID and the integration of these technologies in education.

Internet Learning and the Building of Knowledge

The major trends in e-learning are determined by the global demand of academic, elderly and non-traditional target groups for training and education. The advent of the learning organization reflects these major shifts of the educational markets within companies. Automation of learning processes does not enhance a company's productivity; augmentation of individual and collaborative learning processes is needed. This book reflects seven years of applied research (1997-2003) in the fields of adaptive multimedia systems, knowledge-based and collaborative learning environments, and intelligent software agents.

Knowledge and Information Visualization

Task Analysis Methods for Instructional Design is a handbook of task analysis and knowledge elicitation methods that can be used for designing direct instruction, performance support, and learner-centered learning environments. To design any kind of instruction, it is necessary to articulate a model of how learners should think and perform. This book provides descriptions and examples of five different kinds of task analysis methods: *job/behavioral analysis; *learning analysis; *cognitive task analysis; *activity-based analysis methods; and *subject matter analysis. Chapters follow a standard format making them useful for reference, instruction, or performance support.
Teaching Geographic Information Science and Technology in Higher Education

This book includes a collection of expanded papers from the 2019 Sino-German Symposium on AI-supported educational technologies, which was held in Wuhan, China, March, 2019. The contributors are distinguished researchers from computer science and learning science. The contributions are organized in four sections: (1) Overviews and systematic perspectives, (2) Example Systems, (3) Algorithms, and (4) Insights gained from empirical studies. For example, different data mining and machine learning methods to quantify different profiles of a learner in different learning situations (including interaction patterns, cognitive modes, knowledge skills, interests and emotions etc.) as well as connections to measurements in psychology and learning sciences are discussed in the chapters.

Handbook of Research on Social Software and Developing Community Ontologies

A major transformation in research and training is expected, using new, more advanced versions of computer-based systems. Technology now affords new capabilities: complex and distributed expert decisionmaking and team performance can now be elicited and rehearsed through affordable and easily distributed systems. These new systems will transform research and training on two fronts. It will allow research needed to bridge the gap between internal (i.e. laboratory control) and external (e.g. operational relevance) validity. In addition, it enables a coalition of forces, from training instructors and their students, to research scientists and quantitative performance modelers. While simulation-based research and training is rapidly advancing, with increased funding and sponsorship, as yet there is no comprehensive documentation of tools and techniques. This book addresses the problem, bringing together experts from a variety of perspectives. Their contributions document emerging trends and issues with regard to development, utilization, and validation of these emerging ‘scaled world’ systems. The readership includes researchers and practitioners who develop and/or utilize simulation-based environments, educators interested in instructional technology and researchers who require criterion-based performance evaluation.

Visual Knowledge Modeling for Semantic Web Technologies: Models and Ontologies

Sponsored by Division 15 of APA, the second edition of this groundbreaking book has been expanded to 41 chapters that provide unparalleled coverage of this far-ranging field. Internationally recognized scholars contribute up-to-date reviews and critical syntheses of the following areas: foundations and the future of educational psychology, learners' development, individual differences, cognition, motivation, content area teaching, socio-cultural perspectives on teaching and learning, teachers and teaching, instructional design, teacher assessment, and modern perspectives on research methodologies, data, and data analysis. New chapters cover topics such as adult development, self-regulation, changes in knowledge and beliefs, and writing. Expanded treatment has been given to cognition, motivation, and new methodologies for gathering and analyzing data. The Handbook of Educational Psychology, Second Edition provides an indispensable reference volume for scholars, teacher educators, in-service practitioners, policy makers and the academic libraries serving these audiences. It is also appropriate for graduate level courses devoted to the study of educational psychology.

Learning and Instructional Technologies for the 21st Century

What is knowledge? How can it be successfully assessed? How can we best use the results? As questions such as these continue to be discussed and the learning sciences continue to deal with expanding amounts of data, the challenge of applying theory to diagnostic methods takes on more complexity. Computer-Based Diagnostics and Systematic Analysis of Knowledge meets this challenge head-on as an international panel of experts reviews current and emerging assessment methodologies in the psychological and educational arenas. Emphasizing utility, effectiveness, and ease of interpretation, contributors critically discuss practical innovations and intriguing possibilities (including mental representations, automated knowledge visualization, modeling, and computer-based feedback) across fields ranging from mathematics education to medicine. These contents themselves model the steps of systematic inquiry, from theoretical construct to real-world application: Historical and theoretical foundations for the investigation of knowledge Current opportunities for understanding knowledge empirically Strategies for the aggregation and classification of knowledge Tools and methods for comparison and empirical testing Data interfaces between knowledge assessment tools Guidance in applying research results to particular fields Researchers and professionals in education psychology, instructional technology, computer science, and linguistics will find Computer-Based Diagnostics and Systematic Analysis of Knowledge a stimulating guide to a complex present and a rapidly evolving future.

Pedagogy for Creative Problem Solving

This compelling volume presents the work of innovative researchers dealing with current issues in training and training effectiveness in work organizations. Each chapter provides an integrative summary of a research area with the goal of developing a specific research agenda that will not only stimulate thinking in the training field but also direct future research. By concentrating on new ideas and critical methodological and measurement issues rather than summarizing existing literature, the volume offers definitive suggestions for advancing the effectiveness of the training field. Its chapters focus on emerging issues in training that have important implications for improving both training design and efficacy. They discuss various levels of analysis-- intra-individual, inter-individual, team, and organizational issues--and the factors relevant to achieving a better understanding of training effectiveness from these different perspectives. This type of coverage provides a theoretically driven scientist/practitioner orientation to the book.

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