Disrupting Local Knowledge (Re)Discovery via Technologies of the 4th Industrial Revolution

Proceedings of

Asian Universities Digital Resource Network-International Research Conference on Local Knowledge 2020

Father Saturnino Urios University, Butuan City
February 7-8, 2020

We live on the verge of a technological revolution that will basically change the way we live, work, and relate to one another. In its extent and intricacy, the changes will be unlike anything we have experienced before. The emergence and the continuing (d)evolution of the Internet have greatly altered our motivations, methods, understandings of and responses to researches on local knowledge. In the troughs of rampant globalization and the fast-changing technologies which enable it, such as the Internet of Things (IoT), robotics, virtual reality (VR) and artificial intelligence (AI), the academe, especially the social sciences, is placed at a crucible to look deeper into these phenomena. The academe is entrusted to serve as the seers, critics and game changers in a world now brought to a sudden flux by the 4th Industrial Revolution.

Universities and educational institutions have fortified their programs on local research vis-à-vis globalization and the continuing technological advancement. The multifaceted solutions and approaches offered by new technologies definitely require a deeper, more critical examination in relation to their impact to local knowledge and identity.

Being the fourth, this year's AUDRN research conference with the theme "Disrupting Local Knowledge (Re)discovery via Technologies of the 4th Industrial Revolution" will look into the possible effects of the Fourth Industrial Revolution on the efforts to preserve, conserve, and/or (re)discover local knowledge and to think strategically about the forces of disruption and innovation shaping the future.

Sub-Themes:

1. Policies in ICT and Local Knowledge
2. Faculty Development & Re-training on ICT adoption to reuse, preserve and share local knowledge
3. ICT Pedagogical Approaches in Teaching Local Knowledge
4. ICT Tools, Platforms and Operations in Local Knowledge Preservation
5. ICT-based Assessment in teaching Local Knowledge
6. Classroom Organization and Management in Teaching Local Knowledge using ICT
7. Computer Ethics and Local Knowledge
8. Human-Computer Interaction in Local Knowledge
9. ICT-based methods in Local Knowledge Research
10. Community Extension and Service-learning, ICT, and Local Knowledge

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ASIAN UNIVERSITIES DIGITAL RESOURCE NETWORK-INTERNATIONAL RESEARCH CONFERENCE ON LOCAL KNOWLEDGE 2020
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PROGRAM OF ACTIVITIES

Day 1: February 7, 2020

8:00 – 9:00	**Registration / Networking / Coffee** Venue: FSUU CBE Function Hall

9:00 – 9:30   **Opening Ceremonies**

            Invocation   - Voices of light Chorale

            National Anthem   - Voices of light Chorale

            Welcome Remarks

                 Rev. Fr. John Christian U. Young

                 President, Father Saturnino Urios University

            Opening Message

                 Dr. Betty Cernol-McCann

                 AUDRN President

                 President, Silliman University

        Conference Overview & Acknowledgement of Participants

                 Dr. Dave Marcial

                 AUDRN Executive Director

9:30 - 10:30   **KEYNOTE**

            Mr. Kevin Henderson

            Director, Digital Content and Programming

            United Board for Christian Higher Education in Asia

            USA

10:30 - 11:30   **Local Knowledge and Disruptive Technologies**

            Mr. Ryan Mark S. Molina

            Executive Vice President, STI West Negros University

11:30 - 12:00   **The Cagayano Digital Resource Center: Bringing Indigenous Knowledge in the Higher Education**

            Rev. Fr. Renillo H. Sta. Ana, CICM, Emmanuel James P. Pattaguan, Darin Jan Tindowen, Diane Datul, Marife Tibule and Ertie Abana

            University of Saint Louis

12:15 – 1:30   **Lunch**

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1:30 – 3:00	**Up Close and Personal with the IPs in Agusan and Surigao**
	Moderator: Dr. Shirlene Medori T. Alegre
	AUDRN Coordinator, Father Saturnino Urios University
3:00 – 3:30	**Networking / Snacks**
3:30 – 6:00	**Parallel Research Presentations**

Time	CBE Function Hall 1 Moderator: Dr. Randolf Asistido	CBE Function Hall 2 Moderator: Dr. Abegayle P. Chua
3:30 - 4:00	STUDENT PERCEPTION ON THE IMPLEMENTATION OF LOCAL KNOWLEDGE AS PROJECT ADVOCACY IN EMPOWERMENT TECHNOLOGIES: A QUALITATIVE ANALYSIS *Alfie Arcelo, Jade Montemayor, Fredlie Bucog, Dave Marcial* **Silliman University**	ADVOCATING FOR THE CULTURAL HERITAGE OF BUTUAN IN THE PRE-COLONIAL TIMES UP TO THE ARRIVAL OF FERDINAND MAGELLAN: LOCALIZING UNDERSTANDING CULTURE, SOCIETY, AND POLITICS (UCSP) LEARNING COMPETENCIES *Orbelle I. Supas* **Father Saturnino Urios University**
4:00 - 4:30	CRYSTALLOGRAPHIC AND FRIEZE PATTERNS IN BURDANG TAAL: GENERATING DESIGNS USING GRAPHING SOFTWARES *Romell A. Ramos, Miraflor C. Gutierrez, Jason T. Hortelano* **University of Batangas**	PAGBUO NG KAGAMITANG PAMPAGTUTURO BATAY SA PAGSUSURING PANGALANG PAMBARYO SA LUNGSOD NG BATANGAS *Efsica A. Maranan, Edward E. Babasa, Angela C. Napa, Rosalina H. Panganiban* **University of Batangas**
4:30 - 5:00	VIDEO METRICS: PROMOTING BUTUANON LOCAL KNOWLEDGE CONTENTS IN FACEBOOK *Joseph El Roy B. Cassion II* **Father Saturnino Urios University**	SUSTAINABLE LIVELIHOOD DEVELOPMENT PROGRAM FOR PUROK ARAO, BARANGAY VISTA ALEGREE, BACOLOD CITY, NEGROS *Mima M. Villanueva, Noli A. Espina, Salvador S. Sigaya, Edna Maricon A. Arca, Eugenio A. Pedrosa J.* **STI West Negros University**

| 5:00 - 5:30 | USABILITY OF PANCEATERIA: A LOCATION-BASED PANCIT STORE FINDER
Eldrin Macapallag, Christiane Joline Foz, Von Ryan Villena, <u>Ertie Abana</u>
University of Saint Louis | DEVELOPING CONTEXTUALIZED AND LOCALIZED LEARNING RESOURCES WITH ICT INTEGRATION IN BENGUET
<u>*Ramir S. Austria*</u>*, Gertrude V. Corpuz, Sheena T. Palaroan*
University of the Cordilleras |
| 5:30 - 6:00 | A DIGITAL APPROACH IN PROMOTING AND PRESERVING INFORMATION ON CEBU'S TANGIBLE CULTURAL HERITAGE SITES (TCHS)
<u>*Demelo M. Lao*</u> *and Pauline Louie A. Saraña*
University of the Philippines Cebu | Imperatives of ICT in Culture Based Education
<u>*Austria, Ramir ;Corpuz, Gertrude; Camiwet, David; Christian Estrada*</u>
University of the Cordilleras |

6:00　　　　**Welcome Dinner and Cultural Presentation**
　　　　　　　IP Performers
　　　　　　　FSUU Dance Company

Day 2: February 8, 2020
　　　　Moderator: Dr. Maria Aurora Teresita Tabada (AUDRN Coordinator, Visayas State University)

7:45 – 8:30　　= **Checking of Attendance**
　　　　　　　　= **Recap and Organizational Updates**

8:30 – 9:15　　= **Local Knowledge and Data Privacy**
　　　　　　　　　　Dr. Hernando Perez
　　　　　　　　　　President, University of Batangas

9:15 - 10:00　　= **Disruption in Teaching Local Knowledge via E-Learning**
　　　　　　　　　　Prof. Dr. Markus A. Launer
　　　　　　　　　　Ostfalia University, Germany

10:00 – 10:30　= Snacks / Networking

10:30 - 12:00　= Parallel Research Presentations

	CBE Function Hall 1 Moderator: Dr. Claribel Concepcion	CBE Function Hall 2 Moderator: Dr. Zona Amper
10:30 - 11:00	NEGROS ORIENTALIA: CHALLENGES AND OPPORTUNITIES IN THE DIGITIZATION OF LOCAL KNOWLDGE *Myra E. Villanueva* **Silliman University**	KIDSPREE: A GAME-BASED E-LEARNING WEB APPLICATION PROMOTING PHILIPPINE LITERATURE <u>*Carnaje Julius Angelo M., Flores, Sheryl P., Legada, Mandrake L., Lory Jean C. Franco*</u> **Southern Christian College**

11:00 - 11:30	FIRST LANGUAGE -FIRST EDUCATION: AN INTERACTIVE MOBILE WEB-BASED MTBL-MLE LEARNING SYSTEM FOR GRADES ONE TO THREE LEARNERS *Eltimar T. Castro Jr.*, *Elmer Kent Cataluna, John Michel Tripoli, Rica Shaira, Edzel Mutas, Melquizedek Borbon, Lamberto Boligor, John Macasero, Michelle Mojar* **Father Saturnino Urios University**	A 3D AUGMENTED REALITY MOBILE APPLICATION OF THE SILLIMAN UNIVERSITY MAIN CAMPUS *Janice Antoniette Forster; Austin Vicente Bas; Kent Aldrich Kho; Darey Tanoco* **Silliman University**
11:30 - 12:00	MAPPING BEHAVIOR AND RESILIENCY OF RIVERSIDE COMMUNITIES ALONG OCOY RIVER *Dave E. Marcial*, *Rodolfo Belarmino, Marianne S. Yao* **Silliman University**	ALA EH – APP: DIKSYUNARYONG BATANGUEÑO *Aurora Pargas-Tolentino, Mayling Ilagan-Capuno, Bernadet Castillo-Macaraig, Elvie Evangelista-Pita* **University of Batangas**

12:00 – 1:00   = Lunch

PM Session
Moderator: Dr. Jocelyn May Flor Cadena (AUDRN Coordinator, University of St. La Salle - Bacolod)

1:00 – 1:30   = **The Use of Robots in Learning Japanese Cultural Practices**
         Prof. Natsuko Uchida
         Ferries University, Japan

1:30 - 2:00   = **Merging Dragons in the Mighty River Videos: Promoting Awareness on the Issues of the Agusan River**
         Rev. Fr. Chito G. Butardo, Shirlene Medori T. Alegre
         Father Saturnino Urios University

2:00 - 2:30   = **Closing Program**
         Closing Message
         Rev. Fr. Randy Jasper C. Odchigue
           VP for Academic Affairs and Research
           Father Saturnino Urios University
       Distribution of Certificates
       Group Picture & Announcements

2:30 - 5:00   = **City Tour for ALL**

-End-

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ABSTRACTS

THE CAGAYANO DIGITAL RESOURCE CENTER: BRINGING INDIGENOUS KNOWLEDGE IN THE HIGHER EDUCATION

Rev. Fr. Renillo H. Sta. Ana, CICM, Emmanuel James P. Pattaguan, Darin Jan Tindowen, Diane Datul, Marife Tibule and Ertie Abana
University of Saint Louis

In response to the CHED Memo Number 1 series of 2019 on the integration of Indigenous Peoples Education in the Higher Education Curriculum, the University of Saint Louis through the Center for Social Innovation, Local Knowledge and Educational Research established the Cagayano Digital Resource Center. The University of Saint Louis, a CICM Catholic Institution of Higher Learning in the Cagayan Province, envisions itself to become a Center for Local Knowledge in the province and in the Cagayan Valley Region. It aims to be the frontiers of Indigenous Peoples culture in the areas of instruction, research, and extension. The Cagayano Digital Resource Center serves a hub for culture and the arts of the different entholinguistic groups of the province namely Ibanag, Itawes, Malaueg and Agtas. Furthermore, the Center also serves as a Center for Research and Publication, Center for Indigenous Peoples Community Engagement, and Center for Training and Instruction.

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STUDENT PERCEPTION ON THE IMPLEMENTATION OF LOCAL KNOWLEDGE AS PROJECT ADVOCACY IN EMPOWERMENT TECHNOLOGIES: A QUALITATIVE ANALYSIS

Alfie Arcelo, Jade Montemayor, Fredlie Bucog, Dave Marcial
Silliman University

Generation Z is one that practically lives with digital technology. Even courses such as Empowerment Technologies in Senior High School are quite a familiar ground to them, as they are comfortably and independently living with the Internet and social media. On the other side of the circle, there is such an existence of the so-called local knowledge—a piece of invaluable idea that is experience-based, has stood the test of time, and attuned to the present culture and way of life, yet could either be evolving or is close to becoming extinct as time progresses. Despite being two opposite entities, the integration of both as important elements in an advocacy project had become a reality. Yet, how have these Gen Zs perceived the combination of digital technology and local knowledge? What are their realizations of this duo as total opposites? This paper describes the students' perception on the implementation of the Local Knowledge-ICT Project: their thoughts, experience, local knowledge awareness and being part of the movement, and their suggestions and recommendations, as they journeyed into the integration process of local knowledge in Empowerment Technologies. In conclusion, the students found the integration of local knowledge in Empowerment Technologies a successful and meaningful undertaking since they were drawn to have a deeper interest on local knowledge and a new concept was awaken in them, all with the aid of what they know best—ICT—in preserving, disseminating, and promoting local knowledge. They are one in recommending its continuous implementation with the reason that it was a whole new experience of being empowered after going back to their roots.

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CRYSTALLOGRAPHIC AND FRIEZE PATTERNS IN BURDANG TAAL: GENERATING DESIGNS USING GRAPHING SOFTWARES

Romell A. Ramos, Miraflor C. Gutierrez, Jason T. Hortelano
University of Batangas

This paper presents the mathematical analysis on a cultural context and perspective of the hand-sewn embroidery in Taal, Batangas. The Burdang Taal or Taal embroidery is a form of Batangueno art that showcases rich symmetrical figures and transformations. The study used the descriptive research design. The analysis made on the figures and designs of Burdang Taal is based on the concepts of group theory and transformational geometry. One hundred twenty-four (124) samples were collected and analyzed using the seven frieze patterns and 17 symmetry groups or plane ornaments following the International Union of Crystallography (IUCr) notation and classification. Results show that almost all of the frieze patterns and the plane ornaments are exhibited in the different designs embroidered on the Barong Tagalog and other decors or accessories. Six out of the seven frieze patterns, with the exception of symmetry group mg, were identified. In terms of plane ornaments, nine of the 17 symmetry groups were identified including cm, pm, pg, p1, pmm, pmg, p4, p3, p6. The dominant plane ornaments were formed mainly using translations, perpendicular reflections without glides, or rectangular lattice without rotations or glides. The crystallographic and frieze patterns identified among the embroideries had been replicated and designs were recreated using Geometer's Sketchpad and Geogebra. One important implication of the study is its contribution in enriching the study of abstract algebra and the geometry of transformation to preserve the art of Burdang Taal. Furthermore, an algorithm leading to the development of software for designers and embroiders may be produced.

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USABILITY OF PANCEATERIA: A LOCATION-BASED PANCIT STORE FINDER

Eldrin Macapallag, Christiane Joline Foz, Von Ryan Villena, Ertie Abana
University of Saint Louis

Tuguegarao City is very well-known of its delicacy Pancit Batil Patung. Being one of the top products of the city, the researchers aim to promote this culinary treasure through creating PancEATeria, a location-based Pancit store finder. PancEATeria is a web application the shows nearby panciterias based on the location of the user or based on an inputted location. It also shows information about the different panciteria as well as the route going to the panciteria. The web application was developed using three web programming language which includes HTML, CSS, and Javascript. Google Maps APIs such as Distance Matrix API and Directions API are utilized to compute for the distance and show the route from the origin point to the destination point. The effectiveness, efficiency, and ease of use of the website have been evaluated using the ISO/IEC 9126-4 Metrics. The ten random users who tested the website assessed it as effective, efficient and easy to use.

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VIDEO METRICS: PROMOTING BUTUANON LOCAL KNOWLEDGE CONTENTS IN FACEBOOK

Joseph El Roy B. Cassion II
Father Saturnino Urios University

Social media such as facebook has been one of the effective ways of marketing products for local business and other engagements. As such, it is also a challenge of the contemporary world to preserve local knowledge in terms of heritage and culture amidst the widespread of Globalization. Father Saturnino Urios University, through its Contemporary World General Education subject, encourages students to create documentary films that present the effect of globalization to the locality of Butuan City. In the 2nd edition of the Contemporary World Docu-film Festival, 29% of the entries talked about local knowledge of Butuan in terms of culture and heritage. The entries are Kinaham Hong Butuan (Butuanon Delicacies), Mi Uno (Butuanon Language), LarongLahi (Local Games), Batyag (Butuanon History/Cutlure), Alindahaw (Election Culture), Kahimtang (Rural Living) and Mensahe ng mga Mamanwa (Indigenous Peoples). Anent to this, the aim of this study was to determine the social media engagements docu-film that talked about local knowledge and analyze the type of viewers and their preferences using the video metrics data generated from the Facebook Page, FSUU – The Contemporary World. Furthermore, the data was used to create a more effective promotion strategy to expand the reach of local knowledge contents in Facebook. Results showed that among the 7 local knowledge-themed documentary films, it was Kinaham Hong Butuan that garnered the highest number of engagements with 115,253 lifetime total views, 93,090 lifetime unique video views and 194,900 engagements. This documentary film promoted the local delicacies in Butuan City amidst the opening of new restaurants in the city that offer foreign cuisines. Results also showed that the top viewers of the video come from Caraga Region, Male who are between 25 - 34 years old. This was followed by Mi Uno, a documentary that presented the extinction of the Butuanon Dialect with 23,788 lifetime total views, 17,206 lifetime unique video views and 164,200 engagements. The top audience were women in Caraga Region aging from 18 – 24 years. In the third spot was Kahimtang followed by Mensahe ng mga Mamanwa, LarongLahi, Batyag and Alindahaw.   Several factors may lead in making it the most engaging such as the quality of the video, the story telling, and the determination of the students to share the video. However, results implied that the page should consider the age and sex of the viewers in promoting local knowledge contents. Further, it is recommended to produce more local knowledge content on local delicacies and the Butuanon Language as they were most preferred by the viewers. It is also recommended to explore other platforms to further expand the promotion of local knowledge contents in the social media.

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A DIGITAL APPROACH IN PROMOTING AND PRESERVING INFORMATION ON CEBU'S TANGIBLE CULTURAL HERITAGE SITES (TCHS)

Demelo M. Lao and Pauline Louie A. Saraña
University of the Philippines Cebu

TCHS offers a glimpse of people's way of life in the distant past, which also influences greatly the cultural aspect of a place Although the Philippines has RA 10066 (Philippine Cultural Heritage Act), specifically for preserving and promoting Philippine cultural heritage, it seems that is not enough for preserving information on cultural heritage as well as promoting and increasing Filipino awareness on TCHS historical importance, with Cebu as case in point. Hence, this study aims to develop a computer-based solution to archive collectively TCHS information of Cebu for informational promotion, preservation, and awareness. The Systems Development Life Cycle (SDLC) implemented with the Agile Software Development Model was applied to create the computer-based information system (CBIS) using the web as a platform. Aside from the core CRUD (Create, Read, Update, and Delete) system functionalities, it has navigational features where the suggested route to the heritage sites is provided based on the user's current location. The CBIS was assessed further for technology acceptance based on the Technology Acceptance Model (TAM). In addition, the inter-rater agreement was measured to determine the degree of concordance among the independent raters' responses. Results show that among the TAM criteria-group, the 'Attitude Towards using the System' got the highest and most reliable mean rating (M=6.60, SD=0.51). 'Perceived Usefulness' follows next (M=5.83, SD=0.92), and then 'Perceived Ease of Use' (M=5.50, SD=1.25). Likewise, the same sequence is observed in the inter-rater agreement indices with the 'Attitude Towards using the System' criteria-group still having the strongest or substantial concordance (Kendall's W=0.63). The overall mean rating of CBIS for TAM is above 5 on a scale of 1-7 (M=5.94, SD=1.05), while the overall inter-rater agreement for the TAM assessment is relatively fair (Kendall's W=0.39). With these results, we believe that the developed-CBIS has shown utility and found acceptable as a technology solution. Furthermore, being accessible online promotes easy and convenient access to TCHS information of Cebu, which translates hopefully into informational awareness.

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DEVELOPING CONTEXTUALIZED AND LOCALIZED LEARNING RESOURCES WITH ICT INTEGRATION IN BENGUET

Ramir S. Austria, Gertrude V. Corpuz, Sheena T. Palaroan
University of the Cordilleras

The importance of technology in today's society highlights the need for teachers to incorporate instructional technologies in teaching. However, there are limited resources on how to adequately infuse the use of these instructional technologies following the mandate of the Department of Education on localization and contextualization. Supporting this mandate in geographically distant schools in the Cordilleras is challenging. The purpose of this paper is to critically discuss the need of using contextualized learning resources in the 21st century teaching in Benguet. In this paper, the researchers aimed to develop contextualized learning resources vis-a-vis proposed localized learning materials with ICT integration in teaching the basic education program in Benguet

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ADVOCATING FOR THE CULTURAL HERITAGE OF BUTUAN IN THE PRE-COLONIAL TIMES UP TO THE ARRIVAL OF FERDINAND MAGELLAN: LOCALIZING UNDERSTANDING CULTURE, SOCIETY, AND POLITICS (UCSP) LEARNING COMPETENCIES

Orbelle I. Supas
Father Saturnino Urios University

Protecting cultural heritage is a value that history teachers should learn how to teach. Modern history education should see it as a vital aim in developing among young people a sense of civic responsibility and a passion for active involvement in the society. Butuan boasts a number of cultural heritages. The knowledge and experiences associated with these cultural heritages which are a portion of local history are important to be passed on from generation to generation so that people will appreciate its value. When one values something, protecting it follows. With this main motivation, a teaching module is crafted because school is the best venue to generate knowledge and experiences. Specifically, the study aims to supplement the competencies-based tasks from the existing textbook with local realities, present learning competencies fit to be localized taken from the curriculum guide, provide research-based historical content and materials to be used to achieve the learning competencies, and provide activities and evaluation outputs that are aligned with the learning competencies. The steps in creating the teaching module comes with three phases: planning, implementing, and evaluating. Specific steps in the planning phase include needs analysis, curriculum review, deciding which subject and learning competencies, literature review in deciding which historical content and materials to be used, and gathering of sources. Writing and checking of alignment constitute the implementing phase. The evaluating phase is field or pilot testing. The exemplar teaching module's four lessons and specific learning outcomes are anchored from the learning competencies. The framework of the teaching guide is anchored from PEAC (Private Education Assistance Committee) which they introduce through annual in-service training. The activities in the teaching module are anchored on active learning strategies and the development of the 21st century skills particularly the 4Cs (communication, critical thinking, creativity, and collaboration) to lessen the stereotype that learning history is boring and to prepare learners for a lifelong learning. Activities that are ICT-based include accessing video files in Youtube and although reading materials and worksheets are provided as hard copies attached in the teaching module, it can be done online through Edmodo to make it paperless. The target audience are the senior high school students enrolled in the subject Understanding Culture, Society, and Politics (UCSP). Lessons are localized but still aligned with the goals of the Department of Education. This modest contribution envisions putting and applying learning in the local level so as to develop not just globally- but also locally-competitive students.

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PAGBUO NG KAGAMITANG PAMPAGTUTURO BATAY SA PAGSUSURING PANGALANG PAMBARYO SA LUNGSOD NG BATANGAS

Efsica A. Maranan, Edward E. Babasa, Angela C. Napa, Rosalina H. Panganiban
University of Batangas

Ang patuloy na pagsasaliksik sa pinagmulan ng isang bagay ay patunay lamang ng isang maunlad na literatura at kultura na malaking bahagi ng buhay ng mga Pilipino. Ang mga kuwentong nakalap sa pananaliksik ay nagsisilbing batayan ng pag-aaral sa kasalukuyan at sa susunod na henerasyon. Isang mahalagang bahagi ay patungkol sa pinagmulan ng pangalan ng mga baryo na nasasakupan ng Lungsod ng Batangas. Naging layunin ng pag-aaral na ito na makalap ang mga kuwento mula sa mga baryo na may kinalaman sa pinagmulan ng pangalan ng bawat baryo. Inasahan ding makabuo ng kagamitang pampagtuturo na tiyak na makakatulong sa patuloy na pag-unlad ng kaalaman hindi lamang sa Filipino kundi maging sa ibang asignatura na naaayon sa kurikulum na inirekomenda ng DepEd para sa bagong kurikulum gayondin ng CHED para sa mga asignatura sa kolehiyo. Paraang deskriptibo gamit ang ilang dokumento mula sa Bahay-pamahalaan ng Lungsod at pamahalang Lokal ng barangay ng Batangas at panayam sa mga opisyales at residente ng bawat barangay na kabilang sa pag-aaral ang ginamit upang mabuo ang datos na kailangan. Ang mga kwento ng iba pang nakausap na residente ng bawat baryo ay lubos na nakatulong upang mapagyaman ang resulta ng pag-aaral. Ang kagamitang pampagtuturo na siyang resulta ng pag-aaral ay ini-upload sa internet at maaaring gamitin sa pamamagitan ng nilikhang website na naglalaman ng iba't ibang kuwento. Ang nasabing website ay isang magandang sanggunian ng mga mag-aaral at guro sa pagpapaunlad ng kaalaman sa Panitikan at iba pang asignaturang kaugnay nito. Inaasahan din ang magiging ambag nito sa kulturang Pilipino at sa patuloy na pag-unlad nito.

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IMPERATIVES OF ICT IN CULTURE BASED EDUCATION

Austria, Ramir ;Corpuz, Gertrude; Camiwet, David; Christian Estrada
University of the Cordilleras

The paper presents an overview of a culture-based education and describes effective pedagogical practices that can be integrated into the highly technological advent of the world. Particularly, this overview tries to advance an approach for teaching culture with utilization of traditional and modern instructional technology. This approach promotes student motivation and engagement that can help overcome part issues of stereotyping and lack of intercultural awareness. This article illustrates how teachers successfully integrate digital media together with inquiry learning into instruction to create a rich and meaningful environment in which students interact with authentic data and build their own understanding of a culture's products, practices, and perspectives.

SUSTAINABLE LIVELIHOOD DEVELOPMENT PROGRAM FOR PUROK ARAO, BARANGAY VISTA ALEGREE, BACOLOD CITY, NEGROS

Mima M. Villanueva, Noli A. Espina, Salvador S. Sigaya, Edna Maricon A. Arca, Eugenio A. Pedrosa J.
STI West Negros University

Purok Arao at BarangayVista Alegre comprises the urban-poor sector relocated in the continuing effort of the Bacolod City Government to offer its people a decent living. Various projects were offered to alleviate life economically, but poverty incidence in the area cannot be denied. Hence, this paper assessed the workability of a sustainable livelihood development program for Purok Arao, Barangay Vista Alegre, in Bacolod City, Negros Occidental, Philippines. It is anchored on Carol Weiss's theory of change, an on-going process of reflection to explore change and how it happens, and what that means in a particular context, sector, or group of people. Specifically, the study addressed four key questions: (i) What socio-economic factors are associated with livelihood activities? (ii) What are the skills training needs of the community? (iii) What are the issues and concerns that may come up in the formulation, implementation, monitoring, and evaluation of the livelihood development program? (iv) What livelihood training program may be formulated to ensure sustainability and make beneficiaries economically viable? To address these questions, a self-made socio-economic profile and skills training assessment questionnaire were administered to randomly sampled respondents (N=817; n=269). The first part ascertained the socio-economic demographic profile while the second dealt on their skills training needs. Data gathered provided evidence of the "older" (52.42%) exceeding the "younger," the "female" (60.97%) outstripping the "male," and the "married" (74.72%) outnumbering the "single," "widow" and "separated." Furthermore, data show that 41.26% of the respondents are high school graduates, 76.58% own their house, and 49.81% are employed with income coming from salaries and wages. Meanwhile, 51.67% recorded an average monthly family income of P8,450, and 69.89% was identified with current skills in cooking, personal services, and construction. Preferred livelihood skills include food and beverage, baking/pastry making, dressmaking, tailoring, culinary arts, automotive servicing, food preservation, electrical servicing, welding, beauty care, cosmetology, massage therapy and communication and information technology. Complementing the said data was a focus-group discussion (FGD) from ten (10) selected participants who were project formulators, implementers, monitors, evaluators, trainers, and facilitators of livelihood projects in the provincial, city, barangay and purok levels, and from the academe. This study concludes that the community is generally earning meager family income from employment, has low educational attainment, and possesses limited skills. These findings suggest that livelihood skills with needed support are essential to improve their earning capabilities in employment or as entrepreneurs. FGD identifies the selection of target beneficiaries, availability of financial and logistical support, implementation of training design, and periodic monitoring and evaluation as perennial challenges. Thus, it is imperative to undertake skills training development coupled with the cultivation of entrepreneurial mindset for beneficiaries while strengthening partnership with LGUs and other NGOs to bankroll the proposed sustainable development livelihood program. Training design includes training objectives, learning objectives for each course/module, methodologies, processes, and activities ranging from lectures, observation, demonstration, hands-on activities, practice routines, practical evaluations and the like using ICT tools in PowerPoint and video presentations, preparation of reports and assignments, projects, and readings on other computer-assisted instruction.

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DISRUPTION IN TEACHING LOCAL KNOWLEDGE VIA E-LEARNING
Prof. Dr. Markus A. Launer
Ostfalia University, Germany

Universities and educational institutions are changing rapidly. E-Learning is constantly growing and steadily disrupting presence courses within the schools. The way of teaching is changing and soon will break towards a new approach of teaching and learning at Universities. Universities already started to fortify their programs on local research and globalization. Facing continuing technological advancement, new multifaceted approaches are being offered by new technologies. This, however, needs a deeper, more critical examination of teaching in general, online via electronic support in particular. This also creates a new way of teaching local knowledge and identity. What does it mean to E-Learning stating "Disrupting Local Knowledge (Re)discovery via Technologies of the 4th Industrial Revolution"? What are the effects on E-Learning? How do we now, and will in future, preserve, conserve, and (re)discover local knowledge? How does E-Learning change or disrupt the way we are teaching at schools and Universities? How are innovations in E-Learning shaping our future? New E-Learning technologies, procedures and didactics are offering new opportunities on teaching and learning local knowledge, native traditions and regional history. By preserving local knowledge electronically, it will offer awareness not only for local folks of the region, but will become available to all people globally. In the past, students had to travel abroad to experience new cultures. Nowadays, local culture is available online around the world. In several studies, I researched at Ostfalia University different issues on E-Learning including the latest technology, methodology and didactics. We researched E-Learning in Multinational Companies, German Vocational Schools and global Universities. At present, we research the Digital Trust at the Workplace including the trust in teaching online via E-Learning (please see https://www.ostfalia.de/cms/en/pws/launer/research-and-development/digital-trust-at-the-workplace/). At my "Institute for charitable Services gGmbH" in Suderburg, Germany (http://institutfuerdienstleistungen.com/e-learning-dienstleistungen/), we teach German culture for the integration of foreign people into Germany. It jump-started with an immediate E-Learning program to teach supporters to welcome refugees from Syria and other problem areas. It was a train the trainer program to support the intercultural integration. In a next step, we educated refugees directly via E-Learning about German culture. We also gave online training for the integration into the labor market such as interview training and how to write a resume in German. Today, we enlarged our E-Learning program towards "Inclusion" for all people needing support. This paper combines my results of the research with my practical experience. Thank you to my sponsor Lotto Sport Foundation of Lower Saxony (Niedersächschische Lotto Sport Stiftung) and the Oncampus GmbH of Lübeck University.

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NEGROS ORIENTALIA: CHALLENGES AND OPPORTUNITIES IN THE DIGITIZATION OF LOCAL KNOWLDGE

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Digitization in the Philippines is not strange; it was tackled since 1987 Constitution and had produced action plans such as "Philippine Strategic Road Map for ICT 2006-2010 and "Philippine Digital Strategy 2011-2016" to complement the international standard. On the following note, data privacy and protection become the buzz words in a digital environment; thus, the Philippines had cropped "National Cybersecurity Plan 2017-2022", the "Philippine Development Plan 2017-2022", the "Philippine Data Privacy Act 2012" as well as the "National Broadband Plan 2017." To adhere to ASEAN initiatives, the Philippines had also actively participated in the formulation of ASEAN-ICT Master Plan of 2020. These digital strategies and plans spawned an impact to the library as the repository of knowledge. One of the vital functions of a modern academic library is to ensure that resources or materials needed by the library patron are acquired and made available. Silliman University Library, not to mention other academic libraries in the Province of Negros Oriental, had a dearth collection of local knowledge. Given this deplorable experience of laxity for local knowledge collection, this study will explore the possibility of putting up a digitized Negros Orientalia collection and eventually make Silliman University Library the repository for such amazing written records produced by Negrense. Investigation will commence to examine the related literature in order to know the challenges and opportunities to digitize the Negros Orientalia collection. Specifically, on what other literature has to say on the reasons and types of materials to be included in the collection, good practices of libraries and other organization on the preservation of local knowledge and make it accessible to the public as added service of the library, education and trainings, and other challenges and opportunities in the preservation of local knowledge. The magnitude of the tasks can be appalling, but the rewards of meeting the research and information needs of all types of library patrons are encouraging, and be part of this endeavor is so inspiring and motivating. Learning from other libraries and organizations on their shared experiences will lead this project into a successful endeavor.

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MAPPING BEHAVIOR AND RESILIENCY OF RIVERSIDE COMMUNITIES ALONG OCOY RIVER

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This article describes the development of a web information system of the Spatio-temporal analysis of settlement behavior and resiliency of households and businesses along Ocoy River, Negros Oriental, Philippines. Specifically, this paper presents the analysis, design, and implementation of a web portal incorporating GIS-based maps, a database of survey data, and a repository of project information. The system is also a portal to the web and mobile app on disaster awareness information board, flood early warning, and incident reporting system. Web development, database management, geographic information systems frameworks were employed in the development. Data are visualized and integrated into one portal that is accessible to the general public.

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ASIAN UNIVERSITIES DIGITAL RESOURCE NETWORK-INTERNATIONAL RESEARCH CONFERENCE ON LOCAL KNOWLEDGE 2020
Father Saturnino Urios University, Butuan City | February 7-8, 2020
Disrupting Local Knowledge (Re)Discovery via Technologies of the 4th Industrial Revolution

FIRST LANGUAGE -FIRST EDUCATION: AN INTERACTIVE MOBILE WEB-BASED MTBL-MLE LEARNING SYSTEM FOR GRADES ONE TO THREE LEARNERS

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Technology is undoubtedly an integral aspect of contemporary education. Digital technology is also reconfiguring how information and knowledge are created, accessed and used. However, some challenges have to be addressed, especially in the implementation of the new curriculum mandated by the Department of Education, the mother-tongue based multilingual education (MTB-MLE) implementation. This study developed an interactive mobile web-based system specifically for the Cebuano dialect to bridge the gaps in the delivery of the mother-tongue based multilingual education. It aimed to provide interactive activities based on mother-tongue language and focused on picture recognition vocabulary and grammar activities. The system was developed in iterative agile methods to attain rapid development. The system also used the Code Igniter framework, an open-source software for rapid development on the web and in building a dynamic website. Further, the system was capable of adopting smart mobile platform device that made the system more portable and easy to use. To measure the usability of the system, this research utilized the System Usability Scale of John Broke. The survey was participated by 50 Grades 1 to 3 public school teachers. Data analysis have resulted an average score which depicted that the overall system was fair in terms of ease of use. This means that the teachers have the intention to use the system in teaching the MTB-MLE curriculum. Results also showed that the teachers find the system useful as shown in the good scores of the indicators for user friendliness and usefulness of the system in educational purpose. However, they stressed the need for assistance in terms of technical skills because of the technological complexity in the system use. This study recommended the conduct of activities and programs that would address computer literacy, comprehensive trainings of end-users, and the use of modules with artificial intelligence.

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KIDSPREE: A GAME-BASED E-LEARNING WEB APPLICATION PROMOTING PHILIPPINE LITERATURE

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Traditional games that emphasize social interactions like sipa, taguan, patintero, tumbang preso, marbles, tex, and the like are being eclipsed very rapidly by videogames and network games (De Los Santos, 1993; Anonuevo, 1993). Children are slowly losing interest in Filipino culture. In this note, to rekindle and enliven the children's interest in the Philippine Literature, the developers of this project are motivated to promote local knowledge and integrate it in technology thru the creation of Kidspree, a game-based e-learning web application highlighting Philippine Literature specifically promoting Philippine fables in the teaching and learning experience in Grades 1 to 3. This project followed Rapid Application Development methodology and used HTML5 to produce web pages with CSS3-created animations and designs; Additionally, through Adobe Flash Professional, the developers were able to create educational games and animate story books. The target users for the application were children, so during the whole development process, the developers had to maintain a child's view, thus keeping all developed contents age-appropriate and vibrant for the endorsement of positive influences that technology has to offer of the young minds and future generations.

The result of the project gained affirmative responses from the pupils as they found Kidspree web application amusing and interesting. This implies that the blend of technology and local knowledge to promote Philippine Literature in the teaching and learning process of the pupils from Grades 1 to 3 of Southern Christian College is evidently significant to awaken the interest and appreciation for one's culture befitting in the digital age of the 21st century. Hence, through the utilization of Kidspree, the teaching and learning process is improved, and culture is preserved.

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A 3D AUGMENTED REALITY MOBILE APPLICATION OF THE SILLIMAN UNIVERSITY MAIN CAMPUS
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Silliman University

Silliman University, located in Dumaguete City, is a 62-hectare campus filled with a great number of buildings old enough to be labeled as heritage, such as the Silliman Hall, Hibbard Hall, and Silliman University Church. Not merely that, along with its long lanes, gates that have meanings, and of course, the Acacia Trees are situated around the place. It would take some time to tour around the campus especially with someone explaining every bit of history that each corners of Silliman University possess. On top of this, those who live away from the campus do not have the same privilege and access to this information. This is the rationale behind this 3D augmented reality mobile application that would allow the users to envision Silliman University as a tool not only for tourists and potential students of the university but also for the new students. It also allows the users to create a path from a starting point to the destination to navigate on campus using their phone and access historical and updated information about the buildings. Upon completion using Waterfall model, a total of 30 respondents around the provinces of Negros Oriental, Negros Occidental and Cebu took part of the survey. They were asked for the number of buildings they know by name, their location and if they know their respective history. They were also asked about the functionality and design of the application. Results show that the application worked error-free and was able to meet the objectives set before its development. It is recommended to be uploaded to Google Play Store so that more people can download the app when they want to navigate around SU campus.

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ALA EH – APP: DIKSYUNARYONG BATANGUEÑO
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It is nature for people that, whenever they encounter unfamiliar words that trigger their curiosity the tendency is for them to look for a possible resource that will be used for some confirmation purposes. One of the major resources that are possibly available at home and school is the Dictionary. In tradition, dictionaries are published as a book wherein a collection of words with its definitions are provided. ALA EH-APP (Disksyunaryong Batangueño) is a mobile application that was developed by CICT students Batch 2019 which aims to provide a simple app for tourists visiting the province. The researchers who were also the adviser and panelists of the group saw the potential use of the app in the field of education wherein teachers and pupils from grades 1 – 3 of University of Batangas can enhance and widen their vocabulary in learning

the distinct tagalog dialect of the province. The main objective of this study is to conduct a preliminary evaluation of ALA EH - APP as a learning material to be integrated in the subject Mother Tongue – Based Multilingual Education (MTB-MLE) based on the Guidelines and Processes for Learning Resource Management and Development System (LRDMS) Assessment and Evaluation version 1.0. This research is qualitative in nature. Data were gathered through focus group discussion and interview with teachers of MTB-MLE and the school principal. The mobile app was evaluated if it meets the standards of the Curriculum Guide of MTB-MLE and Guidelines on MTB-MLE Program Implementation (Annex 4 of DepEd Order No. 021 series of 2019). After the preliminary evaluation of the mobile app which found to be a potential additional learning resource that can be used by teachers in teaching MTB-MLE, the researchers proposed a school learning resource project plan for upgrading the features of ALA EH app in accordance to the curriculum guide of MTBLE and quality standards of LRDMS. Finally, the researchers recommend that the mobile app should be revised according to the results of the study and undergo the Process of Development and Contextualization of Teaching and Learning Materials so that it can be fully integrated in the subject.

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THE USE OF ROBOTS IN LEARNING JAPANESE CULTURAL PRACTICES

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Before the 21st century, "reading, writing, and the abacus" were the basis of education, but it has shifted as 21st Century Skills as digitization progresses. We need to be able to read critically, to be able to express persuasive self-expression, and to be able to solve problems. Besides, the wave of technological innovation, internationalization, and information technology has come to demand us high literacy capabilities. The area around us is full of things controlled by computers, such as smartphones and autonomous driving of cars, and the words AI and IoT have come to be seen. With the tide of this era, programming education has attracted attention around the world. In Japan, all elementary schools will begin programming education in April 2020. We don't educate everyone to be IT specialists, but we are becoming in an era where everyone faces programming daily. Since 2009, I have been conducting projects utilizing robotic teaching materials for more than 4th graders in elementary school. This activity has been implemented in cooperation with local communities, primary schools, and universities. We have focused on communication, logical thinking, and expression without being biased by technology. In this time, I will introduce examples of Japanese culture(such as tea ceremony, protection of cultural properties, sumo wrestling) from past practices. I hope that we will share an opportunity to think about STEM education and PBL as well as local knowledge.

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MERGING DRAGONS IN THE MIGHTY RIVER VIDEOS: PROMOTING AWARENESS ON THE ISSUES OF THE AGUSAN RIVER

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Father Saturnino Urios University

Agusan River is one of the longest and most beautiful rivers in Mindanao. It is a river that tells thousands of stories about people, transport, trade and culture. It is nature's gift to the people of Mindanao. People have embraced the mighty Agusan River with all its power to offer and to take back. While the Agusan River may appear to be a natural great divide splitting the city into two, the university thought of an event that can transform this great divide into a point of convergence. Through the test of time, Agusan River has transformed itself not just into a mighty river but also a potential venue for festivities and varied water sports activities. One of the great characteristics of the river is its serenity and enormous width, making it ideal for water sports such as Dragon Boat Racing. Father Saturnino Urios University started organizing its Dragon Boat Team in 2012 composed mainly of college students of the university. Some of the teaching and non-teaching personnel of the university also joined. Video documentation of the activities of the team was done and uploaded on its Facebook page, FSUU Dragon Boat Team. While this initiative hoped to bring people together as they converge in the great Agusan River, it also hoped bring to fore the issues of the river. It would make people ask these questions: why do fishermen have less catch ? Why is the water murky brown? Why are there logs floating in the river? With the same intention, an activity dubbed as Run and Row for ME (Mother Earth) was conducted in September 2012 which included the Dragon Boat Team exhibition race in the Agusan River. With the videos uploaded on its page and the conduct of the Run and Row for ME, more people were drawn to see the conditions of the Agusan River. Run and Row for ME became an annual activity of the university. Dragon boat racing dubbed as Bugsay Mindanao was also conducted bringing other dragon boat teams from all over the country. Both activities involved participants from different sectors from Butuan City, its nearby provinces and regions, and other places outside Mindanao. Data gathered from the attendance of participants of these initiatives brought people to come together and take part in the efforts of conserving the Agusan River. These initiatives also hoped to encourage the local government units along the Agusan River to implement policies and develop programs for its protection and preservation. The Agusan River will continue to flow and tell its life-giving stories that will stream through history and sprinkle the Agusanons with warnings of its power and strength to take back.

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