

Integration Of Indigenous Knowledge In Addressing Climate

This first volume in the International Technology Education Series offers a unique, worldwide collection of national surveys into the developments of Technology Education in the past two decades.

This volume is a comprehensive collection of critical essays on *The Taming of the Shrew*, and includes extensive discussions of the play's various printed versions and its theatrical productions. Aspinall has included only those essays that offer the most influential and controversial arguments surrounding the play. The issues discussed include gender, authority, female autonomy and unruliness, courtship and marriage, language and speech, and performance and theatricality.

From improved critical thinking to increased self-esteem and school retention, teachers and students have noted many benefits to bringing Aboriginal viewpoints into public school classrooms. In *Integrating Aboriginal Perspectives Into the School Curriculum*, Yatta Kanu provides the first comprehensive study of how these frameworks can be effectively implemented to maximize Indigenous students' engagement, learning, and academic achievement. Based on six years of empirical research, Kanu offers insights from youths, instructors, and school administrators, highlighting specific elements that make a difference in achieving positive educational outcomes. Drawing on a wide range of disciplines, from cognitive psychology to civics, her findings are widely applicable across both pedagogical subjects and diverse cultural groups. Kanu combines theoretical analysis and practical recommendations to emphasize the need for fresh thinking and creative experimentation in developing curricula and policy. Amidst global calls to increase school success for Indigenous students, this work is a timely and valuable addition to the literature on Aboriginal education. *Indigenous Knowledge and the Integration of Knowledge Systems Towards a Philosophy of Articulation* New Africa Books

This book explores the role of the social and natural sciences in supporting the development of indigenous knowledge systems. It looks at how indigenous knowledge systems can impact on the transformation of knowledge generating institutions such as scientific and higher education institutions on the one hand, and the policy domain on the other.

This book is an intellectual journey into epistemology, pedagogy, physics, architecture, medicine and metallurgy. The focus is on various dimensions of African Indigenous Knowledge (AIK) with an emphasis on the sciences, an area that has been neglected in AIK discourse. The authors provide diverse views and perspectives on African indigenous scientific and technological knowledge that can benefit a wide spectrum of academics, scholars, students, development agents, and policy makers, in both governmental and non-governmental organizations, and enable critical and alternative analyses and possibilities for understanding science and technology in an African historical and contemporary context.

Indigenous knowledge systems (IKS) are a combination of knowledge systems encompassing technology; social, economic, and philosophical learning; or educational, legal, and governance systems. The lack of documentation of these systems presents a problem as the knowledge is fading away over time. In response, it is essential that policies and strategies are undertaken to ensure that these systems are protected and sustained for generations to come. *The Handbook of Research on Protecting and Managing Global Indigenous Knowledge Systems* is a comprehensive reference source that works to preserve indigenous knowledge systems through research. Focusing on key concepts such as tools of indigenous knowledge management and African indigenous symbols, the book preserves and promotes indigenous knowledge through research and fills the void staff and students within the field of indigenous

knowledge systems face with the current lack of research and resources. This book is ideal for university students, lecturers, researchers, academicians, policymakers, historians, sociologists, and anyone interested in the field of indigenous knowledge systems.

The book is a collection of papers about indigenous, aboriginal, ethnic and fugitive groups from different countries, regions and areas. The book's chapters are written by scholars from different disciplines who exemplify these groups' way of life, problems, etc. from educational aspects, governmental aspects, aspects of human rights, economic statues, legal statues etc. The chapters describe their difficulties, but also their will to preserve their culture and language, and make their life better.

Ladislav M. Semali and Joe L. Kincheloe's edited book, *What is Indigenous Knowledge?: Voices from the Academy* not only exposes the fault lines of modernist grand narratives, but also illuminates, in a vivid and direct way, what it means to come to subjectivity in the margins. The international panel of contributors from both industrialized and developing countries, led by Semali and Kincheloe, injects a dramatic dynamic into the analysis of knowledge production and the rules of scholarship, opening new avenues for discussion in education, philosophy, cultural studies, as well as in other important fields.

Bridging the gap between local knowledge and western science is essential to understanding the world's ecosystems and the ways in which humans interact with and shape those ecosystems. This book brings together a group of world-class scientists in an unprecedented effort to build a formal framework for linking local and indigenous knowledge with the global scientific enterprise. Contributors explore the challenges, costs, and benefits of bridging scales and knowledge systems in assessment processes and in resource management. Case studies look at a variety of efforts to bridge scales, providing important lessons concerning what has worked, what has not, and the costs and benefits associated with those efforts. Drawing on the groundbreaking work of the Millennium Eco-system Assessment, *Bridging Scales and Knowledge Systems* will be indispensable for future efforts to conduct ecosystem assessments around the world.

Based on interrogation and review of historical and current cultural and indigenous knowledge combined with extensive curriculum and classroom analysis, this book identifies how indigenous science gender roles may be utilized to provide a more gender balanced and indigenous centered learning experience. The book argues for the integration of African indigenous science into the secondary school curriculum as a way to strengthen students' science comprehension by affirming their society's science contributions, making clear connections between Indigenous and Western science, and also as a way to promote female representation in the sciences. This book will be of interest to scholars and practitioners of science education, African education, and indigenous knowledge.

The role and value of indigenous knowledge systems in enhancing and contextualizing education has long been recognized (UNESCO, 1978). Against this background a lot of research focusing on the documentation and study of the world's indigenous knowledge systems, including those of Southern African countries was done. However, within the Southern African context much of this research did not translate into practical curriculum processes leaving educational processes de-contextualized (O'Donoghue, 2002; Mokuku, 2004; Shava, 2005). The linkages between the school, the home and the wider community remained weak (Taylor & Mulhall, 2001). The net effect of the limited integration of indigenous knowledge systems into mainstream environmental education processes has been that indigenous learners (such as those within the Sebakwe rural community) continued to get exposed to 2 different world views, the western scientific world view and the everyday life world views. The integration of indigenous knowledge systems into mainstream education such as the Sebakwe Environmental Education programme (SEEP) is 1 way of contextualizing education and improving its relevance to learners' socio-cultural backgrounds

This book provides a comprehensive overview of humanistic approaches to science. Approaches that connect students to broader human concerns in their everyday life and culture. Glen Aikenhead, an expert in the field of culturally sensitive science education, summarizes major worldwide historical findings; focuses on present thinking; and offers evidence in support of classroom practice. This highly accessible text covers curriculum policy, teaching materials, teacher orientations, teacher education, student learning, culture studies, and future research.

Knowledge systems are an essential aspect to the preservation of a community's culture. In developing countries, this community-based knowledge has significant influence on such things as decision making and problem solving. The Handbook of Research on Social, Cultural, and Educational Considerations of Indigenous Knowledge in Developing Countries is an authoritative reference source for the latest scholarly research on the importance of knowledge and value systems at the community level and ways indigenous people utilize this information. Highlighting impacts on culture and education in developing nations, this book is ideally designed for researchers, academicians, policy makers, students, and professionals interested in contemporary debates on indigenous knowledge systems.

This dissertation is a cumulative doctoral work. It consists of six main chapters outlining five journal articles and a book chapter that discuss a literature review and four studies. The dissertation studies focus on the inclusion of indigenous knowledge (IK) in science and chemistry education to promote education for sustainable development (ESD). The first chapter analyses the general literature background and research framework of the study. This chapter presents an analytical literature review discussed in "A Multi-Perspective Reflection on How Indigenous Knowledge and Related Ideas Can Improve Science Education for Sustainability" (Zidny et al., 2020). It encompasses the theoretical framework, didactic model, educational research framework, and the educational values of the inclusion of IK in science and chemistry education. The second chapter outlines the research background of the Indonesian science curriculum and the current state of implementation of ESD in Indonesia. The significance of indigenous communities for this study is also presented with a special focus on the Baduy community in the Banten province, Java Island, Indonesia. The profile of the Baduy community is discussed in the book chapter "Indigenous Knowledge as a Socio-Cultural Context of Science to Promote Transformative Education for Sustainable Development: Insights into a Case Study on The Baduy Community (Indonesia)" (Zidny & Eilks, 2018) The third chapter presents four major studies that are part of research-based development of didactic teaching-learning-designs on the inclusion of IK and perspectives into science and chemistry education. The first study in this chapter (section 3.1) attempts to map out and explore indigenous, science-related knowledge from the Baduy community. From the findings, an educational analysis was conducted to identify contexts and content for science learning as well as for integrating indigenous science (ISc) into socioscientific issues-based education. This study is part of the book chapter by Zidny and Eilks (2018) and a paper entitled "Exploring Indigenous Science to Identify Contents and Contexts for Science Learning to Promote Education for Sustainable Development" (Zidny et al., 2021). The second study in chapter 3 (section 3.2) focuses on implementing a first teaching intervention on the integration of IK and Western modern science (WMSc) in chemistry education. The

teaching intervention adopted model 3 of the ESD-based pedagogical approaches suggested by Burmeister et al. (2012) focusing on the controversial sustainability issue of pesticides use. The lesson was implemented in two groups on different educational levels, encompassing upper secondary school and university chemistry student teachers. The lesson's main activities start from the controversial issues of pesticides use to encourage learners to think critically, express their arguments, and solve chemistry problems in classroom task activities. Feedback from the learners about the lesson and the learning design was collected. This study is described in "Integrating perspectives from indigenous knowledge and Western science in secondary and higher chemistry learning to contribute to sustainability education" (Zidny & Eilks, 2020). The analysis and evaluation of the students' activities is discussed in the third study in chapter 3 (section 3.3). This study attempted to explore the initial level of students' arguments and their ability to link the context with chemistry concepts. Based on the findings, information from the analysis was used to evaluate and improve the learning design. This study is described in "A case study on students' application of chemical concepts and use of arguments in teaching on the sustainability-oriented chemistry issue of pesticides use under the inclusion of different scientific worldviews" (Zidny et al., 2021, under review a). The final study in chapter 3 (section 3.4) focuses on a second teaching intervention on the inclusion of ISc as a starting point to promote green and sustainable chemistry education. The teaching intervention adopted models 1 and 2 of ESD-based approaches suggested by Burmeister et al. (2012), namely adopting green chemistry lab practices and content. The lesson was implemented in an environmental chemistry course (elective course) with second-year undergraduate student teachers in Indonesia. This study is described in "Learning about phytochemical aspects of botanical pesticides adapted from ethnoscience as a contribution to green and sustainable chemistry education" (Zidny & Eilks, under review b) Chapter 5 summarizes all the studies in the research project and outlines the implication of the studies. In chapter 6, the published works of the thesis are presented. Little research exists on the specific ways that Indigenous ways of being, knowing and doing are integrated in institutions of higher education across Micronesia. This research study illuminates through case study the position of Palauan Knowledge within Palau Community College. An Indigenous methodology set within a broader Indigenous research paradigm (Wilson, 2008) is utilized to align with Palauan values of respect (omenguul) and responsibility (ngerachel). Through interviews (chelededuch) with nine collaborators, in addition to fieldnotes, observations, and archival documents, this study aimed to answer the following research questions: How is Indigenous Knowledge incorporated within Palau Community College (PCC)? Secondly, how do stories from Indigenous teachers and Indigenous learning environments inform PCC? Findings from this study reveal experiences of separation from Palauan Knowledge and the actions some collaborators took to preserve Palauan Knowledge. Collaborators' narratives highlight several instances where Palauan knowledge is honored within the college through visual and oral representations as well as with academic and community programming. Continuity of Palauan Knowledge through ongoing opportunities to sustain practices in and outside of the college is explored in the final reflections of collaborators who continue to challenge perspectives that Indigenous Knowledge is in the past. Ultimately, this study lays a foundation for the argument that Palauan

Knowledge is demonstrated as resilient, dynamic and adaptive to the needs of community. Recommendations concerning the elevation of Indigenous Knowledge at Palau Community College and other institutions of higher education that reside on Indigenous land are offered.

Abstract: Early Childhood Care and Education in Ethiopia was revitalized after the initiatives of Education for All campaign were introduced with the intention of expanding access and improving educational opportunities to children living in disadvantaged communities. In the process of expanding access to Early Childhood Care and Education (ECCE) programs in Ethiopia, a greater need to grasp the meaning of early education in the context of children's historical, social, and cultural experiences emerged. The purpose of this research study was to explore the integration of indigenous knowledge and cultural practices in ECCE programs in Addis Ababa, Ethiopia. Vygotsky's sociocultural theory in combination with Yosso's community cultural wealth theory served as the conceptual as well as the methodological framework advising the components of this research. This qualitative case study invited perspectives from local parents, teachers, directors, a university faculty member, and administrative personnel from Ministry of Education in Ethiopia. Major findings uncovered that participants in this study associated language, fidel (the Ethiopian alphabet), traditional practices, and religion as core elements of Ethiopia's indigenous knowledge. However, when assessing the value of using indigenous knowledge, it was revealed parents' want for English and the personification English-speaking carries resulted in devaluation of Amharic and cultural practices in ECCE programs. Success with integrating indigenous knowledge by using native languages and culturally relevant materials was evident in schools serving low income families; but it was a challenge for these students when they advanced to all-English secondary schools. Other challenges to integrating indigenous knowledge were attributed to disproportionate numbers of private versus public schools, divergent education philosophy between rich and poor programs, lack of local resources, and absence of a stringent monitoring agency to enforce the national mandate of Amharic or mother's tongue as the medium of instruction. The study bears important implications for ECCE programs, policy makers, educational researchers, and for Ethiopia. Recommendations include Ethiopia's adopting a three language system in primary grades beginning in ECCE programs. Further recommendations call for international and national support for developing indigenous resources, delayed introduction of English as a subject in elementary grades, and a comprehensive university-level ECCE teacher training program. While there is talk of the Fourth Industrial Revolution, old and new challenges bedevil the world – climate change, nutrition, and health poverty being at the top of the list. In seeking solutions to these and other problems which afflict the modern era, it is worthwhile to look into our collective past, to the traditions and knowledges of our ancestors. Such knowledge continues to exist in many parts of the world, though now marginalized by homogenous, Eurocentric ontology and epistemology. This book presents a compilation of reviews, case studies, and primary research attempting to locate the utility of traditional and Indigenous Knowledges in an increasingly complex world. It assembles chapter authors from across the world to tackle topics ranging from traditional knowledge-based innovations and commercialization, traditional medicine systems as practiced around the world, ethnoveterinary practices, and food innovation

to traditional governance and leadership systems, among others. This book is an important resource for policymakers; scholars and researchers of cultural studies, leadership, governance, ethnobotany, anthropology, plant genetic resources and technology innovation; and readers interested in the history of knowledge and culture, as well as cultural activists and political scientists. Features: Unique combination of social science and anthropological aspects with natural science perspectives Includes summaries aimed at policymakers to immediately see what would be relevant to their work Combines case studies illuminating important lessons learned with reviews and primary data Multidisciplinary in the scope of the topics tackled and assemblage of contributors Global footprint with contributions from Africa, Europe, North America, Asia, and the West Indies David R. Katerere, Department of Pharmaceutical Sciences, Tshwane University of Technology, South Africa Wendy Applequist, William L. Brown Center, Missouri Botanical Garden, St Louis, Missouri Oluwaseyi M. Aboyade, Department of Pharmaceutical Sciences, Tshwane University of Technology, South Africa and Nutritica SA, The Innovation Hub, Pretoria, South Africa Chamunorwa Togo, The Innovation Hub, Pretoria, South Africa

This study is a contribution towards exploring alternative but sustainable education policies for pastoralist societies and sets out to explore how pastoralist IKSs (Indigenous Knowledge Systems) can be integrated or used as an entry point to provide formal schooling to pastoralist communities in Kenya. Pastoralists constitute the majority of the socially and economically vulnerable groups in the country. Children, among pastoralist communities, face detrimental hardships that compromise their growth and development. One of these hardships is the imposition of an education and development paradigm that is irrelevant to their existence and which compounds their problems. This study therefore sought to explore how, through better government policies, the indigenous knowledge (IK) of pastoralists could be integrated into the curriculum of formal schooling. Specifically, the study discusses the following issues: Gaps in policies for schooling provision for pastoralist groups, with particular reference to the content of the curriculum and methods of delivery; Aspects of pastoralist IKS that can be integrated into the context of national education policy to enrich their schooling within; and General recommendations regarding the use of participatory and social engineering approaches in designing education and development policies affecting pastoralist communities in Kenya. "Polished, clear, insightful, and meaningful.... This volume amounts to nothing less than a complete rethinking of what progressive education can be at its best and how education can be reconceptualized as one of the central practices of a genuinely democratic and sustainable society.... It is the kind of book that has the potential to be transformative." Stephen Preskill, University of New Mexico "The editors and contributors are pioneers in the field of educational theory, policy, and philosophy.... They are opening new areas of inquiry and educational reform in ways that promise to make this book in very short time into a classic.... The practical applications and experiments included reveal the richness of grassroots initiatives already underway to bring educational theory and policy down to earth. While spanning the richest and deepest intellectual ideas and concepts, the stories told are the types that practitioners and teachers will be able to relate to in their daily undertakings." Madhu Suri Prakash, The Pennsylvania State University This volume – a landmark contribution to the burgeoning theory and practice of place-based education – enriches the field in three ways: First, it frames place-based pedagogy not just as an alternative teaching methodology or novel approach to environmental education but as part of a broader social movement known as the "Anew localism", which aims toward reclaiming the significance of the local in the global age. Second, it links the development of ecological awareness and stewardship to concerns about equity and cultural diversity. Third, it presents examples of place-based education in action. The

relationship between the new localism and place-based education is clarified and the process of making connections between learners and their wider communities is demonstrated. The book is organized around three themes: Reclaiming Broader Meanings of Education; Models for Place-Based Learning; and Global Visions of the Local in Higher Education This is a powerfully relevant volume for researchers, teacher educators, and students across the fields of curriculum theory, educational foundations, critical pedagogy, multicultural education, and environmental education.

This handbook explores the evolution of African education in historical perspectives as well as the development within its three systems—Indigenous, Islamic, and Western education models—and how African societies have maintained and changed their approaches to education within and across these systems. African education continues to find itself at once preserving its knowledge, while integrating Islamic and Western aspects in order to compete within this global reality. Contributors take up issues and themes of the positioning, resistance, accommodation, and transformations of indigenous education in relationship to the introduction of Islamic and later Western education. Issues and themes raised acknowledge the contemporary development and positioning of indigenous education within African societies and provide understanding of how indigenous education works within individual societies and national frameworks as an essential part of African contemporary society.

Indigenous knowledge -- Ayurveda -- Teacher development -- Design-based research -- CHAT -- Contradiction of control.

This unique volume presents an ecocultural and embodied perspective on understanding numbers and their history in indigenous communities. The book focuses on research carried out in Papua New Guinea and Oceania, and will help educators understand humanity's use of numbers, and their development and change. The authors focus on indigenous mathematics education in the early years and shine light on the unique processes and number systems of non-European styled cultural classrooms. This new perspective for mathematics education challenges educators who have not heard about the history of number outside of Western traditions, and can help them develop a rich cultural competence in their own practice and a new vision of foundational number concepts such as large numbers, groups, and systems. Featured in this invaluable resource are some data and analyses that chief researcher Glendon Angove Lean collected while living in Papua New Guinea before his death in 1995. Among the topics covered: The diversity of counting system cycles, where they were established, and how they may have developed. A detailed exploration of number systems other than base 10 systems including: 2-cycle, 5-cycle, 4- and 6-cycle systems, and body-part tally systems. Research collected from major studies such as Geoff Smith's and Sue Holzknecht's studies of Morobe Province's multiple counting systems, Charly Muke's study of counting in the Wahgi Valley in the Jiwaka Province, and Patricia Paraide's documentation of the number and measurement knowledge of her Tolai community. The implications of viewing early numeracy in the light of this book's research, and ways of catering to diversity in mathematics education. In this volume Kay Owens draws on recent research from diverse fields such as linguistics and archaeology to present their exegesis on the history of number reaching back ten thousand years ago. Researchers and educators interested in the history of mathematical sciences will find *History of Number: Evidence from Papua New Guinea and Oceania* to be an invaluable resource.

The focus of the book is on different ways of knowing: the western scientific way (reductionist, dualistic and materialist) versus the indigenous approach (holistic, non-dualistic, and spiritual). It discusses both science and medicine in the context of the challenges experienced in introducing science and medicine into Africa through imperialism, colonization, and globalization. It looks at selected indigenous African paradigms, the dominant western paradigms, and the practitioners that represent these practices. The book deals with questions

concerning compatibility and incompatibility of different ways of knowing and delves into epistemological stances, and the assumptions underlying these epistemologies. The volume investigates whether, and how a person can accommodate different epistemologies, and the nature of such accommodations.

This guidebook zeros in on what indigenous knowledge can contribute to a sustainable development strategy that accounts for the potential of the local environment and the experience and wisdom of the indigenous population. Through an extensive review of field examples as well as current theory and practice, it provides a succinct yet comprehensive review of indigenous knowledge research and assessment. Working with Indigenous Knowledge will contribute to the improved design, delivery, monitoring, and evaluation of any program of research and will appeal to both the seasoned development professional as well as the novice or student just beginning a research career.

As progress towards a greater knowledge in sustainability science continues, the question of how better to integrate scientific progress with actual decisions made by practitioners remains paramount. This book aims to help close the gap between science and practice. Based on a two year collaborative project between Harvard and Clark Universities, the book takes as its focus the vulnerability and resilience of people around the world to the effects of environmental change, a mature area of research in which one might expect the gap between science and policy/practice to have been extensively bridged. Integrating Science and Policy presents analysis of past studies, interviews conducted with the producers and users of scientific knowledge, and case studies performed by leading scholars across a spectrum of international settings and political systems. Crucially, the authors identify new directions and tools for closing the gap between science and policy across a range of situations and societies. The result is an illuminating collection of studies and analyses that suggest to researchers, students, practitioners, and policy-makers alike how best to ensure that high quality environmental research informs good environmental policy and practice.

The continent of Africa is richly endowed with diverse cultures, a body of indigenous knowledge and technologies. These bodies of knowledge and technologies that are indeed embodied in the diverse African cultures are as old as humankind. From time immemorial, they have been used to solve socio-economic, political, health, and environmental problems, and to respond to the development needs of Africans. Yet with the advent of colonialism and Western scientism, these African cultures, knowledges, and technologies have been despised and relegated to the periphery, to the detriment of the self-reliant development of Africans. It is out of this observation and realisation that this book was born. The book is an exploration of the practical problems resulting from Africa's encounter with Euro-colonialism, a reflection of the nexus between indigenous knowledge, culture, and development, and indeed a call for the revival and reinstitution of indigenous knowledge, not as a challenge to Western science, but a complementary form of knowledge necessary to steer and promote sustainable development in Africa and beyond. This is a valuable book for policy makers, institutional planners, practitioners and students of social anthropology, education, political and social ecology, and development, African and heritage studies.

In today's globalized world, viable and reliable research is fundamental for the development of information. Innovative methods of research have begun to shed light on notable issues and concerns that affect the advancement of knowledge within information science. Building on previous literature and exploring these new research techniques are necessary to understand the future of information and knowledge. The Handbook of Research on Connecting Research Methods for Information Science Research is a collection of innovative research on the methods and application of study methods within library and information science. While highlighting topics including data management, philosophical foundations, and quantitative methodology, this book is ideally designed for librarians, information science professionals,

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policymakers, advanced-level students, researchers, and academicians seeking current research on transformative methods of research within information science.

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