The Mobile Museum Boxes Project 2015-16

Curated by
Ayumi Terada I Luisito T. Evangelista I Emerito B. Batara I Akira Matsuda

In association with
National Museum of the Philippines I Mindanao State University-Iligan Institute of Technology I The University Museum, the University of Tokyo

Supported by
The Toyota Foundation

MOBILE MUSEUM BOXES

The Mobile Museum Boxes Project 2015-16

The Diversity of Natural History in Mindanao

MOBILE MUSEUM BOXES

The Diversity of Natural History in Mindanao

MOBILE MUSEUM BOXES

The Diversity of Natural History in Mindanao

Edited by Ayumi Terada

The Mobile Museum Boxes project was supported by the Toyota Foundation's Research Grant Program (2014 Fiscal Year).
Project Title: Research on the Utilization of Museum Activities for Education for the Young Generation in the Philippines: Development of Mobile Exhibitions to Redress Regional Disparities in Educational Opportunities and Foster Human Resources to Manage Natural and Cultural Heritage
Project Leader: Ayumi Terada (Affiliate Assistant Professor, Intermediatheque Department, the University Museum, the University of Tokyo)
TYTID: D14-R-0723

Printed in Japan by Akita Kappan Co.

Photograph: Mobile Museum Boxes Project 2015-16
Design: Hiroyuki Sekioka + Eriko Ueno
Editorial Assistants: Xiao You Mok + Sota Yoshikawa

CONTENTS

MOBILE MUSEUM BOXES

The Diversity of Natural History in Mindanao

Jan.18–29,2016 10:00 am–5:00 pm
*closed on Sunday Jan. 24

College of Science and Mathematics Lobby, MSU-IIT, Iligan
Andres Bonifacio Avenue, Tibanga, 9200 Iligan City

Organized by the Mobile Museum Boxes Project 2015-16

in association with National Museum, Mindanao State University-Iligan Institute of Technology, The University Museum-the University of Tokyo

supported by the Toyota Foundation

NATIONAL MUSEUM
PAMBANSANG MUSEO

The University Museum, The University of Tokyo

THE TOYOTA FOUNDATION

PREFACE

The Mobile Museum Boxes Project is the result of an international collaborative research effort entitled “Research on the Utilization of Museum Activities for Education for the Young Generation in the Philippines.” The project is organized in association with the National Museum of the Philippines, the Mindanao State University-Iligan Institute of Technology, and the University Museum, the University of Tokyo. It is undertaken by Filipino and Japanese researchers interested in exploring innovative uses of museum collections, and supported by the Toyota Foundation, Japan.

The Mobile Museum Boxes Project seeks, ultimately, to produce mounted exhibition content whose effects transcends and extends beyond the walls of the museum, thereby offering, at each exhibition venue, object-based educational opportunities for a variety of audiences, including, and most especially, the young. Furthermore, by addressing themes relating to a wide range of relevant museum collections, it also aims to develop the younger generation's interest in the natural and cultural heritage of their local areas.

For the 2015-16 project period, the exhibition focused on the theme, “The Diversity of Natural History in Mindanao.” Ten Mobile Museum Boxes were created and designed based on the comments and suggestions of academic staff from both Manila and Mindanao who work directly or indirectly in tertiary-level education. Various other professionals specializing in natural history and museum design also contributed to developing the Mobile Museum Boxes. After its initial unveiling at the National Museum of Anthropology in Manila in December 2015, the Mobile Museum Boxes exhibition was first shown at the Mindanao State University-Iligan Institute of Technology in Iligan in January 2016. The exhibition kit then traveled from Iligan to Cagayan de Oro’s Xavier University in February.

This report on the Mobile Museum Boxes Project 2015-16 will introduce and explain how this exhibition was conceptualized and eventually executed. In so doing, we hope to therefore provide a better understanding of its process and outcomes for those who might embark on similar endeavors in the future.

Ayumi Terada
Luisito T. Evangelista
Emerito B. Batara
Akira Matsuda

PROJECT MEMBERS

Ayumi Terada is an Affiliate Assistant Professor at the Intermediatheque Department of the University Museum, the University of Tokyo. She specializes in museum studies and cultural policy, and is interested in exploring innovative ways of using museum collections and scientific knowledge to foster creativity and promote object-based learning. She has worked on various mobile museum projects, exhibiting collections in places not usually associated with museum activities. She is also interested in integrating contemporary cultural expressions, particularly performance, into museum activities. She earned her PhD in Cultural Policy Studies at the National Graduate Institute for Policy Studies and is a Research Associate of the National Museum of the Philippines.

Luisito T. Evangelista is a curator and currently the officer-in-charge of the National Museum of the Philippines' Botany Division. He has been involved in several natural history exhibitions and has conducted workshops/training involving natural history at different places and site museums in the Philippines. He conducts research in the field of botany and has published papers in various scientific journals. He obtained his PhD in Botany from the University of the Philippines Los Baños and is also active in several other professional organizations. He is currently the vice-president of the Philippine Phycological Society, Inc.

Emerito B. Batara is a laboratory technician at the Mindanao State University-Iligan Institute of Technology Natural Science Museum. He is currently in charge of the terrestrial and marine collections. He was first employed at the Coordination Center for Research and Development of MSU-IIT as a researcher, but has since transferred to the IIT Museum. His undergraduate research focused on bird abundance in a particular region within Iligan City. He obtained his BS Zoology at MSU-IIT, and later also completed a BS in Nursing in North Central Mindanao Colleges. He is now also a member of the Executive Council of the National Committee of Museums (NCOM) of the National Commission for Culture and the Arts (NCCA).

Akira Matsuda is an Associate Professor at the Graduate School of Humanities and Sociology, University of Tokyo. His research focuses on the meaning, (re)presentation, and uses of the past in contemporary society. More specifically, he investigates the relationship between cultural heritage and the general public from anthropological and sociological perspectives. He obtained his PhD in public archaeology from University College London and is the Secretary of the World Archaeological Congress.

ACKNOWLEDGEMENTS

We would like to thank those who contributed to the realization of the Mobile Museum Boxes “The Diversity of Natural History in Mindanao” and helped make our project genuinely inclusive and participatory. We also would like to thank those who supported our traveling exhibitions in the 2015-16 project period.

Collaborators:

Jeremy Barns (Director, National Museum)
Ana Maria T. Labrador (Assistant Director, National Museum)
Marcelo Cercado (Senior Researcher, National Museum)
Roberto de Ocampo (Curator, Geology Division, National Museum)
Danilo Tandang (Researcher, Botany Division, National Museum)
John Rey C. Callado (Researcher, Botany Division, National Museum)
Sukarno D. Tanggol (Chancellor, Mindanao State University-Iligan Institute of Technology)
Edgar W. Ignacio (Vice Chancellor for Academic Affairs, Mindanao State University-Iligan Institute of Technology)
Ferdinand P. Jamil (Dean, College of Science and Mathematics, Mindanao State University-Iligan Institute of Technology)
Sasha Anne Lao Valdez (Assistant Dean, College of Science and Mathematics, Mindanao State University-Iligan Institute of Technology)
Yoshiaki Nishino (Director/Professor, the University Museum, the University of Tokyo)
Takenori Sasaki (Associate Professor, the University Museum, the University of Tokyo)
Hiroyuki Sekioka (Affiliate Associate Professor, the University Museum, the University of Tokyo)
Eriko Ueno (Affiliate Associate Researcher, the University Museum, the University of Tokyo)

[Exhibition in Xavier University]
Rene C. Tacastacas, SJ (Academic Vice President, Xavier University)
Juliet Q. Dalagan (Chairperson, College of Arts and Sciences, Xavier University)
Judy P. Sendaydiego (Chairperson of Biology Department, College of Arts and Sciences, Xavier University)

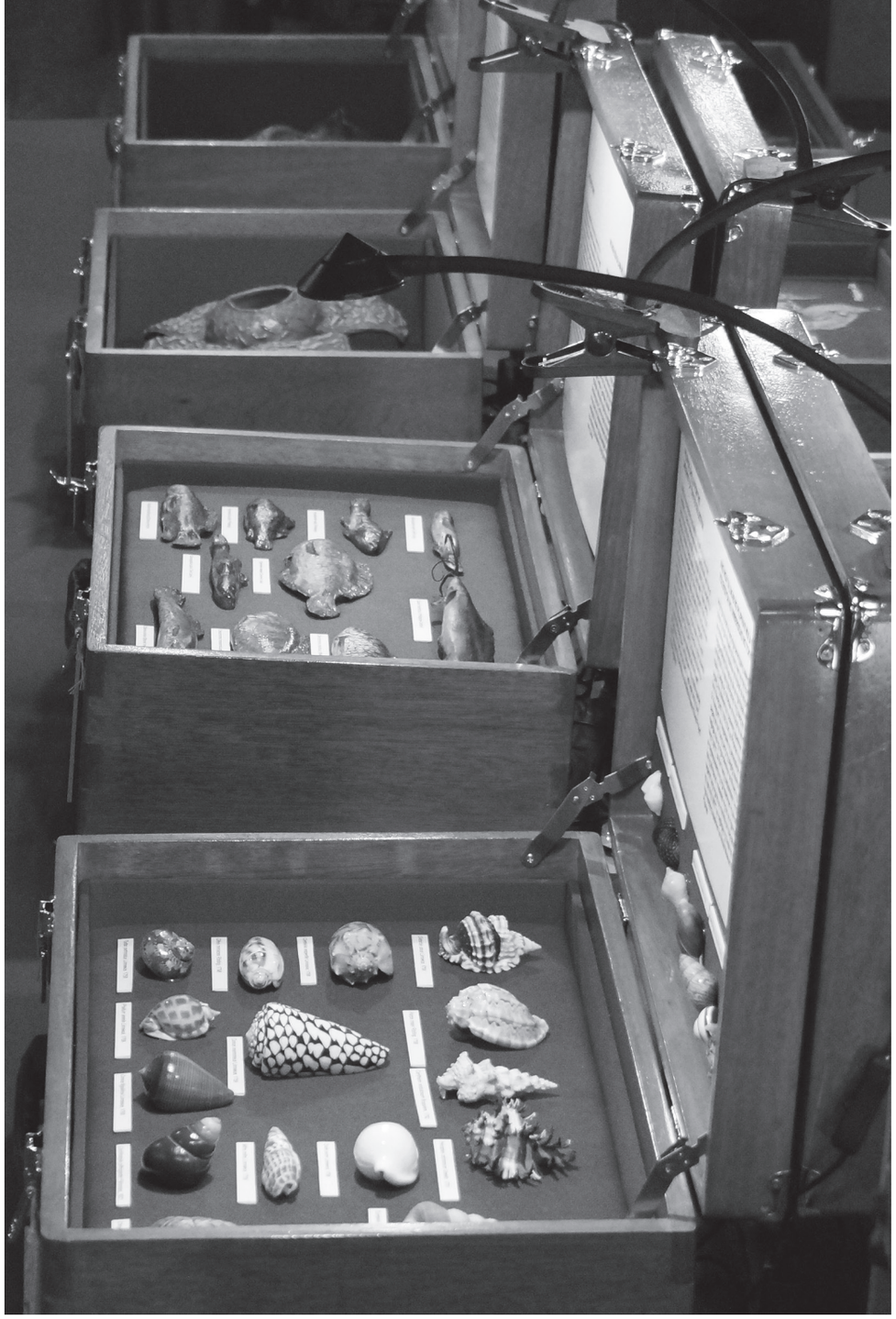
In association with:

National Museum of the Philippines
Mindanao State University-Iligan Institute of Technology
The University Museum, the University of Tokyo

Supported by:

The Toyota Foundation


Pitcher Plants



MOBILE MUSEUM BOXES EXHIBITIONS

December 09–20, 2015
Ayala Room, 2nd Floor, National Museum of Anthropology
P. Burgos Drive, Rizal Park, Manila

January 18–29, 2016
College of Science and Mathematics Lobby,
Mindanao State University-Iligan Institute of Technology, Iligan
Andres Bonifacio Avenue, Tibanga, 9200 Iligan City

February 2–6, 2016
*Extended to February 13, 2016
Science Center Lobby, Xavier University, Ateneo de Cagayan
Corrales Avenue, Cagayan de Oro

National Museum

Mindanao State University-Iligan Institute of Technology

Xavier University, Ateneo de Cagayan

Opening programs

January 18, 2016
Mindanao State University-Iligan Institute of Technology (MSU-IIT)

Talk Event Program:
13:30–14:30, Room 109–110, College of Science and Mathematics
Invocation
National Anthem
Welcome Remarks — Ferdinand Jamil, Dean, College of Science and Mathematics
"Mobile Museum Boxes Project: Its Concept and Possibilities"
— Ayumi Terada, University of Tokyo
"Access to Museums" — Akira Matsuda, University of Tokyo
"National Museum of Natural History"
— Luisito T. Evangelista, National Museum
"Preparation of Specimens (preservation/taxidermy) for Museums"
— Emerito B. Batara, MSU-IIT
Opening of Exhibition:
16:00–21:00, College of Science and Mathematics Lobby
Sukarno Tanggol, Chancellor, MSU-IIT
Jeremy Barns, Director, National Museum
Ana Maria Theresa Labrador, Assistant Director, National Museum
Ayumi Terada, University of Tokyo
Akira Matsuda, University of Tokyo
Feliciano B. Alagao, Vice Chancellor for Planning and Development, MSU-IIT
David N. Almarez, Vice Chancellor for Administration and Finance, MSU-IIT
Jinky B. Bornales, Vice Chancellor for Research and Extension, MSU-IIT
Edgar W. Ignacio, Vice Chancellor for Academic Affairs, MSU-IIT

February 2, 2016 at 15:30
Xavier University

Opening Prayer	The PhilHarmonia Xavier University
National Anthem	
Welcome Address	Rene C. Tacastacs, SJ Academic Vice President
Presentations	Ayumi Terada Affiliate Assistant Professor, the University Museum, the University of Tokyo
	Luisito T. Evangelista Curator I, Botany Division, National Museum of the Philippines
Opening of Exhibition	

Schools that visited the exhibitions by appointment

MSU-IIT
Iligan City National High School, Iligan City
Iligan Medical Center College, Iligan City
Youngster Christian Learning Center, Iligan City
MSU-Main Campus, Marawi City
Iligan City East National High School, Sta. Filomena, Iligan City
Integrated Developmental School, MSU-IIT, Iligan City
MSU-IIT students from different colleges
- College of Engineering
- College of Arts and Social Sciences
- College of Education
- School of Computer Science
- College of Business Administration
- College of Nursing
- School of Engineering Technology
- College of Science and Mathematics

Xavier University
Different colleges of Xavier University
Cugman National High School
Cagayan de Oro National High School
Adamson University
Cagayan de Oro College


MOBILE
MUSEUM
BOXES
The Diversity of Natural History in Miniature


MOBILE
MUSEUM
BOXES
NO PARKING


XAVIER UNIVERSITY
MOBILE
MUSEUM
BOXES

MOBILE MUSEUM BOXES:
CONCEPT, PROCESS AND POSSIBILITIES

What are the Mobile Museum Boxes?

The Mobile Museum Boxes are a traveling exhibition kit mounted in boxes. With these boxes, one can easily set up an exhibition in a variety of venues outside the walls of a conventional museum. An exhibition is ready once the boxes are open. The boxes thus provide an object-based educational opportunity to new audiences quickly and easily.

Concept

The concept of the Mobile Museum Boxes developed from the *Mobilemuseum* program, run since 2006 by the University Museum, the University of Tokyo (UMUT) to "mobilize" its collections in an efficient and sustainable fashion. The *Mobilemuseum* program aimed to break away from the traditional model of the museum, where collections are kept within museum walls, viewed only in its galleries. The conventional museum model is therefore an insular one, and the *Mobilemuseum* seeks to subvert this by extending the museum's reach, bringing collections outside the museum and producing new exhibitions in unconventional venues.

Various non-museum spaces can be transformed into exhibition areas simply by installing exhibit units of the *Mobilemuseum*. UMUT has organized, for instance, exhibitions of its collections in office lobbies of business spaces in Tokyo since 2006. The exhibits are renewed twice a year, and the objects for display are chosen in light of their physical condition and aesthetic qualities. Visitor surveys suggest that most visitors of the *Mobilemuseum* exhibition chanced upon it during their working hours, without prior intentions to visit. This differs from the behavior of museum visitors, who usually plan their visit to an exhibition because of specific reasons.

The Mobile Museum Boxes follow the idea of the *Mobilemuseum* program, with the special use of mounted boxes for an exhibition. The exhibition is ready once all the boxes are opened, thereby drastically streamlining the process of exhibition preparation. Moreover, one can also flexibly adjust the exhibits by changing the quantity, contents and arrangement of the boxes. In special instances, a single Mobile Museum Box might even be used to make an entire exhibition.

Background

The social divide between Metropolitan Manila and other regions of the Philippines has widened in recent years. The Constitution of the Philippines boldly asserts the "right of all citizens to quality education," but there remains still a stark lack of educational infrastructure in other regions, especially when compared to Metropolitan Manila. The nation's largest museum institution, the National Museum of the Philippines' cluster of museum facilities in Manila city, for example, functions today as an important part of Manila's social education infrastructure, but people living in regional areas rarely have the opportunity to visit. The same can be said of other smaller museums easily accessible in Metropolitan Manila. There are far fewer museums available in the regional areas. Recognizing the regional asymmetry in the provision of museum education, the Mobile Museum Boxes Project was conceived to increase educational opportunities in regional areas of the Philippines through mobile museum collections. The project aimed to create a mobile exhibition kit in the form of boxes, to be shown to young people.

Tertiary students were the main targets of the Mobile Museum Boxes Project. While this was partly because all the project members work at university museums or teach university students, another important consideration was also the ongoing reform of the basic education system in the Philippines. Under the previous education system, children studied for six years in elementary school and then for four years in secondary school. These ten years of basic education were shorter than that of many other major countries, and thus deemed insufficient by global standards. The new education system, called the "K to 12" program, was therefore gradually introduced from the 2012 academic year, with the first batch of students completing the program graduating in 2024. Since current tertiary students were first educated under the former education system, the project members thought that the Mobile Museum Boxes could help supplement their learning by filling the gap between the old and new education systems.

A Participatory Planning Process

The Mobile Museum Boxes Project put much emphasis on the participatory process of planning the exhibition, and its members discussed the exhibition themes and ideas with various stakeholders. The first exhibition venue was decided upon as the Mindanao State University-Iligan Institute of Technology (MSU-IIT) in Mindanao, where project member Batara works, and it was agreed that the exhibition kit would continue to travel in the Mindanao region thereafter. Located in the southern part of the Philippines, Mindanao has fewer museums compared to Metropolitan Manila, despite being rich in both nature and ethnic culture.

The natural and cultural heritage of Mindanao was therefore proposed initially as the theme of the Mobile Museum Boxes exhibition. However, cultural heritage as a theme was eventually dropped, partly because the various people consulted, both in the Philippines and Japan, stressed the political sensitivity of ethnic issues in Mindanao. A more important reason, however, came from the results of a preliminary survey carried out with university tutors at MSU-IIT and the Philippine Normal University in Manila. The survey was aimed at finding out what exhibition themes the tutors would be most interested in, and also how the Mobile Museum Boxes could supplement their students' learning. Although there was a variety of answers reflecting the different subjects they taught, when asked what they would like to see in the boxes, most mentioned natural or historical/cultural objects. Nevertheless, survey results also found that the respondents had more experience with zoological and botanical specimens than cultural objects. To ensure that the boxes would be utilized as a supplement to the tutor's lessons, it was therefore decided that the first exhibition would focus only on natural heritage. The theme of exhibition was thus decided as "The Diversity of Natural History in Mindanao."

There were many other aspects of the preliminary survey that were useful for determining details of the exhibition. When asked, for example, how they usually enhance students' learning to supplement the topics taught in class, some tutors stated that they utilize visual presentations such as films and PowerPoint slideshows in class. There were also respondents who stated that experimental elements of students' learning, for example, lab experiments, field surveys and museum visits, were important. Regarding the role of museums supporting their students' learning, some respondents mentioned that museums can illustrate what textbooks fail to provide, while others answered that students can handle real specimens and high-quality replicas in museums, thus contributing to the development of their thinking skills. From these answers the project members inferred that most respondents were expecting museums to provide materials that can help students visualize scientific knowledge, and that many were expecting the Mobile Museum Boxes to support their students' learning by providing object-based learning opportunities. Based on these results, the project members decided that they would include as many objects as possible in the boxes, from original specimens to high-quality replicas.

Mobile Museum Boxes' Exhibition

Ten Mobile Museum Boxes were created under the theme, "The Diversity of Natural History in Mindanao." They included original specimens, high-quality replicas, illustrations, photographs and labels. The specimens were provided by the affiliated museums or collected/purchased for the project. The replicas and all of the boxes were newly constructed in the Philippines.

The boxes were first unveiled in the National Museum of Anthropology in Manila in December 2015. In January 2016, the exhibition was officially launched at MSU-IIT in Iligan, Mindanao. Thereafter, the exhibition traveled to Xavier University in Cagayan de Oro, its second venue in Mindanao, in February 2016.

Both MSU-IIT and Xavier University provided the lobby space of a science department building for the exhibition. The space was an open area and there was a constant flow of students at all times. Thanks to the accessibility of the venues, the exhibition was visited not only by science students but also by students majoring in various other subjects; this was affirmed by the results of the post-exhibition survey of students from the two universities. Students of other universities and high schools also came, evidenced by the official register of schools that visited by appointment.

Results of the post-exhibition survey carried out with tutors showed that the tutors from MSU-IIT and the high schools in Iligan found the box with the *Rafflesia* the most interesting. The most interesting box for the tutors of Xavier University, on the other hand, was the lithological map of Mindanao. All of the ten boxes were chosen as the most interesting one by at least one respondent. Most respondents responded positively to the idea of using the boxes to supplement their teaching.

The survey carried out with university and high school students also revealed some interesting patterns in their evaluation of the exhibition. The results suggested that a majority of the students viewed the Mobile Museum Boxes as either useful for their studies and/or inspiring, citing reasons such as the uniqueness, attractiveness and beauty of the exhibits. However, while a far greater percentage of university students stated that the boxes inspired them, the number of high school students who viewed the boxes as useful and those who viewed them as inspiring was equal. This difference may be due to the specialization of courses taken at universities.

The answers also showed that for 73 out of the 324 university students and for 55 out of the 227 high school students, the Mobile Museum Boxes were their first experience of a museum exhibition. If we further include the respondents who admit to visiting museums once in a few years, we can conclude that more than 47% of the university students and 55% of the high school students made a rare museum visit during the exhibition offered by the Mobile Museum Boxes.

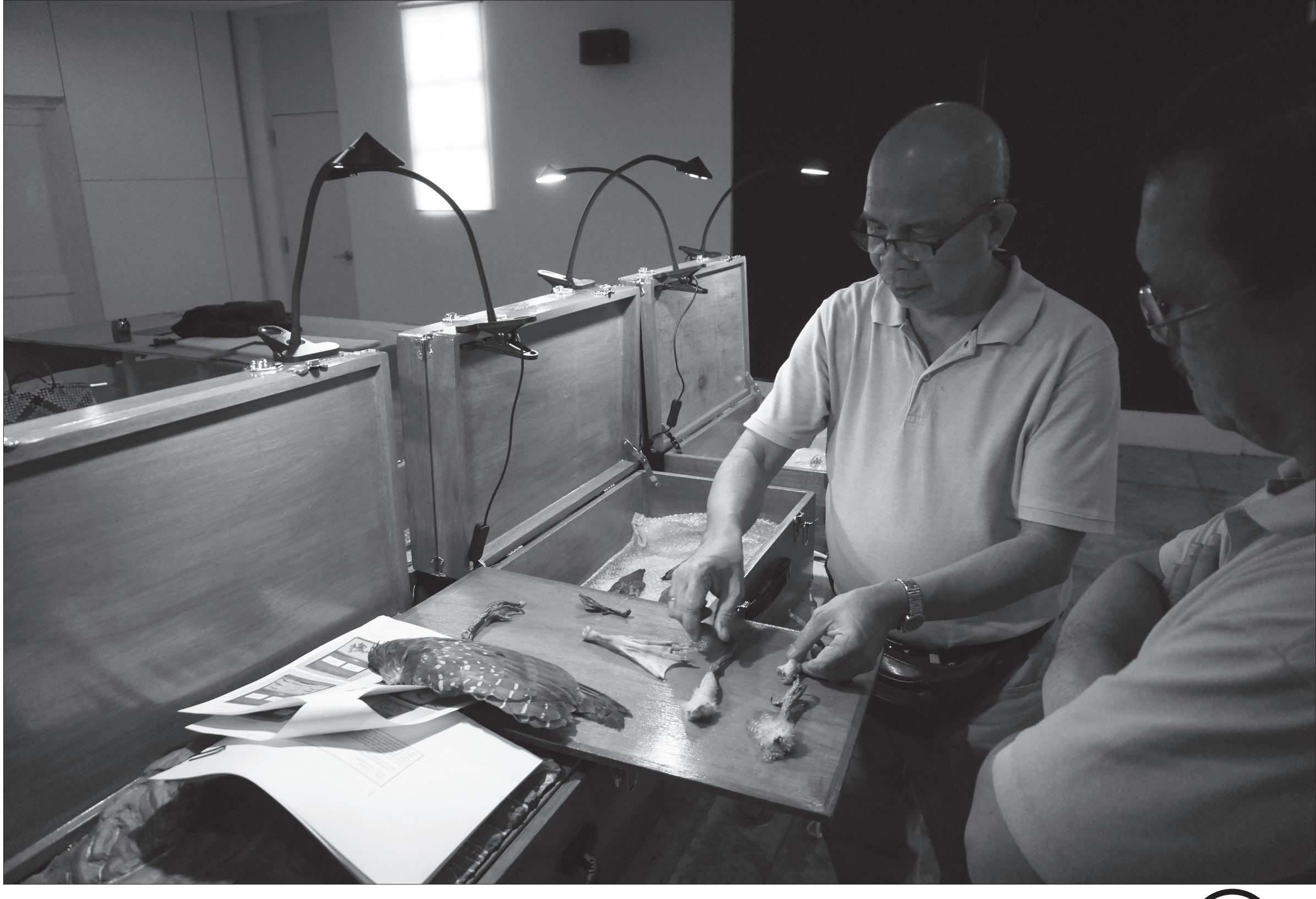
Possibilities for Development

The Mobile Museum Boxes have the potential to be developed further by anyone willing to join the project. They can, first of all, grow in quantity and variety. The boxes were designed to illustrate the diversity of natural and cultural heritage of the area in which the exhibition venue is located. It is therefore possible to add new boxes touching on different aspects of local heritage as the exhibition travels to each new venue.

The post-exhibition survey asked tutors and students for their suggestions for improvement. The most common suggestions given were to expand the exhibition and increase the quantity of items displayed. Respondents were also asked about what new materials they would like to see in a new box, with answers ranging from natural specimens to cultural objects. These results suggest that it will be a good idea to add more boxes on topics such as the cultural heritage of Mindanao Island.

Secondly, the Mobile Museum Boxes also has the potential to be developed further as a multi-dimensional educational resource at each exhibition venue. Although the project members themselves did give short lectures for students during the exhibition's opening event in MSU-IIT and Xavier University, in the future it would also be possible to invite young researchers from the host institution to deliver talks on the boxes.

University students and school children can also be involved in a similar fashion. At the exhibition in MSU-IIT and Xavier University, students of the host university served as guides and explained the exhibits to visitors based on information provided by the project members. Perhaps in the future, students can be asked to carry out research on the exhibits independently, with the goal of explaining them to school children. A good example of this is the "Academic Adventure" program at UMUT, where student volunteers choose exhibits, carry out research on them, and consider how best to explain them to school children. If the "Academic Adventure" model is replicated at each Mobile Museum Boxes exhibition, it will offer another learning opportunity for university students and school children.



ACTIVITY LOG

April 2015 to March 2016

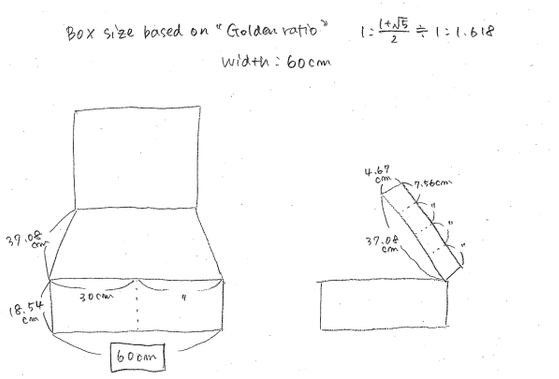
22-04-2015 Initial discussion over email about project outline
09-05-2015 Discussion over email about project schedule and budget
11-05-2015 Meeting in Manila to discuss project outline (Terada, Evangelista and Batara)
12-05-2015 Meeting in Manila to discuss preliminary survey and exhibits
13-05-2015 Visit to National Museum of the Philippines (NM)
22-05-2015 Discussion over email about project document (initial draft)
22-05-2015 Discussion over email about exhibit design
26-05-2015 Discussion over email about July's meeting schedule in Manila
26-05-2015 Meeting in Tokyo to discuss project document (Terada and Matsuda)
27-05-2015 Discussion over email about project document (ver. 1), target viewers and preliminary survey plan
28-05-2015 Discussion over email about preliminary survey schedule
30-05-2015 Discussion over email about project budget (ver. 1)
10-06-2015 Discussion over email (using photos) about design of boxes and exhibit ideas (ver. 1)
11-06-2015 Discussion over email about preliminary survey questionnaire for students
12-06-2015 Discussion over email about preliminary survey plan for university tutors and students, as well as exhibition venues
15-06-2015 Discussion over email about questionnaires for university tutors and students
16-06-2015 Discussion over email about questionnaire for tutors (ver. 1) in Mindanao State University-Iligan Institute of Technology (MSU-IIT) and Philippines Normal University (PNU)
21-06-2015 Visit to Reading Museum (UK) by Matsuda
23-06-2015 Discussion over email about questionnaire for tutors (final ver.) in MSU-IIT and PNU
24-06-2015 Began distributing questionnaires to tutors in MSU-IIT and PNU
25-06-2015 Visit to National Museum of Ethnology in Osaka by Terada
04-07-2015 Presentation about project in workshop organized by Toyota Foundation in Kyoto by Terada
07-07-2015 Discussion over email about purpose of project, exhibition venues and themes
09-07-2015 Discussion over email about objective of mobile exhibitions in Mindanao
13-07-2015 Discussion over email about budget of exhibit fabrication in Manila
15-07-2015 Finished preliminary survey for tutors at MSU-IIT
21-07-2015 Discussion over email (using photos) about survey results of National Museum of Ethnology in Osaka's hands-on kit for school children, "Min-Pack"
22-07-2015 Discussion over email (using photos) about survey results of Reading Museum's (UK) hands-on kit for school children, "Loan Box"
22-07-2015 Discussion over email (using photos) about survey results of Geology Division of NM's traveling exhibition kits
22-07-2015 Discussion over email about results of tutor survey at MSU-IIT
23-07-2015 Finished preliminary survey of tutors at PNU
24-07-2015 Discussion over email about results of tutor survey at PNU
28-07-2015 Meeting in Manila to discuss exhibition themes and exhibits (Terada, Evangelista and Matsuda)
28-07-2015 Visit to Director's Office, Botany, Archaeology and Geology Division in NM
28-07-2015 Meeting in Manila to discuss the languages of exhibition panels and labels
29-07-2015 Meeting in Manila to discuss design of boxes
30-07-2015 Meeting in Iligan to discuss exhibition themes, exhibits and preparation schedule (Terada, Evangelista and Batara)
30-07-2015 Visit to Office of Publication and Information, Chancellor's Office and College of Science and Mathematics in MSU-IIT
31-07-2015 Meeting in Iligan to discuss the exhibition at MSU-IIT in January
31-07-2015 Visit to College of Science and Mathematics Lobby (exhibition venue) in MSU-IIT
31-07-2015 Meeting in Iligan to discuss the languages of exhibition panels and labels
02-08-2015 Discussion over email (using photos) about exhibits ideas (ver. 2)
09-08-2015 Discussion over email (using drawings) about exhibition theme, "Biodiversity of Mindanao," size of boxes (based on the golden ratio) and extension ideas for boxes
09-08-2015 Discussion over email about exhibit on shells
10-08-2015 Discussion over email (using photos) about exhibit on the volcano
13-08-2015 Discussion over email about box types (expandable or non-expandable) and exhibits
14-08-2015 Discussion over email about lighting device for boxes
14-08-2015 Discussion over email (using drawings) about shape of expandable boxes, size of boxes, and exhibits in expandable boxes
14-08-2015 Discussion over email about exhibit on the geological map
15-08-2015 Discussion over email about exhibit on fishes
25-08-2015 Discussion over email about box design and exhibits
28-08-2015 Discussion over email about preparation progress of box fabrication, collection and fabrication of exhibits
28-08-2015 Discussion over email about exhibition periods and venues in Manila and Cagayan de Oro
28-08-2015 Discussion over email about exhibits on the geological map, fishes and pitcher plant
29-08-2015 Discussion over email about exhibits on crocodile skull and bird specimens
31-08-2015 Discussion over email about budget for exhibit preparation in Manila
01-09-2015 Discussion over email about next meeting schedule in Manila
06-09-2015 Discussion over email about exhibit on the Rafflesia
08-09-2015 Discussion over email (using photos) about box samples
09-09-2015 Discussion over email (using drawings) about box size consistency and shape of expandable boxes
17-09-2015 Discussion over email (using photos) about exhibit on crocodile skull
25-09-2015 Discussion over email about project budget (ver. 2)
25-09-2015 Discussion over email about box fabrication and exhibits on the Rafflesia, pitcher plant, the volcano and crocodile skull
01-10-2015 Discussion over email (using photos) about box fabrication and design of expansion boards

02-10-2015 Discussion over email (using photos and drawings) about preparation progress of boxes and exhibits
02-10-2015 Discussion over email about budget for exhibit fabrication in Manila
05-10-2015 Discussion over email about final schedule of November's meeting in Manila
06-10-2015 Discussion over email (using photos) about exhibits on bird specimens, fishes and crocodile skull
07-10-2015 Discussion over email about exhibit on the geological map
13-10-2015 Discussion over email (using photos) about boxes fabrication
13-10-2015 Discussion over email about exhibit on shells
14-10-2015 Discussion over email (using drawings) about label size, typeface, type size, color scheme and word length
14-10-2015 Discussion over email (using photos) about design of box handles
16-10-2015 Discussion over email (using photos) about exhibit on shells and their design
19-10-2015 Discussion over email (using photos) about exhibit on the geological map
20-10-2015 Discussion over email about budget of exhibit fabrication in Manila
20-10-2015 Discussion over email about schedule of the exhibition's soft launch at NM in Manila
21-10-2015 Discussion over email about exhibit on fishes
21-10-2015 Discussion over email (using videos) about design of box handles and expansion boards
22-10-2015 Discussion over email about schedule of the exhibition's soft launch at NM in Manila
24-10-2015 Discussion over email about exhibits on the volcano, bird specimens, the Rafflesia and pitcher plant
26-10-2015 Discussion over email about budget on exhibit fabrication in Manila
27-10-2015 Discussion over email about management of Mobile Museum Boxes after project ends
27-10-2015 Discussion over email about topic label for crocodile skull
28-10-2015 Discussion over email about management of boxes after project ends
30-10-2015 Discussion over email about exhibition panels
02-11-2015 Discussion over email about the languages of exhibition panels and labels (English and Tagalog)
06-11-2015 Meeting in Manila to discuss exhibition preparation progress (Terada, Evangelista and Batara)
06-11-2015 Meeting in Manila about exhibit on fishes brought from Mindanao
06-11-2015 Meeting in Manila about exhibits on the geological map and the volcano
06-11-2015 Meeting in Manila about exhibits on the Rafflesia and pitcher plant
07-11-2015 Meeting in Manila about exhibits on crocodile skull, birds' legs and wings and full bodies specimens brought from Mindanao
07-11-2015 Meeting in Manila about exhibit on shells brought from Tokyo
07-11-2015 Meeting in Manila to discuss exhibits' layout design in boxes
08-11-2015 Discussion over email (using photos) to discuss exhibition, box numbers and exhibits
09-11-2015 Visit to Director's Office, Botany and Geology Division in NM
09-11-2015 Meeting in Manila about exhibition panels design (banner stand)
09-11-2015 Meeting in Manila about exhibition flyers and banners design
09-11-2015 Meeting in Manila about lighting device (LED clip lamp) and box handles
10-11-2015 Meeting in Manila about exhibits on the volcano and rock samples
14-11-2015 Discussion over email about design of exhibition banner stands
15-11-2015 Discussion over email about topic label for fishes
16-11-2016 Discussion over email about project budget (ver. 3)
16-11-2016 Discussion over email about December's meeting schedule in Manila
17-11-2016 Discussion over email (using drawings) about formats of topic labels and object labels
17-11-2015 Discussion over email about topic label for shells
19-11-2015 Discussion over email about preparation of box plates
19-11-2015 Discussion over email (using graphic design data) about design of exhibition banners and flyers
19-11-2015 Discussion over email about exhibition banner texts of greetings, project introduction and acknowledgments
20-11-2015 Discussion over email about preparation progress of label texts
21-11-2015 Discussion over email about fabrication of box plates
23-11-2015 Discussion over email (using graphic design data) about box plate design
23-11-2015 Discussion over email about survey box size and design
24-11-2015 Discussion over email about exhibition banner texts for greetings, project introduction and acknowledgments
24-11-2015 Discussion over email about finalizing exhibition title, "The Diversity of Natural History in Mindanao"
24-11-2015 Discussion over email about topic label baseboards by email
24-11-2015 Discussion over email (using drawings) about survey box design
24-11-2015 Discussion over email about budget of exhibition materials used in Manila
25-11-2015 Discussion over email about topic labels for crocodile, fishes and pitcher plant
25-11-2015 Discussion over email about exhibition banner texts of greetings and project introduction
25-11-2015 Discussion over email about exhibition venue in Cagayan de Oro
25-11-2015 Discussion over email (using graphic design data) about final design of box plates
25-11-2015 Discussion over email (using graphic design data and drawings) about design of exhibition banners, flyers, topic labels and object labels
27-11-2015 Discussion over email (using photos) about layout plan for box exhibits
28-11-2015 Discussion over email about exhibition flyer for Manila
28-11-2015 Discussion over email about topic labels for the Rafflesia, fishes and crocodile head
30-11-2015 Discussion over email about exhibition banner text, "The Diversity of Natural History in Mindanao"
30-11-2015 Discussion over email about finalizing exhibition date at NM in Manila
30-11-2015 Discussion over email about visitor survey plan
01-12-2015 Discussion over email about fabrication of exhibition banners in Manila
01-12-2015 Discussion over email about exhibition venue in Cagayan de Oro
01-12-2015 Meeting in Tokyo to discuss questionnaire plan (Terada and Matsuda)
01-12-2015 Discussion over email about questionnaire plan for visitors in Manila (inside of the museum), in Iligan and Cagayan de Oro (university campus) and for university tutors
01-12-2015 Discussion over email (using graphic design data) about exhibition flyer for MSU-IIT in Iligan
01-12-2015 Discussion over email about exhibition banner text on "The Diversity of Natural History in Mindanao"
02-12-2015 Discussion over email about topic label for the volcano
02-12-2015 Discussion over email about object labels for bird specimens
02-12-2015 Discussion over email about schedule of exhibition soft launch and exhibition credit in Manila
02-12-2015 Visit to Xavier University to arrange the exhibition in February by Batara
03-12-2015 Discussion over email about finalizing exhibition schedule for Xavier University in Cagayan de Oro
03-12-2015 Discussion over email about fabrication of exhibition banners in Manila
03-12-2015 Discussion over email about transportation of exhibition crate from Manila to Iligan
04-12-2015 Discussion over email about budget of exhibition and transportation in Manila
04-12-2015 Discussion over email (using graphic design data) about flyer design of exhibition in Manila
05-12-2015 Discussion over email about topic label for the volcano and object labels for birds specimens

05-12-2015 Mobile Museum Boxes Project's page on University Museum-University of Tokyo's website created and exhibition flyers for Manila and Iligan uploaded
05-12-2015 Meeting in Manila about exhibits on the volcano, the geological map, the Rafflesia and pitcher plant (Terada and Evangelista)
05-12-2015 Meeting in Manila about exhibition PR banner
06-12-2015 Meeting at exhibition venue in NM to discuss exhibition layout plan and cloth color (blue)
06-12-2015 Meeting at exhibition venue in NM to discuss exhibit layout plan within boxes
06-12-2015 Start of exhibition set-up at NM
06-12-2015 Exhibition banners printed
06-12-2015 Discussion over email about exhibition credit in Iligan
06-12-2015 Discussion over email about communication with Xavier University over exhibition in Cagayan de Oro
07-12-2015 Installation of exhibits about styrofoam boards covered with cloth
07-12-2015 Installation of exhibition banners with stands
07-12-2015 Expandable boards fixed with screws
07-12-2015 Meeting at exhibition venue in NM to discuss preparation progress (Terada, Evangelista, Batara and Matsuda)
07-12-2015 Installation of exhibition PR banner about outside wall of NM
08-12-2015 Installation of exhibits with styrofoam boards covered in cloth
08-12-2015 Baseboards covered with cloth fixed with topic labels
08-12-2015 Installation of topic and object labels onto baseboards of boxes
08-12-2015 Installation of box plates and clip lamps
09-12-2015 Exhibition venue cleaned and lighting device checked
09-12-2015 Installation of survey box
09-12-2015 Ribbon cutting ceremony to open exhibition with Ana Labrador, Assistant Director of NM, Ferdinand Jamil, Dean of College of Science and Mathematics of MSU-IIT and NM staff
10-12-2015 Discussion over email about "do-not-touch" sign and visitor survey in Manila
10-12-2015 Discussion over email about security guards in the gallery of NM
10-12-2015 Discussion over email about schedule of exhibition's official launch in Iligan
11-12-2015 Discussion over email about transportation of exhibition crate from Manila to Iligan
12-12-2015 Discussion over email about schedule of exhibition's official launch in Iligan
14-12-2015 Exhibition texts and exhibition photos in Manila uploaded onto Mobile Museum Boxes Project's website
14-12-2015 Copies of Iligan exhibition flyers mailed from Tokyo to Manila and Iligan
14-12-2015 Discussion over email about talk event for exhibition's official launch in Iligan
15-12-2015 Discussion over email about transportation of exhibition crate from Manila to Iligan
15-12-2015 Discussion over email about fabrication of crate in Manila
15-12-2015 Discussion over email about exhibition kit's checklist for transportation
15-12-2015 Discussion over email about credit of exhibition in Manila
16-12-2015 Discussion over email about budget of exhibition in Iligan
16-12-2015 Discussion over email about exhibition schedule in Cagayan de Oro
16-12-2015 Visit to Xavier University to arrange the exhibition in February by Batara
18-12-2015 Discussion over email about exhibition set up schedule in Cagayan de Oro
20-12-2015 Exhibition in Manila closed and dismantled
21-12-2015 Discussion over email about exhibition flyer for Cagayan de Oro
25-12-2015 Discussion over email about dismantling exhibition in Manila and forwarding crate from Manila to Iligan
25-12-2015 Discussion over email about project budget (ver. 4)
25-12-2015 Discussion over email (using graphic design data) about box tags
25-12-2015 Discussion over email about management of boxes after project ends
28-12-2015 Discussion over email about January's meeting in Iligan
28-12-2015 Exhibition crate forwarded from Manila to Iligan
29-12-2015 Discussion over email (using photos) about transportation of crate in Manila
29-12-2015 Discussion over email about fabrication of exhibition flyer for Cagayan de Oro in Iligan
30-12-2015 Discussion over email about confirmation of January's meeting schedule in Iligan
05-01-2016 Discussion over email about time and venue of talk event for exhibition's official launch in Iligan
05-01-2016 Discussion over email about exhibition set-up schedule in Cagayan de Oro
06-01-2016 Discussion over email (using photos) about installation of exhibition PR banner in Iligan
06-01-2016 Discussion over email about budget and preparation progress of exhibition in Iligan
06-01-2016 Discussion over email about fabrication of exhibition banner in Iligan
06-01-2016 Discussion over email about venue of exhibition's opening talk event
07-01-2016 Discussion over email about maintenance and monitoring of boxes after project ends by MSU-IIT
07-01-2016 Arrival of exhibition crate in Iligan
08-01-2016 Discussion over email about management of boxes after project ends
09-01-2016 Discussion over email on titles of short talks by project members for exhibition's official launch in Iligan
12-01-2016 Discussion over email about finalizing exhibition venue and date at Xavier University in Cagayan de Oro
12-01-2016 Arrival of exhibition crate at MSU-IIT
13-01-2016 Discussion over email about finalizing exhibition launch schedule in Iligan
13-01-2016 Discussion over email about exhibition period and set-up schedule in Cagayan de Oro
13-01-2016 Discussion over email about project budget (ver. 5)
13-01-2016 Discussion over email about fabrication of exhibition flyer for Cagayan de Oro in Iligan
14-01-2016 Discussion over email about entrusting boxes to MSU-IIT after project ends
14-01-2016 Discussion over email about exhibition's opening day schedule
14-01-2016 Discussion over email about interview of project members by MSU-IIT's Office of Publication and Information
15-01-2016 Meeting at exhibition venue in MSU-IIT in Iligan to discuss exhibition layout plan (Terada, Evangelista and Batara)
15-01-2016 Start of exhibition set-up and installation of exhibition tables provided by MSU-IIT
15-01-2016 Visit to Office of Publication and Information, Chancellor's Office and College of Science and Mathematics in MSU-IIT
15-01-2016 Cagayan de Oro's exhibition flyer uploaded onto Mobile Museum Boxes Project's website
16-01-2016 Installation of boxes on exhibition tables
16-01-2016 Installation of exhibition PR banner about outside wall of College of Science and Mathematics building
16-01-2016 Installation of curtains within exhibition venue
16-01-2016 Installation of lighting devices and exhibition banners with stands
16-01-2016 Expendable boards of boxes fixed
16-01-2016 Installation of box tags

17-01-2016 Plants and benches in exhibition venue arranged
17-01-2016 Exhibition venue cleaned
17-01-2016 Exhibition photographed
18-01-2016 Meeting in Iligan about exhibition opening's talk event and exhibition opening ceremony (Terada, Evangelista, Batara and Matsuda)
18-01-2016 Exhibition opening's talk event
18-01-2016 Ribbon cutting ceremony to open exhibition with Sukarno Tanggol, Chancellor of MSU-IIT; Ferdinand Jamil, Dean of College of Science and Mathematics, MSU-IIT; Sasha Anne Valdez, Assistant Dean of College of Science and Mathematics, MSU-IIT; Jeremy Barns, Director of NM; Ana Labrador, Assistant Director of NM; and MSU-IIT faculty staff and students
08-01-2016 Student guides begin explanation of exhibits to visitors
18-01-2016 Flyers for exhibition in Cagayan de Oro in Iligan printed
19-01-2016 Meeting in Cagayan de Oro to discuss exhibition venue and preparation (Terada, Batara and Matsuda)
19-01-2016 Visit to Biology Department and Science Center Lobby (exhibition venue)
20-01-2016 Letter stating that project members will entrust Mobile Museum Boxes to MSU-IIT and Chancellor of MSU-IIT is handed over
20-01-2016 "*First mobile museum boxes travels to IIT"* published in MSU-IIT News
21-01-2016 Discussion over email about broadcasting news of Mobile Museum Boxes on local TV program in Mindanao
23-01-2016 Discussion over email about set-up schedule for exhibition in Cagayan de Oro
24-01-2016 Discussion over email about talk event for exhibition's launch in Cagayan de Oro
25-01-2016 Discussion over email about project budget (ver. 6)
26-01-2016 Discussion over email about budget of exhibition in Cagayan de Oro
26-01-2016 Discussion over email (using photos and drawings) about exhibition layout plan at Xavier University
26-01-2016 Exhibition photos and news in Iligan uploaded onto Mobile Museum Boxes Project's website
26-01-2016 Discussion over email about finalizing launch schedule at Xavier University
26-01-2016 "*First mobile museum boxes travels to IIT"* published in the news by Philippine Information Agency (PIA)
27-01-2016 Discussion over email about protection of exhibits at Xavier University
27-01-2016 Discussion over email about checklist for exhibition kit (to be used before dismantling), as well as checklist for transportation
29-01-2016 Exhibition in Iligan closed and dismantled
30-01-2016 Meeting in Iligan about exhibition kit and transportation checklists (Terada and Batara)
30-01-2016 Meeting at exhibition venue in Iligan about transportation of exhibition kit
31-01-2016 Meeting in Iligan to discuss exhibition preparation in Cagayan de Oro (Terada, Evangelista and Batara)
01-02-2016 Exhibition kit forwarded from Iligan to Cagayan de Oro
01-02-2016 Meeting at exhibition venue in Xavier University to discuss exhibition layout plan (Terada, Evangelista and Batara)
01-02-2016 Arrival of exhibition kit at Xavier University and start of exhibition set-up
01-02-2016 Installation of exhibition tables provided by Xavier University
01-02-2016 Installation of boxes on exhibition tables and fixed expansion boards with screws
01-02-2016 Installation of exhibition PR banner about outside wall of Science Center building
01-02-2016 Installation of curtains at exhibition venue and cleaning of boxes
01-02-2016 Exhibition photographed
01-02-2016 Boxes covered for protection against sunlight and dust
02-02-2016 Student guides given instructions about exhibition
02-02-2016 Exhibition opening's talk event
02-02-2016 Ribbon cutting ceremony to open exhibition with Rene C. Tacastacs, SJ, Academic Vice President of Xavier University; Juliet Dalagan, Chairperson, College of Arts and Sciences; Judy Sendaydiego, Chairperson of Biology Department, College of Arts and Sciences; and faculty staff and students of Xavier University
02-02-2016 Student guides begin explanation of exhibits to visitors
06-02-2016 Exhibition in Xavier University extended for one week
08-02-2016 Discussion over email about schedule for dismantling exhibition in Cagayan de Oro
08-02-2016 Discussion over email about exhibition report/catalogue
08-02-2016 Exhibition photos in Cagayan de Oro uploaded onto Mobile Museum Boxes Project's website
10-02-2016 Discussion over email about survey results in Manila
13-02-2016 Exhibition in Cagayan de Oro dismantled and closed
13-02-2016 Exhibition kit transported from Xavier University to MSU-IIT
14-02-2016 "*Mobile Museum Boxes' project goes to XU"* published in Xavier University News
15-02-2016 Discussion over email about exhibition report/catalog
15-02-2016 News on exhibition in Cagayan de Oro uploaded onto Mobile Museum Boxes Project's website
17-02-2016 Discussion over email about exhibition report/catalog
19-02-2016 Discussion over email about results of surveys of students and tutors at MSU-IIT
19-02-2016 Discussion over email about possibility of another exhibition in Mindanao
05-03-2016 Discussion over email about results of student survey at Xavier University
10-03-2016 Discussion over email about results of student survey at Xavier University
11-03-2016 Discussion over email about results of tutor survey at Xavier University
21-03-2016 Discussion over email about exhibition report/catalog
22-03-2016 Discussion over email about exhibition report/catalog
23-03-2016 Discussion over email about exhibition report/catalog

BOX DESIGN

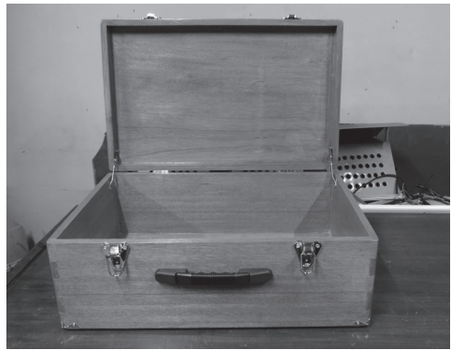


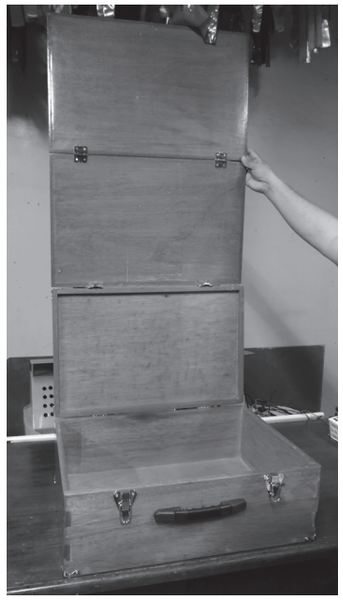
Basic Idea

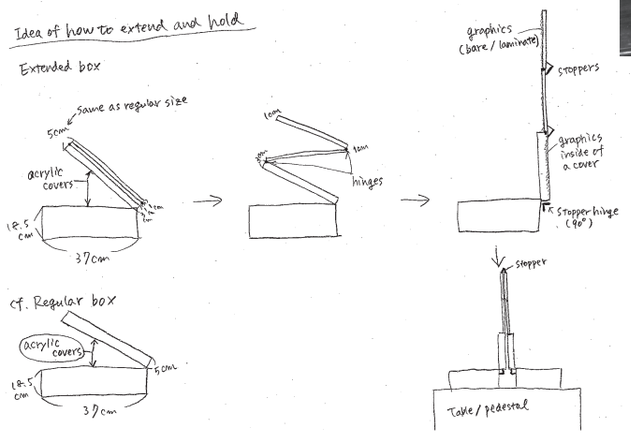
The Mobile Museum Boxes, each with exhibits installed inside, will bring the museum outside its physical confines by temporally transforming any location into a museum gallery, thus providing an object-based educational opportunity anywhere for anyone, especially the young.

The exhibition kit's box-type design is aimed at minimizing set-up time and effort, making it easily installable by anyone. The minimum unit of each Mobile Museum Boxes exhibition kit is, as its name suggests, just a box. People will be able to organize different types of exhibitions simply by changing the number or combination of these boxes. This box-type exhibition design therefore enhances both the efficiency and flexibity of exhibition settings.

The design policy constructs all of the boxes based on the golden ratio, with consistency in outline dimensions. This policy therefore ensures aesthetic consistency even when the number or combination of boxes are changed for different exhibitions. Beyond that, however, two types of boxes have also been prepared to enhance the aesthetic dynamism of each exhibition space. Another version of the box comes equipped with expendable boards that fold in a vertical direction, thereby allowing more exhibits or information to be added.







Box Specifications

- Outline dimensions: 37 x 60 x 18.5+5 cm
  - -Expandable type (with 3 folding flaps): 4 boxes
  - -Regular type (with one flap): 7 boxes *with an extra one to be used as the survey box
- Material: dark brown wood to be varnished
- Logos of three institutions (UMUT, NM and MSU-IIT) on metal plates
- Box tags for identification of exhibits

Box Themes and Types

■ Expandable type

-Pitcher plants' dried specimens and replicas (Terrestrial Plants in Mindanao)

-Crocodile head skeleton specimen (Terrestrial Animals in Mindanao)

-Birds in Mindanao from Dr. Rabor's collection (Terrestrial Plants in Mindanao)

-Mount Apo replica (Geology of Mindanao)

■ Regular type

-*Rafflesia* replica (Terrestrial Plants in Mindanao)

-Various birds' legs and wings specimens (Terrestrial Plants in Mindanao)

-Lake Lanao fishes replica (Aquatic Animals in Mindanao)

-University of Tokyo's collection of shells from Mindanao (Aquatic Animals in Mindanao)

-"Real-life" geological map of Mindanao (Geology of Mindanao)

-Common rock samples of Mindanao (Geology of Mindanao)

-Survey box

Terrestrial plants in Mindanao

Box.1 Rafflesia replica (actual size)

- Box
  - Size: Expandable or normal type
  - Acrylic cover: Yes
  - Elevated bottom: No
- Item
  - One replica of Rafflesia (flower in actual size) made of resin

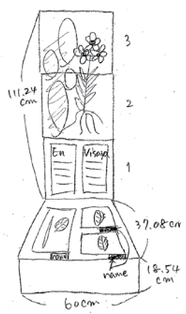
  -> Production in progress?
- Text and graphic
  - Label (specimen's name)
  - Caption (scientific description) of 'Rafflesia (tbc)'
  - Photo of Rafflesia (whole figure)

Box 2. Various plants' dried specimens

- Box
  - Size: Expandable type
  - Acrylic cover: Yes
  - Elevated bottom: Yes
- Item
  - Dried specimen(s) of pitcher plants (*nepenthes mindanaonensis*)
  - Dried specimen(s) of orchid (*vanda*)

  -> Production in progress?

  -> Any other specimens?
- Text and graphic
  - Labels
  - Caption of 'Terrestrial plants in Mindanao (tbc)'
  - Photos of live plants (color)



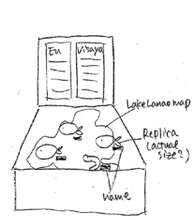
Aquatic animals in Mindanao

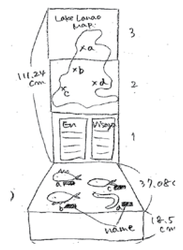
Box 5. Lake Lanao fishes replica

- Box
  - Size: Expandable or normal type
  - Acrylic cover: Yes
  - Elevated bottom: Yes
- Item
  - Fishes replica (one side, actual size) made of resin

  -> Specimens list?

  -> Production in progress?
- Text and graphic
  - Labels
  - Caption of 'Lake Lanao fishes (tbc)'
  - Map of Lake Lanao





Box 6. University of Tokyo collections of shells in Mindanao

- Box
  - Size: Normal type
  - Acrylic cover: Yes
  - Elevated bottom: Yes /with specimen boxes
- Item
  - Shell specimens

  -> Specimens list in progress
- Text and graphic
  - Labels
  - Caption of 'Shells in Mindanao (tbc)'

EXHIBITS

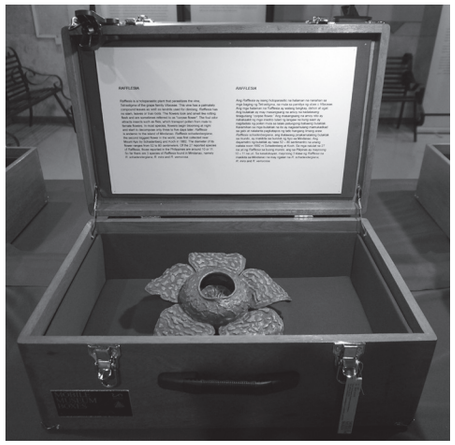
"The Diversity of Natural History in Mindanao"

Comprised of over 7,107 islands, the Philippines is naturally known as a country of great diversity. It is made up of three main geographical regions – the largest being the island of Luzon, followed by Visayas, and then Mindanao. The island of Mindanao might be the smallest of the three, but is in fact the most culturally and ecologically diverse. Known as a melting pot of different languages, tribes and races, Mindanao is further made up of several smaller outlying islands, and considered the food basket of the Philippines. It also shows some of the greatest diversity of physiographic development – from high, rugged, faulted mountains to almost isolated volcanic peaks; from high rolling plateaus to expansive, swampy plains.

The flora and fauna of Mindanao is home to various endemic organisms. Some of the animals that are found in Mindanao are Philippine eagles, Philippine flying lemurs, Philippine cockatoos and Mindanao bleeding hearts. It is also in the mountains of Mindanao, especially at the foot of Mount Apo, where you can find some of the most beautiful flowering plants like the captivating Philippine orchids, the Waling-Waling, the *Rafflesia schadenbergiana* and the *Nepenthes mindanaoensis*. Mount Apo is the country's highest mountain with an elevation of 2,954 meters (9,692 ft) above sea level. The mountain is volcanic in nature, but has no verified historical record of eruption. These plants and animals, however, are gravely threatened by the loss of their forest habitat due to logging and the conversion of land to agricultural use.

The Mobile Museum Boxes' exhibition "The Diversity of Natural History in Mindanao" therefore aimed to introduce Mindanao's rich ecological landscape, and showcased ten boxes from the following four categories: "Terrestrial Plants," "Terrestrial Animals," "Aquatic Animals" and "Geology of Mindanao."

The first, "Terrestrial Plants," showcased representative species of Mindanao's rich flora – pitcher plants and the *Rafflesia schadenbergiana*, said to be the second largest flower in the world. The replicas made of resin represented actual forms and colors of these plants, with dried specimens of pitcher plants displayed on the expandable board of the box as well. The second section, "Terrestrial Animals," was represented by a skull of the saltwalter crocodile (*Crocodylus porosus*) and the Mindanao Hornbill (*Tarictic affinis*). Legs and wings of birds were also included to emphasize the diversity of the different birds found in the island. In the "Aquatic Animals" category, the replicas of the representative species of freshwater fishes collected from Lake Lanao, the largest lake in Mindanao Island, were displayed alongside shell collections from the early 1980s donated by the University of Tokyo. The category "Geology of Mindanao" was represented by various different rocks and minerals found in Mindanao. A lithological map of the whole island was then fabricated based on the rocks collected from the area. There was also a section with a bird's-eye replica of Mount Apo and its surroundings, with their cross-sectional figure placed on the expandable board of the box. Together, the specimens and models in these boxes showcased the diversity of Natural History in Mindanao.



Box No. 001

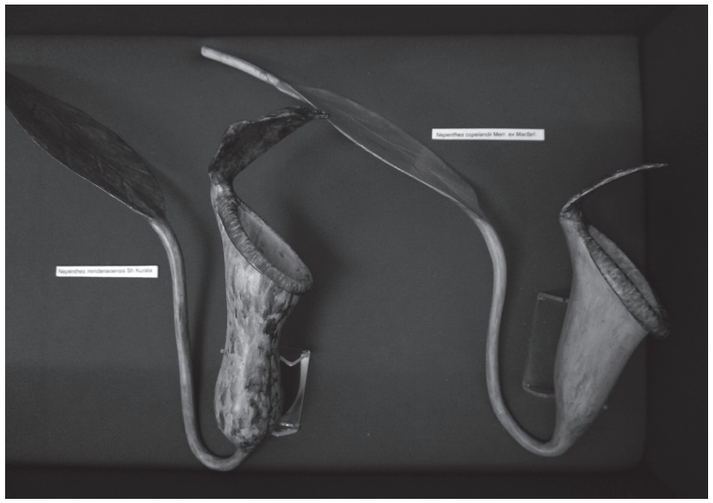
RAFFLESIA

The *Rafflesia* is a holoparasitic plant that parasitizes the vine *Tetrastigma* of the grape family Vitaceae. This vine has palmately compound leaves as well as tendrils used for climbing. The *Rafflesia* has no stem, leaves or true roots. Because its flowers look and smell like rotting flesh, it is sometimes referred to as the “corpse flower.” The foul odor attracts insects such as flies, who then transport pollen from male to female flowers. In most species, flowers begin blooming at night and start to decompose only three to five days later. The *Rafflesia* is commonly found on the island of Mindanao. The *Rafflesia schadenbergiana*, the second biggest flower in the world, was first collected near Mount Apo by Schadenberg and Koch in 1882. The diameter of its flower ranges from 52 to 80 centimeters. 10 to 11 of the *Rafflesia*’s 27 reported species can be found in the Philippines, including the following 3 species in Mindanao: *R. schadendergiana*, *R. mira* and *R. verrucosa*.

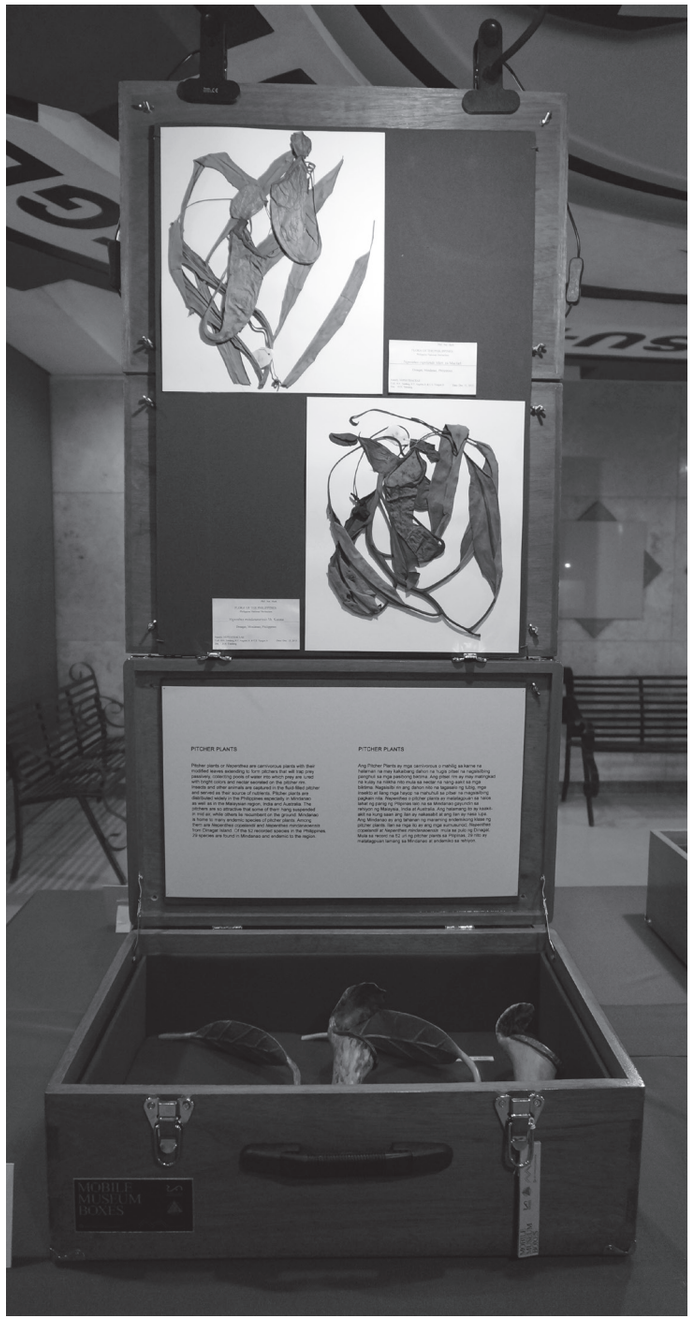
Box No. 002

PITCHER PLANTS

Pitcher plants, or *Nepenthes*, are carnivorous plants with modified leaves that extend to form pitchers that trap prey passively. Lured by the plant's bright colors and the nectar secreted on their pitcher rims, insects and other animals are captured in the fluid-filled pitcher and serve as their source of nutrients. Pitcher plants are found widely in the Philippines, especially in Mindanao, as well as in Malaysia, India and Australia. Some of them hang suspended in mid air, while others lie recumbent on the ground. Mindanao is home to many endemic species of pitcher plants. Among them are the *Nepenthes copelandii* and *Nepenthes mindanaoensis* from Dinagat Island. Of the 52 recorded species in the Philippines, 29 are found in Mindanao and endemic to the region.



Left: ***Nepenthes mindanaoensis*** **Sh. Kurata** Right: ***Nepenthes copelandii*** **Merr. ex Macfarl**



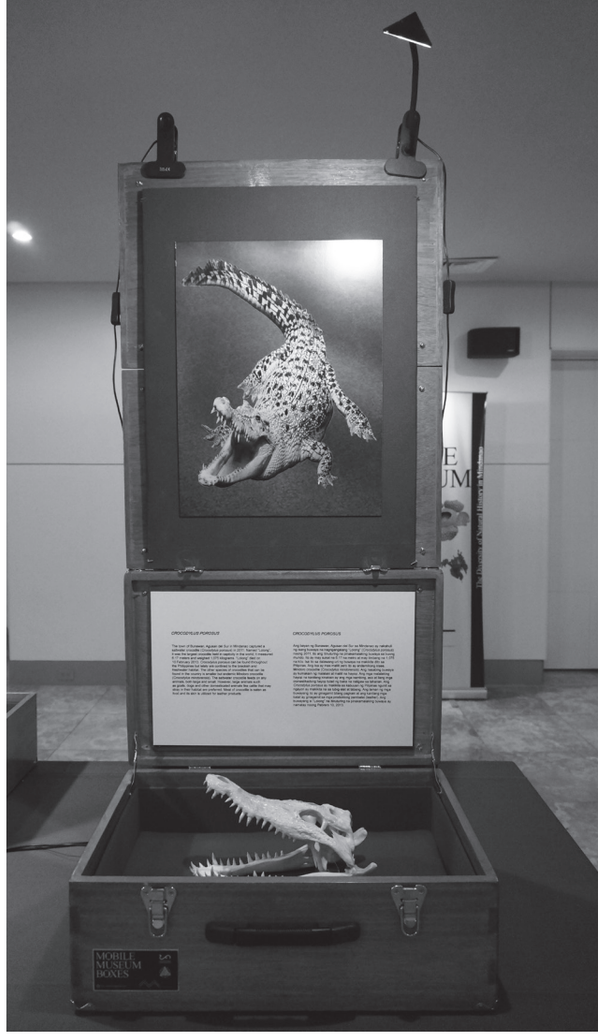
Top:
Nepenthes copelandii **Merr. ex Macfarl.**
Dinagat, Mindanao, Philippines
Family: NEPENTHACEAE
Coll. D.N. Tandang, R.T. Angeles Jr. & C.E. Yungca Jr.
Date: Dec. 15, 2013
Det. D.N. Tandang
Phil. Nat. Herb.
FLORA OF THE PHILIPPINES
Philippine National Herbarium

Bottom:
Nepenthes mindanaoensis **Sh. Kurata**
Dinagat, Mindanao, Philippines
Family: NEPENTHACEAE
Coll. D.N. Tandang, R.T. Angeles Jr. & C.E. Yungca Jr.
Date: Dec. 15, 2013
Det. D.N. Tandang
Phil. Nat. Herb.
FLORA OF THE PHILIPPINES
Philippine National Herbarium

Box No. 003

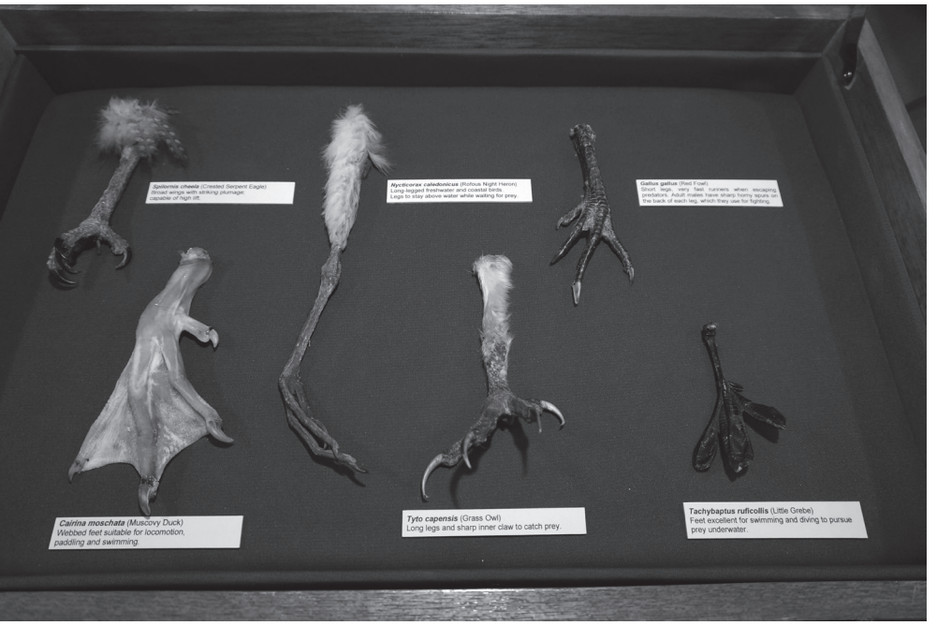
CROCODYLUS POROSUS
(Crocodile head)

The town of Bunawan, Agusan del Sur in Mindanao captured a saltwater crocodile (*Crocodylus porosus*) in 2011. Named “Lolong,” it was the largest crocodile held in captivity in the world, measuring 6.17 meters long and weighing 1,075 kilograms. “Lolong” died on 10 February 2013. *Crocodylus porosus* can be found throughout the Philippines but lately have been confined to the brackish and freshwater habitat. Another species of crocodiles that can be found in the country is the smaller but endemic Mindoro crocodile (*Crocodylus mindorensis*). The saltwater crocodile feeds on any animal, both large and small. However, they do prefer larger animals such as goats, dogs, and other domesticated animals like cattle that may wander into the crocodile’s habitat. Crocodile meat is consumed as food and its skin is utilized for leather products.



Box No. 004

LEGS AND WINGS OF MINDANAO BIRDS



Top, left:
***Spilornis cheela* (Crested Serpent Eagle)**
Feet to grab their prey in flight, either in the air, from the ground or out of the water. Have sharp claws to rip their victim apart.

Top, center:
***Nycticorax caledonicus* (Rofous Night Heron)**
Long-legged freshwater and coastal birds. Legs to stay above water while waiting for prey.

Top, right:
***Gallus gallus* (Red Fowl)**
Short legs make them very fast runners when escaping predators. Adult males also have sharp horny spurs on the back of each leg that they use for fighting.

Bottom, left:
***Cairina moschata* (Muscovy Duck)**
Webbed feet suitable for movement, paddling and swimming.

Bottom, center:
***Tyto capensis* (Grass Owl)**
Long legs and sharp talons to catch prey.

Bottom, right:
***Tachybaptus ruficollis* (Little Grebe)**
Feet excellent for swimming and diving to pursue prey underwater.

Top, left:
***Tyto capensis* (Grass Owl)**
Large, broad wings for slow flight; may hunt while slowly soaring near the ground.

Top, right:
***Streptopelia bitorquata* (Island Collared Dove)**
Have strong wing muscles and are among the strongest flyers of all birds.

Center, left:
***Halcyon smyrnensis* (White-throated kingfisher)**
Short, rounded wings for fast flying.

Center, right:
***Tanygnathus lucionensis* (Blue-naped Parrot)**
Attractive green plumage capable of high lift and fast flying.

Bottom, left:
***Spilornis cheela* (Crested Serpent Eagle)**
Broad wings with striking plumage; capable of high lift.

Bottom, right:
***Anas luzonica* (Philippine Duck)**
The strong wings are short and pointed. Capable of short lift and are fast flyers.

Box No. 005

BIRDS OF MINDANAO (Full bodies)

Pithecophaga jefferyi

Known as the monkey-eating eagle or Philippine eagle. It was declared the national bird under proclamation No. 615 on 4 July 1995. A ferocious-looking bird with a warlike headdress of spiky feathers that stands over 3 feet (1 meter) tall and can weigh up to 9 pounds (4 kilograms). This species is found in the thick and mountainous forests of Mindanao. They are excellent hunters, capable of seizing their prey (small mammals, fish, and other birds) with their sharp claws and tearing at its meat with sharp, hooked beaks. They require the tallest trees for nesting, but have a very low reproduction rate, laying just one or two eggs each year.

Penelopides affinis

The Mindanao Tarictic Hornbill is a medium-sized species of hornbill found in the canopy of the rainforests in Mindanao. These birds emit an incessant sound that sounds like *ta-rik-tik*, hence the name. Despite their noise they are difficult to find, being well camouflaged by the dense foliage. The principal food of the Hornbill is fruit, but it also eats insects and beetles.

Left, top:

Amaurornis phoenicurus

This white-breasted water hen is a waterbird of the rail and crake family. With their strong legs and long toes, these birds prefer to run rather than fly.

Left, bottom:

Hypsipetes everetti

The yellowish bulbul are fruit feeders and supplement their diet with insects. Their tails are long, their wings are short and rounded.

Right, top:

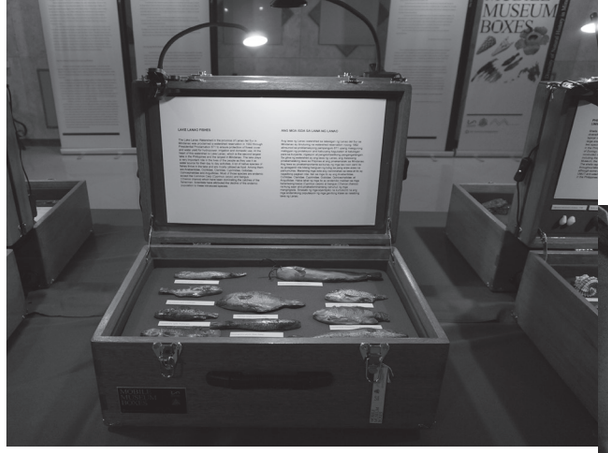
Trichoglossus johnstoniae

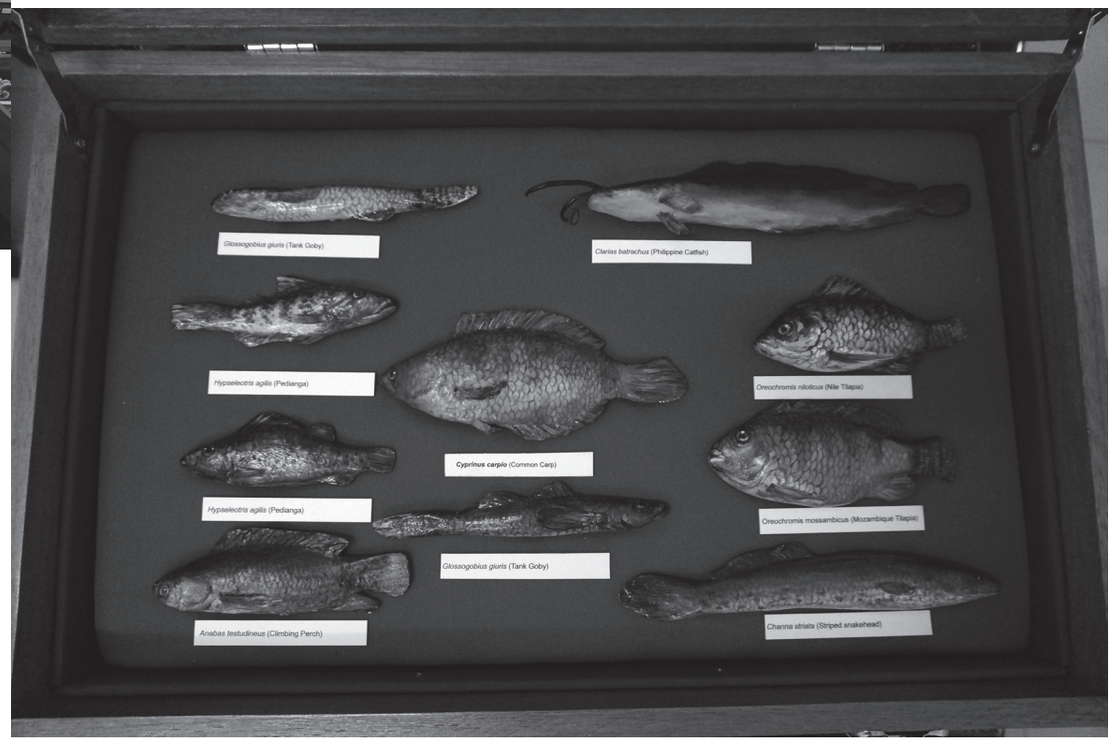
The Mindanao Lorikeet is an endemic species. It has a strong, hooked beak that aids in locomotion. Larger birds also use it for holding objects.

Right, bottom:

Irena cyanogaster

The Philippine fairy-bluebird is an endemic species. They have a bill used for crushing food. Their feet are small, and they mostly use their wings.





Box No. 006

LAKE LANAO FISHES

The Lake Lanao Watershed, located in the province of Lanao del Sur in Mindanao, was proclaimed a watershed reservation in 1992 through Presidential Proclamation 871 to ensure the protection of forest cover and water yield for hydropower, irrigation and domestic use. At the heart of this watershed is Lake Lanao, the second largest lake in the Philippines and the largest in Mindanao. The lake plays a very important role in the lives of the people who use it as a water source for their day-to-day activities. Many native species of fishes thrive in the lake, and are mostly eaten as food. Among them are the Anabantidae, Cichlidae, Clariidae, Cyprinidae, Gobidae, Ophicephalidae and Anguillidae. Most of those species are endemic except the Common Carp (*Cyprinus carpio*) and bangus (*Chanos chanos*), which have been dominating the catches of the fishermen. Scientists have attributed the decline of the endemic population to these introduced species.

Left, top:
Glossogobius giuris **(Tank Goby)**

Left, second from the top:
Hypseleotris agilis **(Pedianga)**

Left, second from the bottom:
Hypseleotris agilis **(Pedianga)**

Left, bottom:
Anabas testudineus **(Climbing Perch)**

Center, top:
Cyprinus carpio **(Common Carp)**

Center, bottom:
Glossogobius giuris **(Tank Goby)**

Right, top:
Clarias batrachus **(Philippine Catfish)**

Right, second from the top:
Oreochromis niloticus **(Nile Tilapia)**

Right, second from the bottom:
Oreochromis mossambicus **(Mozambique Tilapia)**

Right, bottom:
Channa striata **(Striped snakehead)**

Box No. 007

PHILIPPINE SHELLS FROM THE UNIVERSITY OF TOKYO'S COLLECTION

Shells are exoskeletons produced by mollusks, and are found in diverse abundance in tropical shallow-water areas. Beautiful shells are some of Mindanao's symbolic natural products, as the island is surrounded by shallow tropical waters and large bodies of coral reefs. These twenty-two specimens were collected by Dr. Shiro Kawaguchi (1908-2004) in the Philippines in the 1980s. After graduating from the Department of Zoology of the University of Tokyo in 1930, Dr. Kawaguchi conducted research on coral reefs in many places around the world, including the Philippines. He has donated his collection to the University Museum, the University of Tokyo (UMUT) on several occasions. The shells represented by these specimens are distributed throughout Mindanao Island. They are mostly marine species, although some of them can be found in fresh water and on land. UMUT entrusted the specimens to the Mobile Museum Boxes Project in the Philippines.

Top box, left:
***Calpurnus verrucosus* Linnaeus, 1758**

Top box, second from the left:
***Nerita exuvia* Linnaeus, 1758**

Top box, third from the left:
***Laevistrombus canarium* Linnaeus, 1758**

Top box, center:
***Ellobium aurisjudae* Linnaeus, 1758**

Top box, third from the right:
***Hypselostyla boholensis* Broderip, 1892**

Top box, second from the right:
***Helicostyla roissyana* Férussac, 1821**

Top box, right:
***Pseudovertagus aluco* Linnaeus, 1758**

Left, top:
***Distorsio anus* Linnaeus, 1758**

Left, second from the top:
***Cymbiola vespertilio* Linnaeus, 1758**

Left, second from the bottom:
***Oliva miniacea* Röding, 1798**

Left, bottom:
***Turbo petholatus* Linnaeus, 1758**

Second from the right, top:
***Hexaplex cichoreum* Gmelin, 1791**

Second from the right, second from the top:
***Ovula ovum* Linnaeus, 1758**

Second from the right, second from the bottom:
***Mitra mitra* Linnaeus, 1758**

Second from the right, bottom:
***Cochlostyla pithogaster* Férussac, 1821**

Second from the left, top:
***Harpa major* Röding, 1798**

Center, top:
***Cerithium nodulosum* Bruguiére, 1792**

Center of center:
***Conus marmoreus* Linnaeus, 1759**

Second from the left, bottom:
***Phalium areola* Linnaeus, 1758**

Center, bottom:
***Conus figulinus* Linnaeus, 1758**

Right, top:
***Turritella terebra* Linnaeus, 1758**

Right, bottom:
***Chrysalis aspersa* Grateloup, 1840**

Box No. 008

LITHOLOGICAL MAP OF MINDANAO

The three major classifications of rocks are represented on the island of Mindanao. Igneous, sedimentary and metamorphic rocks can be found exposed all over the island. The oldest rocks are metamorphic rocks, made up of schist, slates, phyllites, marble, quartzite, and gneiss of the Cretaceous age, representing the basement complex. These metamorphic rocks are found in Dinagat, Zamboanga and in East and Central Mindanao. Igneous rock such as diorite, peridotite associated with gabbro and diabase dikes and pillow basalt are also common on the island. These igneous rocks were formed during the Cretaceous age, up to the Paleogene time. Pliocene to Pleistocene volcanic rocks are found in the island's volcanic centers. Sandstone, shale, conglomerate, mudstone, limestone, turbidites and volcanistic rocks represent the sedimentary rocks. These are confined mostly to the Agusan, Cotabato and Davao basins and plains. Miocene to Pliocene reefal limestone formations are often observed capping some older rocks.

SEDIMENTARY AND METAMORPHIC ROCKS

Brown
QUATENARY (Holocene)
Beach deposits; raised coral reefs, atolls, and beach rock.

Grayish
PLIOCENE – PLIESTOCENE
Marine and terrestrial sediments. Associated with extensive reef limestone in the western coastal area of Mindanao.

L+Brown
UPPER MIOCENE – PLIOCENE
Largely coarse marine clastics overlain by extensive silty limestone in some parts of Mindanao.

Limestone
OLIGOCENE
Minor limestone and shales. Limestone remnants in Central Mindanao.

Schist
PERMIAN
Undifferentiated gneiss associated with marble, limestone, and arenite.

IGNEOUS ROCKS (INTRUSIVE ROCKS)

Diorite
NEOGENE
Largely intra-Miocene quartz diorite.

Peridotite
CRETACEOUS
Undifferentiated ophiolites and ophiolitic rocks. Forms a Cretaceous belt in Zamboanga.

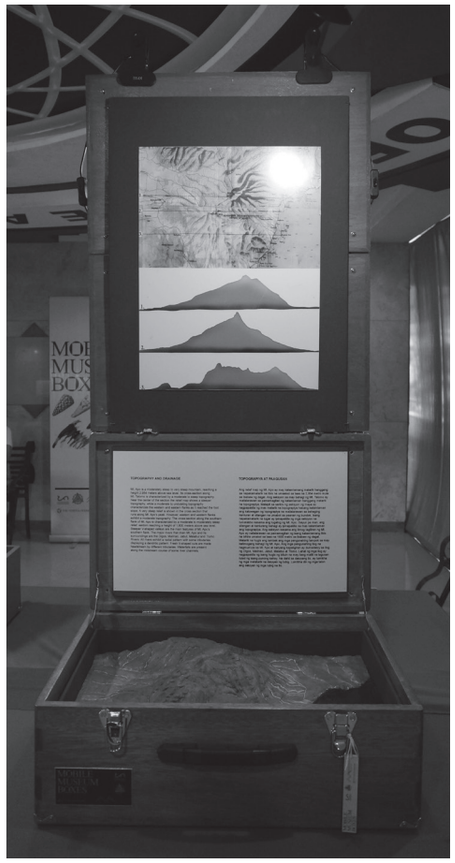
Basalt
PLIOCENE – QUATERNARY
Chiefly pyroclastics and/or volcanic debris found at the foot of volcanoes. Plateau basalt in Pagadian and Lanao.

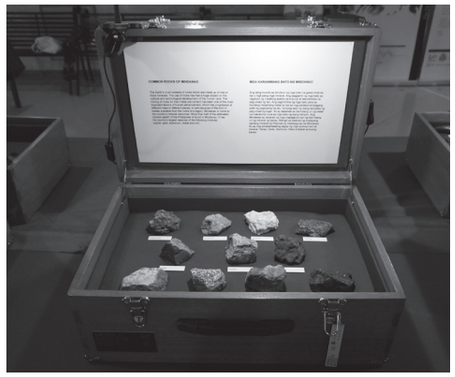
Andesite
PLIOCENE – QUATERNARY
Non-active cones or andesitic plugs. Basaltic dikes in Misamis Oriental, Mindanao.

Box No. 009

TOPOGRAPHY AND DRAINAGE AROUND MOUNT APO

Mount Apo is a moderately to highly steep mountain, reaching a height 2,954 meters above sea level. Its cross-section along Mount Talomo is characterized by a moderate to steep topography. Near the center of the section, the relief map shows a steeper topography, while a moderate to undulating topography characterizes the western and eastern flanks as one reaches the foot slope of the mountain. A very steep relief is shown in the cross section that runs along Mount Apo's peak. However, the eastern and western flanks exhibit a moderate topography. The cross-section along the southern flank of Mount Apo is characterized by a moderate to moderately steep relief, seldom reaching a height of 1,600 meters above sea level. Steeper V-shaped valleys are the main features of Mount Apo's southern flank. The major rivers that drain Mount Apo and its surroundings are the Digos, Malinao, Jabut, Malabul and Tlomo Rivers. All rivers exhibit a radial pattern with some tributaries displaying a dendritic pattern. Fresh V-shaped cuts are made headstream by different tributaries. Waterfalls are present along the midstream course of some river channels.

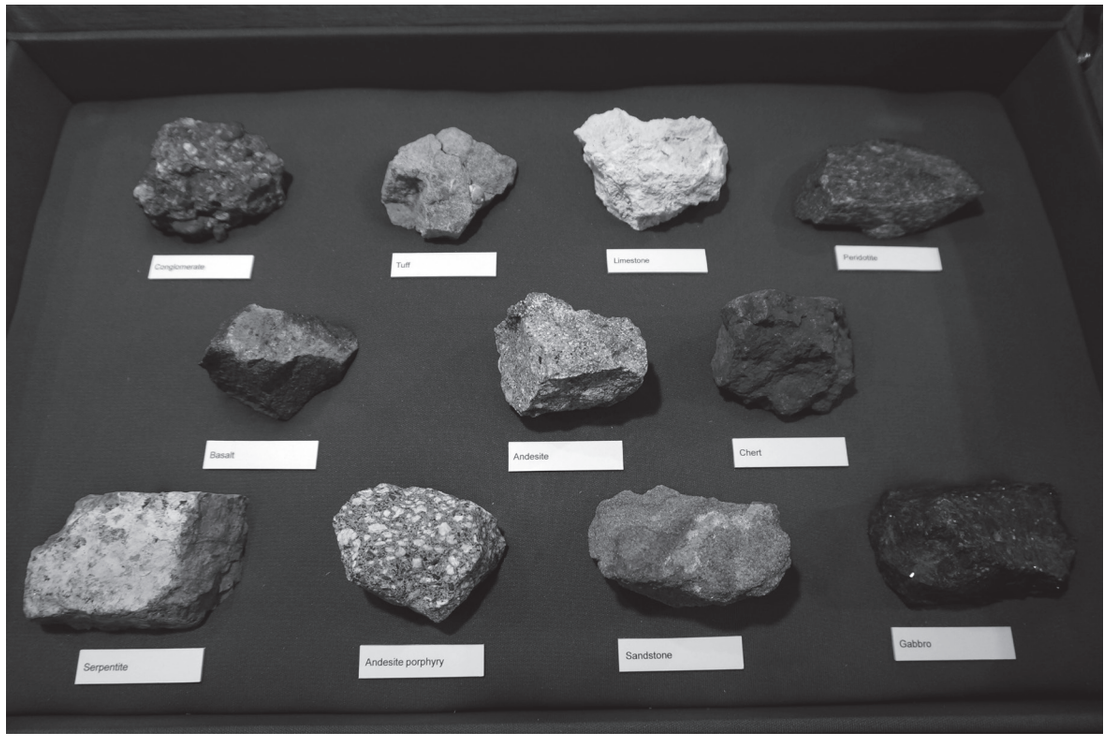




Box No. 010

COMMON ROCKS OF MINDANAO

The Earth's crust consists of rocks that are made up of one or more minerals. The uses of rocks have had a huge impact on the cultural and technological development of the human race. The mining of rocks for their metal ore content has been one of the most important factors of human advancement – mankind has progressed at different rates in different places, in part because of the kind of metals available from the rocks of a region. Mindanao is home to the country's mineral resources, with more than half of the estimated mineral wealth of the Philippines found in this region. It has the country's largest reserves of copper, gold, aluminum, nickel and iron.



Top, left:
Conglomerate

Top, second from the left:
Sandstone

Top, second from the right:
Limestone

Top, right:
Peridotite

Center, left:
Basalt

Center, center:
Andesite

Center, right:
Chert

Bottom, left:
Serpentite

Bottom, second from the left:
Andesite porphyry

Bottom, second from the right:
Sandstone

Bottom, right:
Gabbro

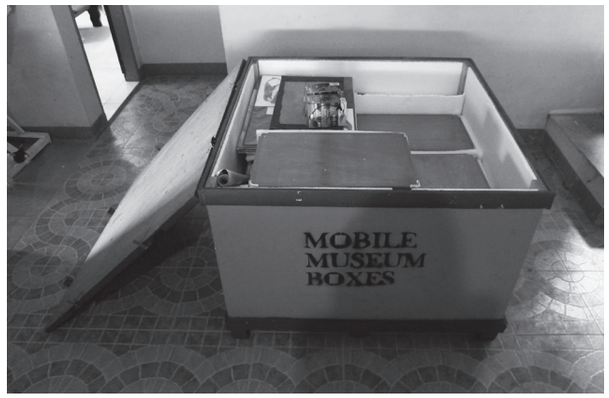
EXHIBITION DESIGN

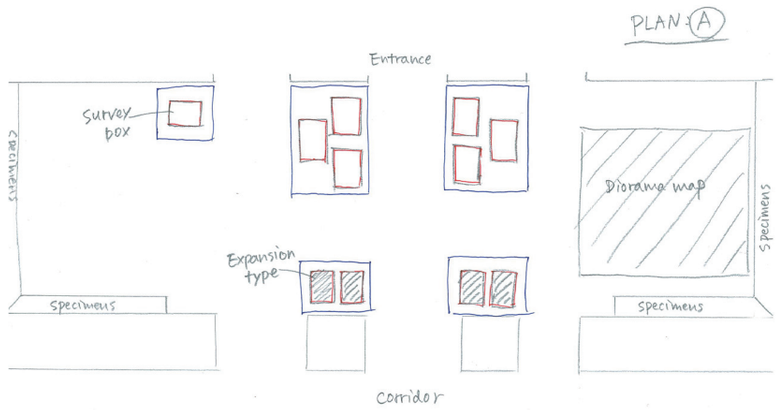
Venues

The Mobile Museum Boxes can be brought anywhere, including to non-museum venues that become temporarily transformed into museum spaces once the boxes are opened. Taking this advantage of the Mobile Museum Boxes into consideration, the choice of exhibition venues is therefore important. For the duration of this project, the exhibitions were set up in the first-floor lobbies of college buildings inside the university campuses both at MSU-IIT and Xavier University in Mindanao. The spatial characteristic of lobbies is its openness – students walk through the lobbies very often in their daily life, and will be able to easily encounter and visit the Mobile Museum Boxes even without specific intent.

Pedestals/tables

The components of the exhibition kit do not include exhibition pedestals. Instead, the volume and transportation cost of each exhibition kit is lowered by using tables provided at each exhibition venue. For example, with just four rectangular tables provided by our venue partners, we managed to make a single “island base” for ten boxes, arranged in five back-facing pairs on the conjoined island of exhibition tables. Two pairs of expandable boxes were then placed on the furthest edges of this base to achieve a semblance of balance whilst eliminating any monotony of design.



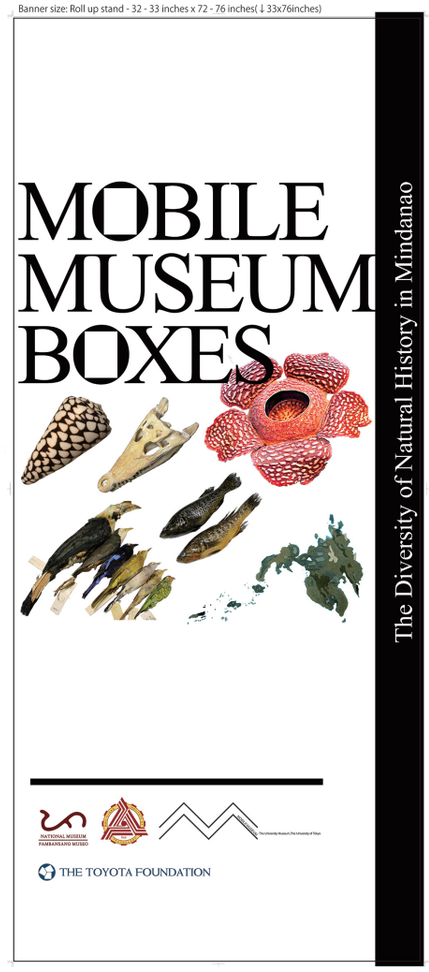


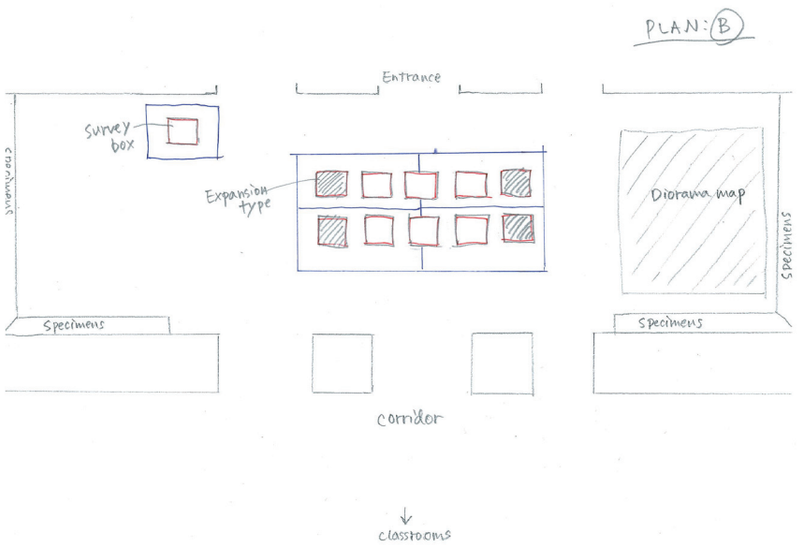
Layout Plans

The expandable-type boxes must be grouped into pairs, as each needs the back of the other as support, made possible when the expendable components are fixed together with screws. Other than that, it is also possible to vary exhibition layout plans based on the size of each venue, or the location of the entrances. For this exhibition, we had in fact initially considered placing the exhibition tables separately throughout the lobby of Xavier University in order to circulate the flow of viewers in multiple directions, but eventually chose the same layout plan because of the size and number of tables we were provided by the university.

Graphics/banners

Graphics with the exhibition title and an introduction of the exhibition concept and themes are printed on tarpaulin banners. These banners are retractable inside its stands, and can be used repeatedly. As they come with stands, these banners can be placed anywhere within any exhibition venue, without the need for deliberate attachment to walls or ceilings.





Lighting Devices

To make non-museum spaces more gallery-like, lighting devices are effective. As the ceiling spotlights commonly used at museum galleries are not usually available at non-museum spaces, we have also included commercially available LED clip lamps in the Mobile Museum Boxes' exhibition kit. These lamps can be easily clipped to the edges of the box flaps or the top of the banner stands, and require only regular electrical outlets to work.

Decorative Cloth

When we constructed the boxes and exhibits in Manila, we covered the background of the exhibits in each box as well as the exhibition tables with blue cloth, the color having been chosen to correspond with the theme of the exhibition. In Iligan, we further included extra bolts of cloth in the kit provided. Cloth was also eventually hung as curtains around the exhibition venue to produce a dramatic effect, thus transforming the lobby's usual atmosphere into one befitting an exhibit event.

Protection of Exhibits

The curtains, moreover, play an important role in protecting the exhibits. With curtains “guarding” the venue entrances, we can then keep out any wind, dust, and sunlight that might cause damage to the exhibits. Similar risks of damage were identified at the lobbies of MSU-IIT and Xavier University, and we therefore also decided to hang curtains to better protect the exhibits, all while enhancing the aesthetics of the exhibition venue. Finally, a rule of maintenance was introduced during each exhibition period, requiring all boxes to be covered over the night so as to minimize damage.

SURVEY RESULTS

Preliminary survey for university tutors

Purpose: To identify the uses of the Mobile Museum Boxes
Participants: Tutors from the Mindanao State University-Iligan Institute of Technology (MSU-IIT) and the Philippine Normal University (PNU)
Duration: MSU-IIT, June 24 – July 15, 2015; PNU, June 24 – July 23, 2015
Survey Type: Self-completed questionnaire

■ Affiliation

	MSU-IIT (N)	PNU (N)
Professor	6	0
Associate Professor	2	0
Assistant Professor	5	0
Instructor	7	2
Lecturer	1	1
No answer	4	10
Total	25	13

■ Gender

	MSU-IIT (N)	PNU (N)
Male	11	5
Female	13	8
No answer	1	0
Total	25	13

■ Age

	MSU-IIT (N)	PNU (N)
20s	10	2
30s	3	6
40s	5	2
50s	2	0
60s	1	0
No answer	4	3
Total	25	13

■ Subjects handled

MSU-IIT:
Advanced Physiology, Ornithology / Animal Biology, Comparative Anatomy and Physiology, Biodiversity / Biology / Biodiversity, Microbiology, Basic Biology, Animal Biology / Biodiversity, Philippine Wildlife, Comparative Vertebrate Anatomy and Physiology / General Ecology, Philippine Wildlife and Biodiversity / History / History / History / History / History / History / History of Russia, Modern East Asia, Contemporary Asia Issues / History of the Filipino People, The History of Filipino-Muslim and Indigenous Peoples (Ips) of Minspara, Life and Works of Rizal / Marine Biology, General Physiology / Marine Biology, Basic Biology / Marine Ecology / Methods of Research / Methods of Research, Philippine History, The History of Filipino-Muslim and Indigenous Peoples (Ips) of Minspara, Modern Japan Life and Works of Rizal / Philippine History, The History of Filipino-Muslim and Indigenous Peoples (Ips) of Minspara / Philippine History, Rizal, Graduate Courses / Philippine History, Rizal, Graduate Courses / Sociology Subjects / Sociology Subjects / Systematics, Ethnobotany / Systematics, Evolutionary Biology

PNU:
All Physics / Archeology, Philippine History, World History, Economics, Philippine Constitution, Geography and Social Sciences / Biological Science (Zoology, Botany, Natural Science) / Biology / Biology Courses, General Education Science Courses / Chemistry / Chemistry, Biochemistry / Ethics / History / Physical Sciences and Strategies in Science / Psychology / Science

Q1. Based on your experience, how do you supplement the topics being discussed in class to enhance students' learning?
MSU-IIT:
-Films; field surveys; role-plays; photo exhibits and community immersion.
-Mostly by showing pictures and videos in class.
-Through documentaries, field trips to museums and gallery exhibits.
-Research and extension activities, ocular inspections, survey mapping and interviews.
-Through pair or group work, seat works, online activities, and films.
-Taking them to a museum (Xavier University) where they can experience specific artifacts first-hand. Both visual and historical narratives are also expounded upon with data shared by museum guides.
-Related films are shown to enhance students' learning. For example, in the discussion of Mindanao problems/ conflicts in History 3, the film bagong buwan is a good film to show because the movie is based on real events, allowing students to reflect on the story and situation presented by the film.
-Reflection papers, adapt a barangay (contemporary problems), group activities, expression of nationalism, films.
-Exposing students to field work and research; use of PowerPoint presentation slides and other multi-media platforms to present botanical/zoological specimens.
-Field-sampling, conducting surveys of animals present in the museum.
-In discussions, we display visual presentations such as PowerPoint presentations, photos, video presentations so that the student can fully grasp and understand the topics discussed.
-I use videos, specimens and some photographs to explain the topics more easily to the class.
-Through visual aids, documentaries and group discussions.
-Field-work, case studies, field trips, debates, buzz sessions.
-Activities (e.g. role-playing, brain storming, oral recitation etc.) are carried out after a topic has been discussed is to evaluate and assess the students' analysis and comprehension.
-By using visual aid materials, videos etc.
-Video documentaries, research papers, field exposure, group dynamics, debates, movie reviews.
-Through field trips, films.
-Conduct group activities like "SWOT" (strengths, weaknesses, opportunities and threats) analyses of the reform and revolutionary movements. After each "SWOT" activity, students compare the data before making their conclusions. They then use PowerPoint to present their data. I also do role-plays, in particular to portray the life and works of Rizal. Finally, I also show films and require students to make videos or conduct interviews specifically with tribes in Mindanao.
-The students are given take home activities, conduct field-work or field-sampling.
-Through visual aids, field trips, or museum visits.
-By providing them with pictures of actual specimens of the animals being discussed.
-Field exposure; visits to the museum, taking advantage of the available data/books and specimens in the museum.

PNU:
-The use of visual aids is effective ways of enhancing students' understanding.
-Using other mediums of instruction.
-Field trips, science documentaries, simple lab experiments.
-Film viewings, journal reviews, field trips, lab experiments, dissections.
-Readings, other supplementary materials.
-Research, museums, primary sources.
-I always assign an alternative activity (movie-viewing, music appreciation, group work) as a supplement to the topics discussed in class.
-Group activities, field trips, laboratory activities, films.
-Field trips, community-based activities, seminars with guest speakers, research.
-I can enhance learning of the students by using visual materials in actual classroom lectures.
-Applying concepts related to everyday situations.
-By giving problem sets and special topics for research.
-Laboratory activities, field trips/field-work.

Q2. Do you have any of the following in your university/faculty?

	MSU-IIT (N)	PNU (N)
University museum	12	5
Mobile exhibit	2	3
Zoological specimens	22	12
Botanical specimens	18	12
Earth science specimens	4	8
Paintings/art materials for students	9	8
Historical displays	7	11
Others	2	2

*Multiple answers.

Q3. Have you experienced using these materials (Q2) in your class?

	MSU-IIT (N)	PNU (N)
Yes	17	12
No	8	1
Total	25	13

Q4. Are you using other object-based materials in your teaching?

	MSU-IIT (N)	PNU (N)
Yes	10	9
No	11	4
No answer	4	0
Total	25	13

Q4-a. If you answered "Yes," what materials do you use, and how do you use them?

MSU-IIT:

-I usually use visual history by teaching and discussing history through visual arts. They tend to be more effective than the traditional approach of "learning by heaving."
-Old maps; cultural mapping of significant, people, sites and movements.
-When in the laboratory, students can write down information or details about samples.
-In laboratory class, I show students specimens.
-Use pictures to describe certain events or periods in history.
-I usually use work produced by my students. For example, when I instruct them to draw an image of a pre-colonial society, I let them use it for further discussions.
-I used fresh samples of marine plants for the students to identify and classify.
-I use a globe and tarpaulin-print maps of the world and the Philippines to explain map projections, latitudinal and longitudinal lines, particularly in discussing topics like Magellan's expedition route, ancient trading routes (Northern [silk road], Central, Southern route). I also conduct photo-exhibit activities among my students about the different tribes in Mindanao and their cultural materials.
-Practical use of plants and animals by local people.

PNU:

-Molecule models for chemistry so students can visualize abstract chemistry.
-Artifacts; material culture.
-Videos, pictures, PowerPoint, journals.
-Secondary sources: pictures, paintings, journals and newspapers.
-Laboratory activities to support the lectures explaining concepts for practical examinations.
-Showing specimens to students.
-Sometimes we used models.
-Using materials that are related to the concepts e.g. toy making as applied physics.
-Visual aids for demonstrative purposes.

Q5. In what ways can museums support students' learning? Please explain, in general, your expectations.

MSU-IIT:

-Museums exhibit things that classroom discussions and textbooks fail to provide – they concretize ideas explained in classrooms and provide practical proof of the matters discussed in of the matters discussed in class. They also stir the historical imagination of students, allowing them to creatively explore history.
-Students can perhaps gain in-depth knowledge on the subject matter. Museums are one of the best ways to help students appreciate and value history.
-Museum artifacts serve as tangible objects that help "bridge" and "cement" the students' knowledge about an intangible past.
-Museums give us a more intimate knowledge about the historical personalities that had been discussed in class.
- A very informative haven of ideas where they can draw better understanding about the past.
-Museums can certainly make the learning process interesting, fun and engaging. The visual aspect of museums also help students remember what they have learned better.
-Enhancement of knowledge through visuals and artifacts displayed. Interactions between students and guides.
-Students might not be able to picture what the teacher is referring to based simply on worded descriptions. A museum can therefore be a practical aid teachers can use to further enhance their students' learning.
-Facilitate flow of thoughts, imagination and critical thinking. Other senses are aroused.
-Allows students to handle real and high quality replicas of specimens. This helps students develop observation and thinking skills, and better understand the subject matter.
-By providing students with different zoological specimens. It's easier for students to handle and study preserved specimens as compared to live specimens. Also, species encountered during field-sampling are limited, but in a museum there exists a vast collection of animals.
-Preserved material and specimens can be helpful for future references in studies, and for identifying samples that are not commonly found or seen.
-Preserved specimens help us to understand organisms that are not usually found in the locality.
-Museums can support learning by explaining topics through actual images instead of just words that may be subject to different interpretations.
-For anthropology classes, exposure to museums enhances understanding about the enthno-historical/cultural aspects of humanity and human adaptation.
-Visual arts help enhance students' imagination by showing them what they have read about in books.
-The museum can help students to visualize the organisms they learn about (e.g. through preserved or mounted specimens).
-Through the study of reference collections.
-I expect that experiential learning among students would be best met by museums where they can directly observe artifacts and other cultural material. They can make their own interpretation through their experience.
-Museums greatly support the learning of our students by providing students with the actual specimens that help them relate better with the principles of biology. Museums provide vivid examples of the different plants and animal form.
-By providing access to specimens for study purposes. Museums should also provide important information about the specimen.
-Easy access to an accurate database of collections of plants and animals and historical artifacts.
-The museum supports students learning as a reference for the students. The specimens in the museum were used as reference for studying different families and species of each group of animals. They are used as specimen for studying corals.
-Providing more information regarding a particular specimen representing a species (e.g. its feeding behavior, special physiological needs etc.) through audio and video presentations, some interactive activities, pamphlets. Promoting awareness on the environment and how to properly utilize or conserve it. Tie-up with NGO and LGU's concerned, as well as with other similar organizations/museums internationally.

PNU:

-Museums could provide materials may be used as a springboard for their discussion on different subjects.
-To provide and share primary resources; to have specialists.
-I expect museums to have a vast collection of biological specimens. Further, I wish that they can provide well-informed walk-throughs upon request. A place where experts/scientists and preserved organisms converge under one roof.
-Museums help students understand & appreciate history, develop their critical thinking skills, and appreciate God's wonders through reason & enlightenment, liberating students from ignorance by giving informative lectures.
-Museums present facts and offer information for learning.
-Museums hold vast primary and secondary source material. Museums should be interactive.
-Museums imbibe an appreciation of space and aesthetic experience.
-Specimens must be accessible to all students; hard-to-find specimens (to be observe/seen by students); expect explanation and additional information to accompany the specimen/exhibit.
-Provide preserved/actual live specimens to help students visualize the objects/organisms as they actually occur in nature.
-Museums can enhance learning as their collections of materials help students escape the confines of classroom lectures or pictures or diagrams in books.
-Museums can "concretize" the concepts/facts being discussed in the class.
-It enhances learning by demonstrating the cultural significance of objects, or the application of scientific concepts. I expect museums to offer creative presentations of varied and diverse topics.

Q6. Realistically speaking, do you think a mobile museum box could support your students' learning? Please answer honestly.

	MSU-IIT (N)	PNU (N)
Yes	24	11
No	0	2
No answer	1	0
Total	25	13

Q6-a. If you answered "Yes," what kind of materials would you like to see in the mobile museum box?

MSU-IIT:

-Materials that are related to the topics discussed in class so as to couple the theory with actual examples exhibited in a museum.
-Historical artifacts and documents - more on Muslim or even Spanish material.
-Material related to Philippine history, Mindanao and its people, Rizal.
-Samurai warriors' armor, Katana Sword (including those used by manobo warriors as well), Japanese art-paintings, demonstrations of and lectures on Ikebana Chanoyu-tea ceremony.
-Aside from photos, real artifacts or replicas could be interesting.
-Artifacts, manuscripts, old photos.
-In line with my discipline, I would really like to see historical displays in the mobile museum box so that students can see objects/images rather than just wordy descriptions.
-Replicas of material culture, pictures, photos of the actual material.
-Specimens necessary for research and instruction.
-Animals' species that are not present at the MSU-IIT museum. Preferably those that are more exotic.
-Photographs of multiple zoological and botanical specimens with details/specific descriptions.
-Photographs of other botanical/zoological specimens.
-Pictures/photographs of significant events in history, historical relics and relevant objects that have historical significance.
-If the museum artifacts are related to the subjects I teach. If possible, ethnic pieces/artifacts.
-Historical paintings, artifacts.
-The specimens relevant to zoology, biology, marine biology and botany courses.
-Philippine cultural material like tribal farm tools, dresses, musical instruments, weapons etc.
-All materials necessarily found at a museum, like historical displays and biological specimens.
-Preserved specimens of marine plants and animals, especially endangered organisms.
-Specimens found in the locality and an explanation of their uniqueness and usefulness to the community and society.
-Easy transport of specimens so students can have easy access.
-Books, specimen samples, audio-visual tools, guides/pamphlets, interactive materials (games that will enhance learning, especially for primary school students).

PNU:

-Materials should be used to support discussion.
-Sand of Archaeology.
-Hard-to-find specimens/extinct specimens or their replicas.
-Rare species, undocumented historical scientific events.
-Interactive exhibits.
-Updated/hard-to-find specimens, information about the specimens, additional activities that can be done by students.
-More earth science materials, rare plant/organism samples.
-A mobile museums box that can be easily brought to school or class enhances the learning of students by giving them easier access.
-Interactive material that demonstrate physics concepts, e.g. a bicycle-driver power generator, the van de groaf generator or other such objects that can be found in Mind Museum (Taguig).
-Concepts/historical specimens with posters/explanations (science, ethnology).

Q6-b. If you answered "No," why do you think so? Please tell us your honest opinion.

PNU:

-Limited access.
-Very limited, it depends on the theme.

Post-exhibition survey for tutors

Purpose: To evaluate the exhibition
Participants: Tutors from the Mindanao State University-Iligan Institute of Technology (MSU-IIT), Xavier University (XU) and high schools in Iligan
Duration: MSU-IIT, January 18–29, 2016; XU, February 2–13, 2016
Survey Type: Self-completed questionnaire

■ Gender

	MSU-IIT (N)	XU (N)	High schools (N)
Male	5	5	3
Female	2	6	8
No answer	3	0	0
Total	10	11	11

■ Age

	MSU-IIT (N)	XU (N)	High schools (N)
20s	0	3	1
30s	3	1	2
40s	2	2	0
50s	0	4	3
60s	0	0	1
No answer	5	1	4
Total	10	11	11

■ Subjects handled

MSU-IIT:

Psychology / Science / Biology / Biology / Physics / Computer related

XU:

General Biology, Natural Science, Ocean / Sociology / Economics / Planktonology, Phycology / Developmental Biology, Histology / Biochemistry, Inorganic Chemistry / Entomology, Physiology / Biology

High schools in Iligan:

Science / Science, Chemistry / Science / Science / Science / Science / Science / Science / Science, English / Science, English / Mathematics, English

Q1. Which box did you personally find most interesting? Please select one Mobile Museum Box and state the reason.

	MSU-IIT (N)	XU (N)	High schools (N)
Rafflesia (large flower)	5	1	5
Pitcher plant	3	4	4
Crocodile head	1	0	1
Bird legs and wings	2	0	1
Birds (full bodies)	1	1	0
Lake Lanao fishes	2	0	2
Shell	5	0	0
Lithological map of Mindanao	3	5	0
Mount Apo volcano	1	0	0
Rock specimens	1	0	3
None	0	0	0
No answer	1	0	0

* Some participants in the survey in Iligan (MSU-IIT and high schools) gave multiple answers.

Q1-a. Reasons

MSU-IIT:

-To supplement my teaching.
-Useful in teaching landmasses. [Lithological map of Mindanao]
-Part of the lesson on biodiversity
-It was my first time seeing and touching the Rafflesia and pitcher plant.
-This specimen is quite difficult to collect.
-This is a good place for students in Mindanao to orient themselves with the different species of birds, fish and shells present or found in Mindanao.
-Rare, interesting, and I have read many articles about it.

XU:

-First time seeing it. [Lithologic map of Mindanao]
-Nicely packaged and shows much content with a single view. [Lithological map of Mindanao]
-They are unusual. [Rafflesia]
-The lithological map looks laboriously produced, and it was my first time seeing it of Mindanao.
-Birds are colorful. Different beaks were required depending on the type of bird and their habitat.
-These are very rare organisms, even in the Philippines. [Pitcher plant]
-Very well preserved. [Pitcher plant]
-Personally enjoyed the lithological map of Mindanao because it was uniquely engineered and crafted.
-It showed us the rich abundance of rock formations in Mindanao. [Lithological map of Mindanao]

High schools in Iligan:

-First time seeing the Rafflesia and pitcher plant.
-First time seeing it. [Rafflesia]
-They're not common to me.
-Curious to see it personally. [Rafflesia and Pitcher plant]
-First time finding out about the diversity of fish varieties in lake Lanao.
-Because it looks interesting. [Picher plant]
-Rare. [Rock specimens]
-It made me wonder which legs and wings belong to which birds. [Bird legs and wings]
-I find the rock specimens box the most interesting. It makes me wonder how these rock formations arose in the different lands of Mindanao.

Q2. Would you consider using any of the boxes to supplement your teaching?

	MSU-IIT (N)	XU (N)	High schools (N)
Yes	9	6	9
No	0	5	2
No answer	1	0	0
Total	10	11	11

Q2-a. If you answered "Yes" to Q2, please specify the box(es) that you would consider using to supplement your teaching. You can choose multiple boxes.

	MSU-IIT (N)	XU (N)	High schools (N)
Rafflesia (large flower)	5	2	4
Pitcher plant	4	3	4
Crocodile head	2	2	1
Bird legs and wings	2	2	2
Birds (full bodies)	2	3	0
Lake Lanao fishes	5	2	1
Shell	5	2	1
Lithological map of Mindanao	3	2	2
Mount Apo volcano	3	0	2
Rock specimens	5	1	3

*Multiple answers.

Q3. If a new Mobile Museum Box is to be created, what type of material would you like to see in it?

MSU-IIT:

I want to see arthropods / Butterflies / Philippine endangered species /A broader presentation of Philippine flora and fauna / Often reptile representation / More flora and fauna

XU:

Considering that we are in a coastal area (and the Philippines is an archipelago), materials on estuarine/marine environments should make it more interesting / Rare species of flora and fauna / Miniaturized models of animals and faces / Models about certain processes in nature put in a box / The actual specimen and not just the replicas / Endemic species for each major islands or small islands in the Philippines / Must include their distribution in the Philippines / Fossils / Insects / Fossils of extinct species / An object that is made of raw materials that has the touch of Mindanao / More endemic species

High schools in Iligan:

Types of rocks and gemstones / Human skeletons

Q4. How often do you visit museums in general?

	MSU-IIT (N)	XU (N)	High schools (N)
Almost never	2	1	0
Once in a few years	2	7	1
About once a year	2	2	1
A few times a year or more	1	1	1
No answer	3	0	8
Total	10	11	11

Q5. If you have any suggestions for improvement for the Mobile Museum Boxes, please state them.

MSU-IIT:

-You should add more displays.
-Add more species.
-Add more species for display.
-Additional information.
-Make this mobile museum boxes a good supplement for teaching in elementary and high school students.

XU:

-More items should be added.
-1) It should be comprehensively categorized into different sets or groups, ex. one set for endemic birds, endemic reptiles or mammals, endemic plants. 2) Other newly introduced species.
-It was already perfectly done and presented. Thank you.
-A glass panel over the specimen to prevent touching.
-An air-conditioned area.

High schools in Iligan:

-More specimens.
-Human skeletons with proper labeling.

Post-exhibition survey for students

Purpose: To evaluate the exhibition
Participants: Student visitors of the exhibition at Mindanao State University-Iligan Institute of Technology (MSU-IIT) and Xavier University (XU)
Duration: MSU-IIT, January 18–29, 2016; XU, February 2–13, 2016
Survey Type: Self-completed questionnaire

■ Name of universities/schools

University (N)	
XU	178
MSU-IIT	143
Iligan Medical Center College	3
Total	324
High school (N)	
MSU-IIT Integrated Developmental School	83
Iligan City East National High School	74
Cagayan de Oro National High School	35
Iligan City National High School	29
Iligan Medical Center College	4
Cugman National High School	2
Total	227

■ Year/grade

University (N)	
1st year	136
2nd year	93
3rd year	61
4th year	25
5th year	1
Master course	4
No answer	4
Total	324
High school (N)	
Grade 7	49
Grade 8	142
Grade 9	34
Grade 10	2
Total	227

■ Courses of university students

AB English / AB International Studies / AB Philosophy / ABAC / BEED / BEED English / BEED Science and Health / BS Accountancy / BS Agriculture / BS Agricultural Engineering / BS Biology / BS Biology (Botany) / BS Biology (General) / BS Biology (Marine) / BS Biology (Zoology) / BS Business Administration / BS CE / BS Chemistry / BS Chemical Engineering / BS Civil Engineering / BS ECE / BS EM / BS Environmental Engineering Technology / BS Food Technology / BS IS / BS IT / BS Mathematics / BS Metallurgical Engineering / BS Nursing / BS Physics / BS Psychology / BS Social Work / BS Statistics / BS Tourism / BSA / BSAC / BSAE / BSBA / BSBA Finance / BSc MS / BSE Chemistry / BSECE / BSED / BSED Chemistry / BSED MAPEH / BSED Biology / BSED English / BSMB / BSTTE DT / General Education / Medical / MS Computer Application / MS ET / MS Physics

■ Gender

	University (N)	High school (N)
Male	140	104
Female	182	123
No answer	2	0
Total	324	227

■ Age

	University (N)	High school (N)
12	-	1
13	-	29
14	-	101
15	-	40
16	25	30
17	86	22
18	104	3
19	60	-
20	19	-
21	19	-
22	4	-
Over 23 (20s)	7	-
No answer	0	1
Total	324	227

Q1. What do you think of the boxes? Please choose as many answers as you like from the options below.

	University (N)	High school (N)
Help our study in class	86	107
Do not help our study in class	64	37
Inspire our curiosity in general	200	118
Do not inspire our curiosity in general	22	11
Other	2	3

*Multiple answers.

Q1-a. If you answered "Help our study in class" to Q1, please specify the box that you think can help your study in class most. Please also state the reason for your choice.

	University (N)	High school (N)
Rafflesia (large flower)	31	64
Pitcher plant	35	57
Crocodile head	20	45
Bird legs and wings	23	45
Birds (full bodies)	27	54
Lake Lanao fishes	19	46
Shell	23	50
Lithological map of Mindanao	24	46
Mount Apo volcano	16	39
Rock specimens	21	46
None	4	10

*Multiple answers.

Q1-a. Reasons

University students:
-It gave me information about something I didn't know.
-It helps if we are interested in particular places in Mindanao.
-Plant morphology subject.
-That was in our lesson for Natural Science and Biology.
-I'm taking up Natural Science 1.1 this semester. I know that the Philippines, especially Mindanao, has an abundance of rock specimens.
-Helps me understand my Natural Science course.
-Because we are learning about plant morphology and anatomy.
-I am a bio major.
-It gave me additional information about something I didn't know.
-I gained knowledge about biology.
-Natural Science 2 (Biology).
-I finally saw a real samples of different rocks like basalt.
-Some of the shells are poisonous.
-I can now seen in person the animals I learned about in class.
-That was our lesson in Natural Science and Biology.
-Plant morphology subject.
-Because I am a BS Biology student major in Botany.
-Because it gives us information about the topic.
-Because I am a Botany major and the information made me more curious about the plants.
-Because we are biology students and we can/may encounter those kinds of species during our study .
-They are most useful for what I study in class. The study of plants really suits my course. It helps me to know more about plants.
-All of them are helpful in classes as a biology student but the boxes I chose are the ones that I am more interested in. [Lake Lanao fishes, Shell and Lithlogical map of Mindanao]
-These boxes don't directly help me in my studies for class but they somehow help me rationalize the significance of my subjects.
-Because I'm currently raking up ornithology.

-As a zoology major, boxes pertaining to animals would help me the most.
-I am a zoology major. These boxes help in our study of different wildlife.
-I am taking up ornithology this semester.
-It can help us identify birds if we encounter them during field sampling.
-We will be studying about the anatomy of animals, including birds.
-To learn more about them.
-It can add to my knowledge about birds.
-Because I'm curious and I think it would be amazing. More information on the crocodile would be nice.
-Because these two really help in the subjects we major in. [Mount Apo volcano and Rock specimens]
-Because this is part of our studies in general.
-Related to our studies.
-I liked the specimens of the fishes and rocks.
-To enhance our knowledge to the natural resources.
-Because I have an Industrial Micro Bio Class.

High school students:
-Because it can tell us what types of minerals are found in Mindanao.
-All the boxes helped us learn more about the field of science.
-It gave me the idea that the Rafflesia is the biggest flower in the world. The crocodile's head made me realize that it cannot turn its body from side to side.
-To know the different animals in Mindanao.
-Helped us understand the characteristics of the Rafflesia, a crocodile and shells.
-Because as a student you must learn biology.
-Because I have learned where did these specimens come from.
-It's nice to acquire more knowledge.
-It helps in our studies.
-Gives information.
-Gives knowledge about our studies in biology class.
-Because it is part of our lesson and it tells me that there is diversity here in Mindanao.
-In the future (college) I will take up Animal and Crop Science, so the exhibit was helpful to me.
-I shaded six boxes because I think they are helpful, especially the letter H [Lithological Map of Mindanao] since we should know what places will be affected in an earthquake.
-It gives me an idea of what things there are in a museum.
-I was really fascinated by the new things I've learned, especially about the pitcher plants.
-Helps us in our science class.
-All the boxes helped me in my studies, especially in science as it showed me what I have learned from books in person.
-All the boxes helped me learn a lot.
-I have learned much about how things work and where are they located. This knowledge can be used when I move up a grade.
-These may help me in the future.
-Lets me know where the faults are in Mindanao.
-Currently our lessons are about phylum, kingdom, class and species.
-It helps us in our quiz. It also helps us learn about things around us.
-It makes us learn more about our place.
-It could help in class if we had an identification quiz. I could identify whether it is a plant or an animal.
-Because it gives us an idea about the things that are included in the topics of our class discussion.
-It helps us identify the type of land we step on.
-To know the body structures of the birds.
-It is interesting.
-As a child, I had many questions about shells.
-Because we have lessons about rocks.
-It helps us in our subjects and is also related to our lesson.
-This helps in our study of biology.
-It shows us what they look like.
-To know more.
-I find maps and animal bones pretty.
-It is related to our lesson.
-Because it gave me knowledge about birds.
-It helps us choose our career path in the future.
-Because there were many shells that we didn't know about before.
-Because I like seeing the different kinds of birds.
-Gives information on what salt-water crocodiles look like.
-It taught me ideas I did not know about.
-It helps us in our lessons.
-It helps us in our lessons and taught me the scientific names of the Rafflesia and pitcher plant.
-It is a part of our lesson.
-I learned new things, for example, about the fishes in lake Lanao.
-It helps expand my knowledge on plants and animals.
-It helped in boosting my curiosity.
-It helps us in our lessons.
-It helps in my lesson.
-Helps us in our studies, helps us discover things.
-Help us in studying.
-Biology Studies.
-We are required to study the genes of the fishes.
-They are part of our discussion.
-Required.
-It helps us in our studies of biology to be able to identify which kingdom the different plants and animal belong to, as well as to learn about anatomy.
-Because that's our lesson in class.
-Because it fits our subject which is biology.
-Because it help us gain more knowledge about.
-Because it helps in our studies.
-We gain more knowledge about them.
-They really do exist.
-For our class.
-We learn about these facts.
-Can help in studying.
-It's quite amazing.
-For our class.

Q1-b. If you answered "Inspire our curiosity in general" to Q1, please specify the box that you think inspire your curiosity most. Please also state the reason for your choice.

	University (N)	High school (N)
Rafflesia (large flower)	99	60
Pitcher plant	80	49
Crocodile head	53	51
Bird legs and wings	71	42
Birds (full bodies)	76	51
Lake Lanao fishes	56	42
Shell	62	43
Lithological map of Mindanao	56	45
Mount Apo volcano	43	39
Rock specimens	58	47
None	6	13

*Multiple answers.

Q1-b. Reasons

University students:

-I am just curious about what each organism is made of.
-It just fascinates me how million years of evolution ends up as this plant that smells like a corpse.
-Because of their appearance.
-To know the nature of the land formation that has occurred.
-Curious of how these things look like in person.
-Inspired me and gave me knowledge.
-It widens one's knowledge.
-It enhances the knowledge of the student.
-The structures amaze me and inspire me to discover more.
-It is very enticing.
-It's unique.
-These things inspired my curiosity mostly because I never knew there were beautiful things here in Mindanao.
-I was interested in learning about the crocodile. I had already known that the biggest crocodile was found in the Philippines, so I most specifically wanted to learn about their size.
-Because it tells the form and function of birds.
-Because the Rafflesia is a unique flower.
-I was amazed by how the volcano changed through time.
-The birds are quite fascinating.
-It amazed me to know about the different specimens that can be found in Mindanao.
-These topics always make me curious.
-Interesting.
-They are so rare and they are not just replicas.
-The Rafflesia is the largest flower in the Philippines.
-Lithological map – very unique.
-I had never seen one before.
-Because I haven't seen any of it in person. It gives me proof that it exists.
-It helped me learn more about the island of Mindanao.
-For food and source of living.
-Botany and zoology.
-Different colors of rocks.
-Because I'm interested in oceanic species found.
-Because I've learned new things about them.
-It amazed me.
-Specimens. We don't usually encounter them so they were interesting.
-Because everything about nature makes me curious, especially those organisms that we don't usually see.
-Not familiar with birds.
-To acquire more knowledge about Mindanao.
-Rare.
-Shows the diversity of flora and fauna here in Mindanao.
-It is interesting.
-It enhances the knowledge of the students.
-The boxes inspired me to acquire knowledge on the natural history of Mindanao.
-To know the nature of the deformation that has occurred.
-It just fascinates me how million years of evolution ends up as a plant that smells like a corpse. I'm wondering what the other undiscovered plants are.
-It fascinates me.
-I am into plants and exotic birds.
-Yes, it inspired me because Mindanao is where I came from.
-Interesting.
-Because they are amazing.
-Mobile Museum Boxes showed me information I had not known before.
-It showed me that Mount Apo is a unique mountain that would be interesting to research and visit.
-It gives us new knowledge, for instance, about the pitcher plant. I learned that if this plant is present in one area, that means that the soil where it resides is not fertile.
-I haven't seen one.
-The lithological map is very unique.
-Amazing.
-It is interesting and I never thought Mindanao had so much beautiful resources.
-It fulfilled my curiosity and now I can share the knowledge that I gained to my friends.
-Because they are rare and not just replicas.
-Interesting.
-These topics always make me curious.
-It amazed me knowing the different specimen found in Mindanao.
-I was amazed by how the volcano changed through time.
-I was interested in learning about the crocodile. I had already known that the biggest crocodile was found in the Philippines, so I most specifically wanted to learn about the sizes. I was also interested in the lithological map of Mindanao, as well as in the types of birds and how to preserve them.
-Because it tells us about the form and function of birds.
-Because the Rafflesia is a unique flower.
-It's quite fascinating how birds have different feather patterns. Also, it inspires me to make art.
-Because I never knew it existed in Mindanao.
-The specimens were very interesting and amazing.
-I have heard of the Rafflesia before when I was a kid and though it was just a miniature replica, seeing it in real life made me happy. The same goes for the pitcher plant. Looking at different types of shells is also fascinating.
-It really helped me on appreciate the plants and animals which can only be found in my homeland.
-It amazes me a lot. And also, they prove that God is an intelligent designer of the world.
-It really inspires me and gives me knowledge.
-Rare.
-I love seeing it.
-It gives me more information.
-It's my first time seeing some of them.
-Because they're all interesting and amazing.
-They look amazing.
-Though I'm studying Civil Engineering, I am enthused by the plants and animals of the exhibit. They are rare and I am thankful for the opportunity to see and learn about them.
-I want to know how they are found.
-It's nice to know that rocks vary in one continent.
-Because I want to know more about the things I've checked.
-I want to see a real Rafflesia.
-I want to know how large the largest flower is. I also want to know how it looks like up close.
-I choose them because I am a curious person and they are really nice and new to me.
-I'm curious how shells are made.
-I find it amazing.
-New information is always welcome.
-The varying weights of the specimens are obvious from the display. It is interesting to see the different compositions of rocks and correlate it with their weights.
-They all caught my attention as a biology student majoring in zoology.
-Fascination.
-Because I used to collect shells.
-Because they are real.
-The specimens are very tangible representations of all the things I've learned on paper.
-I really like looking at rocks that shine.
-Because we study more about geologic features in the field.
-Rock specimens are closely related to the field I envision myself to be in the future.

-It gave me an overview of the geologic history of Mindanao.
-We had discussed different types of rock in our GS III subject.
-Related to my studies.
-Because it inspires my curiosity about those rare flowers that are often seen to be special here in Mindanao. The rock specimens are also interesting.
-It inspires our curiosity in general because we are able to see the pitcher plant.
-It inspires our curiosity in general because we are able to see the Rafflesia in person. I actually just saw it on TV yesterday and it made me curious, but now I've managed to see it.
-Because there are many of rocks we don't know about that can be found in Mindanao.
-Because some of these birds are not often seen in the city while the others are rare.
-It inspires me to study more about biology.
-It's awesome.
-I really admire them.
-I thought pitcher plants only exist outside the Philippines but now I know that they also exist here in Mindanao's forests.
-To know about curiosity in general.
-We should take care of our natural resources to help protect them and secure our future.
-Knowing the local names of specimens.
-It's my first time seeing it in person and I want to learn more about it because of its unique shape.
-The Rafflesia is attractive, and the shells are very cute and colorful.
-It inspires my curiosity mostly as I love discovering new things.
-I love plants.
-It helps me to be more knowledgeable about the earth.
-I love them.
-We haven't seen this organism before.
-We discovered many new things through the new mobile museum boxes.
-It inspired my curiosity because I've never been there and to read something about it somehow gives me information.
-I'm curious about how the bodies are preserved.
-They're very unique.
-Because it is the biggest flower.
-Because I've always loved animals and their behaviors.
-God's creations really inspire my curiosity.
-I'm curious about them.
-I want to discover something about them.

High school students:
-I discovered that there are many things that exist.
-It inspired me to study harder and to take good care of all the species that we have here in the Philippines.
-Because it gives me idea what kind of habitats they live in.
-Because our teacher told us that when we reach college, we have to memorize the types of shells.
-To know their location and identify their class.
-Because I rarely see them.
-Because these things help me to expand my knowledge.
-Because they are endangered.
-Because it helps me in my study of biology.
-Because I didn't know that birds can be preserved.
-I was curious about the exhibits because they are endangered and well-known in our place.
-Because it is fun to know more about what's inside these boxes.
-To be more knowledgeable.
-The replica made me curious and then they told me what it was and then I was fascinated.
-Stirs my curiosity.
-Because I learned new lessons.
-Because it was so cool. I just learned that there's a plant that is carnivorous.
-XU's staff's explanation gave me new knowledge and satisfied my curiosity.
-Informative.
-It stimulated my curiosity.
-It piqued my curiosity.
-Because it helped me learn about the kind of rocks found in certain parts of Mindanao.
-All the boxes helped and inspired me in my studies, and my curiosity was answered by the boxes. My science grades would probably increase because of the knowledge I acquired.
-You don't see exhibits of Mt. Apo in museums that often.
-Because I want to learn more about it.
-There are many rock formations in our country.
-It is interesting.
-I was amazed.
-Because it is my first time seeing those animals.
-Because I love fish.
-It is beautiful.
-I find maps pretty and animal bones.
-They are really good.
-Nice flower.
-It is related to our lesson and I'm really interested in it.
-They are beautiful.
-They gave me more information and piqued my curiosity.
-Because it's my first time seeing it.
-I'm curious about the plants and animals found in Mindanao.
-Stimulates my curiosity.
-I became curious about these animals and plants.
-It gives me more knowledge about birds.
-I'm curious about birds and I want to see them close up.
-I like birds.
-I want to learn more about them.
-It inspires my curiosity these things are rare and I'm really interested in them.
-Nice.
-Biggest flower species.
-Because I'm willing to learn more.
-Because I want to know a lot about rocks specimens.
-Never saw them up-close.
-Discovering new things about animals/plants and anatomy.
-Because it helps us to learn more about things we are curious about.
-Because these things are somehow new to me.
-I like studying anatomy.
-I love plants.
-Because I'm really curious to see all the non-living things.
-I am interested to know all the part of Mindanao.
-It's real.
-Inspires our curiosity in general.
-The lithological map of Mindanao inspired me because it showed me where each place is in Mindanao.

Q2. If a new Mobile Museum Box is to be created, what type of material would you like to see in it?

University students:
Reptiles / Marine species / More on plants / More about plants / Pre-historic animals / Soil / Probably more on marine life / More invertebrates / Plants / Other exotic or poisonous animals like frogs, snakes, amphibians and more / Unfamiliar samples of plants and animals / Dinosaur / Fossils / Insects that we often see in the city / real Rafflesia, head of Lolong / Marine animals / Human body / Sea creatures / More of exotic plants / More on plants, different species of plants / Insects and arachnids / Endangered plants and animals / Meteorites / Rare animals / Asteroids and similar things / Different sea creatures / More flowers / More specimens that are only found in Mindanao and also things that are not commonly seen by people / Any rare or exotic animals / Preserved living

things / Different types of rock specimen / Invertebrates / Internal organs of animals / Preserved hamster / Beetles / Endemic creatures in the Philippines / Caveman skeleton / Gems / Can be a leaf of the trees / Soil / Preserved extinct animals / Snake and lions / Anything about space / Dinosaurs /More plants / Historical artifacts / Dinosaurs, snake / Ape / Whales, snake, giant, and octopus / Gems / Butterflies / Fishes / Snakes, insect, gemstone / Precious rocks / Human organs / Astronomy- related material / Fishes / Mushrooms / More real animals and plants / Mt. Apo is kind of big / Human anatomy / Fossils of dinosaurs and rare animals / More on carnivorous animals and insects / Animals that live on deserted islands / Farm animals / New minerals, flowers and shells / More fossils of endemic flora and fauna / Reptiles and insects / Cadavers / Insects and arachnids / More kinds of plants / Exotic plants / Marine specimens / Snakes / Turtles and other marine animals / Real Rafflesia, head of Lolong (the largest saltwater crocodile in the world) / Insects / Dinosaur fossil / Rare animals and plants / Poisonous plants / More kinds of plants / More invertebrates and arachnids / More marine species / Trees and its composition and uniqueness from other organisms / Pre-historic animals / More plants / Marine specimens / Reptiles / In glass / Snake / Rare kinds of fishes / Dinosaur / Snakes / History / An artificial bones of an ancient being that can be found in Mindanao, for example, human being / Gems / Trees / Cave man skeleton / Endemic creature in the Philippines / More aquatic animals like sharks, jellyfish / Human anatomy / Dinosaur / Beetles / Real Rafflesia flower / I want to see real specimens because replicas don't satisfy my curiosity / Preserved turtles and hamsters / Internal organs of animals / Invertebrates / Different type of rocks / Any rare or exotic things or animals / More endemic species found in Mindanao / Asteroid and similar stuff / Meteorites / Rare animals and insects / More flowers / Different marine specimen / Organisms under the sea / Fossils of ancient organisms / Mummified remains of ancient Filipino natives / I like looking at shells and flowers, so that would be the things I'd like to see / A replica of the customs of the Lumad people / I'd like to see rare specimens found in seawater / Species that are found in the deepest corner of the sea / Types of worms found in the human body / Original text of the Bible, not yet translated / Amphibians and reptiles especially snake / Nocturnal animals like bats and owls / Real Rafflesia and other animals / I would like to see remains of specimens that are already instinct or endangered species / A skeleton flower if there is one and all unique-looking plants / Types of amphibians, and other marine species that cannot be seen always, ex. anatomy of angler fish / Types of marine species that are seldom to be seen / Classes of starfishes / Animal that belong to the group Mammalia, including anatomies of different species, especially humans / I would love to see material depicting ethnic tribe culture, e.g. their clothing, colors, pattern, instruments, music, weapons, and basically everything about Mindanao Muslim and Lumad culture / More plants and animals (those which are not artificial) / I want the artificial specimens to have movements / Real exotic flowers, exotic animals and historical things / Real Rafflesia / Human fetus / Electronic machineries / Different kinds of stones / Fossil remains of domestic animals / More specimens of flowers, reptiles and mammals / A reptile box would be nice / Flowers and mammals / Bats / Other endangered species in Mindanao / Venus fly trap or other plant specimen / A mobile museum box about stars or planets / Anatomy of human body / Real Rafflesia, samples on precious metals / Sample of mountain stratography / Form rock specimen (I think ore samples would also be great) / Ore samples collected from various parts of the country / All types of rocks / Diverse specimen / Parts of the body, especially heart / Parasites, arachnids / More about exotic plants in the Philippines / Reptiles, more animals, flowers etc. / Bones of dinosaur / Human skeleton / Mammoth / Giant squad / Visual 3D's / Endemic species found in the Philippines / Tiger bones / Human skull / Different types of flowers / I would like to see different types of mammals being presented / Dinosaur tooth / I want to see more and more, like rare plants / I want to see anything that is not too common to everyone and their unique characteristics / I would like to see different kinds of bonsai / Unusual specimen / Gold, and other minerals / More marine specimen / Something exotic / Planets and its moon / Unique beautiful flowers / Snakes / I would like to see varieties of animal fossils / Historic remains of stories of the past so that people will not only look at the objects displayed but also read about it / Anything about dinosaurs, Neanderthals, the stone age / Historical artifacts / Snakes / Lots of marine animals / skull of a Neanderthal / Kangaroo / Insects / Whale / Shark / Monarch butterfly / Rare minerals / Another species of them / Microorganism / Wild orchids / I'd like to see some skeleton of rare animals / Python / Tiger / Bones of human / Dinosaurs / More plants / Plants / Bones of hippo / Dolphin bones / T-rex / Dinosaurs

High school students:
Amphibians and reptiles / Dinosaur / Preserved sharks / Dinosaurs / Preserved endangered animals and plants / Different kinds of animals / Rare butterflies / Uncommon plants, insects and animals / Preserved endangered species / Different kinds of plants, flowers and animals that are endemic in Mindanao / Different kinds of crocodile bone, amphibians, reptiles and mammals / Historical creatures in Cagayan de Oro City / Different kinds of exotic animals and plants / Bones of human ancestors / Types of minerals, artifacts and ancestral bones of humans here in Mindanao / Dinosaur bones / Dinosaur bones and its physiology / Dinosaur and human bones / Sharks / Dinosaur / Dinosaur bones / Newly discovered and endangered specimens / Ancient artifacts / Butterflies / Dinosaur bones if possible / Replica of a dinosaur / I would like to see rare, peculiar and different things that would amaze me because I think it would be better if you surprise others with what you have in your mobile museum box / Anything that can help us specially animals / Rare things like rattlesnakes / Heads of the cat family / Types of poisonous or deadly plants / Types of unknown species or rare species / Kinds of plants or flowers / Technological stuff / Rare or extinct animals and plants / Different breed of dogs / More uncommon animals / Dinosaur / Mermaid / Human bones / Rocks from other planet / Human skull / Snakes / I would like to see snakes / Another types of species in Mindanao / Extinct animal replicas / Fossils / Spiders and snakes / Plants / Snake and lion head / Snake / Creatures that look like they're from a myth or a legend / Snake / Types of crab / More flowers / Different kinds of plants / Rare plants, animals and other minerals / Bats / Preserved famous snake / I would like to see the bones of human / I want to see a panda / Dinosaurs / Jellyfish / Jellyfish / Dinosaurs / Rare plants, and extinct animals / Rare animals / Dinosaurs / Wild animals, rare plants, dinosaurs / Saber-toothed tiger / Rare plants and animals / Venus fly trap / Diamond / Stars / Dinosaurs / Eggs from different birds, reptiles, and amphibians / Human body (full) / Human body / More variety of uncommon species, or possible a live specimen / Human body / Rocks from other planet / Extinct species / Pandas, because they're so cute / A live animal / I would like to see a panda / Snakes, because I want to discover more about them / Some bones or remains of the other animals and plankton / Plankton and any rare animals or extinct / Wild animals, rare plants, and real Rafflesia / Real Rafflesia and fishes, and rare plants / Wild animals, Rafflesia and rare plants / Dinosaurs fossils / The rare one especially plants and animals / Anything that can be preserved / Jaguar / Real Rafflesia / Rare plants / Aquatic animals / Shark skeleton / Dinosaur teeth / Dinosaurs or rocks from other planets / Wild animals / Penguin / Shells / I would like to see more of the structure of human and animal bones / Human parts / Skeleton of an elephant / Skeleton of snakes / I'd like to see some skeletons of rare animals / Bleeding heart bird / Endemic in our country / Fishes / Snakes / Artifacts from ancient civilization / Different kinds of animals, for example, snakes, birds, and many more / I would like to see different types of gems / Bones of the dinosaur / Different kinds of snakes, stones and gems / Pre-historic machines and guns / Dinosaur bones / Ancient artifacts, real human bones / Baby sharks / The map of Mindanao, the birds, and the crocodile head / If it would be interesting if there would be more plant fossils / Insects / Different kinds of butterfly / Ancient artifacts / Different kinds of insects, arthropods / Kinds of butterfly / Kinds of snakes / Octopus / More mammals, reptiles, protist, and bacteria / Some fossils of great animals that lived about a million years ago / I want to see some animals that is moving and some landforms that are moving like volcanoes erupting / I would like to see some rare specimens in Mindanao / Human body & parts / I would like to see human bodies and animal brain / Venomous plants / I want to see a lion from another country / I want to see a wolf head, penguin and also an electric eel / I would like to see more plant exhibits / Human body / Whale / More plants / I would like to see endangered species / Fishes / Endangered species / Human brain / Body organs / Big snakes / I would like to see the bones of a frog / I want to see an electric eel / I want to see the electric eel and wolf's head / Starfish / Real human bones / Minerals found in Mindanao / Different kinds of animals, for example, snakes, birds, and many more / I would like to see different types of gems / Bones of the dinosaurs / Different kinds of snakes, stones and gems / Prehistoric machines and guns / Dinosaur bones

Q3. How often do you visit museums in general?

	University (N)	High school (N)
Almost never	73	55
Once in a few years	78	69
About once a year	55	38
A few times a year or more	112	57
No answer	6	8
Total	324	227

ASSOCIATE MUSEUMS AND BASIC LITERATURE

National Museum of the Philippines

Luisito T. Evangelista

The National Museum, a Trust of the Government, is an educational, scientific and cultural institution mandated to preserve various permanent national collections featuring the ethnographic, anthropological, archaeological and visual artistry representative of the unique cultural heritage of the Filipino people and the natural history of the Philippines.

The National Museum manages and develops the national reference collections in the areas of cultural heritage (fine arts, anthropology and archaeology) and natural history (botany, zoology, geology, and paleontology), and carries out permanent research programs in biodiversity, geological history, human origins, pre-historical and historical archaeology, maritime and underwater cultural heritage, ethnology, art history, as well as moveable and immoveable cultural properties. The findings of these scientific and technical knowledge are spread in more understandable and practical forms through lectures, exhibitions and publications for the general public.

The museum's role in cultural preservation and promotion was recognized as a contribution to the government's desire for national development. It was revitalized in 1966 when President Ferdinand Marcos signed the Republic Act No. 4846, or the Cultural Properties and Protection Act. The law designated the museum as the lead agency in the protection and preservation of the nation's cultural properties through the census, study, and declaration of such properties and the monitoring and regulation of archaeological exploration, excavation, or diggings in historical or archaeological sites. It was further strengthened by the National Cultural Heritage Act of 2009 (Republic Act No. 10066). With its new powers, it was able to strengthen its cultural mandate by declaring properties, structures, and sites of historical and cultural value to the nation.

It is commissioned to establish, manage and develop museums as well as regional museums in key locations around the country. The National Museum Complex in Manila comprises of the following, namely: National Museum of Fine Arts, National Museum of Anthropology, National Museum of Natural History and the National Museum Planetarium located in Rizal Park. Currently, the National Museum network extends to 19 regional branch and site museums throughout the archipelago, including regional museums in key locations around the country.

The National Museum of Fine Arts showcases different masterpieces done by National Artists, including Carlos Francisco, Guillermo Tolentino, Fernando Amorsolo, Jose Joya, Napoleon Abueva, Vicente Manansala, Victorio Edades and many others. It also is the custodian of Juan Luna's "Spoliarium," Felix Hidalgo's "The Assasination of Governor Bustamante," and other masterpieces done by our national hero, Dr. Jose Rizal.

The National Museum of Anthropology exhibits several important collections done by the Archaeology and Anthropology Divisions. It includes the tablet containing the ancient Philippine scripts known as "Baybayin," underwater collections, pottery, weaving paraphernalias and other objects showcasing Filipino culture. It also shows the Manunggul Jar, a pre-historic burial jar excavated in the Tabon Cave Complex of Palawan, said to be used between 890 to 710 BC.

The National Museum of Natural History, scheduled for opening by the end of 2016, will have 13 galleries featuring the diversity of the Philippines' islands, its inhabitants, and life in ancient times. Each gallery will be equipped with modern facilities as well as interactive kiosks, and will challenge viewers to think about concepts and their role in advocating sustainable natural environment. Among the collections to be shown are the Philippine eagle, the world's largest saltwater crocodile, "Lolong," the world's second largest flower, *Rafflesia schadenbergiana*, and ammonite collections from Catanduanes.

The National Museum Planetarium presents educational and entertaining shows on astronomy and the night sky. There are ethnographic paintings related to astronomy, replicas of the equipment and materials used by astronauts, as well as an exhibit on the different planets.

MSU-IIT Natural Science Museum

Emerito B. Batara

The Mindanao State University-Iligan Institute of Technology (MSU-IIT) Natural Science Museum is a unit under the Office of the Dean of the College of Science and Mathematics (CSM) of the Institute. It is headed by a museum in-charge who is tasked to ensure all the specimens collected are properly mounted, classified and arranged according to a generally acceptable system of classification and systematic order of Philippine flora and fauna (terrestrial and aquatic).

The museum is also a vital center for scientific research, especially for the taxonomic research of the country's flora and fauna. It also serves a major repository of resources for use in research, conservation and education. At present, the museum has two display facilities and reference collections. The terrestrial display area is located at the CSM rooftop and has a vast number of collections on display including the Philippine eagle and a number of ornithological, mammalian, entomological and herpetological collections. The marine/botanical collection is located at the CSM rooftop (annex) and houses a wide variety of other marine and botanical specimens.

The MSU-IIT Natural Science Museum aims to be a teaching and learning center supportive of the institute's mission to propagate, develop and teach Philippine flora and fauna to both academic and non-academic society, especially about the importance and contribution of flora and fauna to the environment. It specifically aims to encourage the preservation, accessibility, and responsible use of its various collections and associated data for education, research and exhibition.

The museum has three objectives:

1. To serve as a repository of biological collections properly mounted, classified and arranged according to an acceptable system of classification and systematic order of Philippine flora and fauna (terrestrial and aquatic).
2. To serve as an active center for the taxonomic research of flora and fauna of the country; and to constitute a crucial resource for use in research, conservation and education.
3. To exhibit and document Philippine flora and fauna as well as to provide assistance to academic and non-academic communities and other local government units for scientific purposes.

It was in June 1981 when the MSU-IIT Natural Science Museum was established. This was initiated by Professor Blas R. Tabaranza, former faculty member of the Biology Department, and assisted by Mrs. Josephine Pascua-Evasco (former staff) with the support of both the former chairperson of the Biology department, Dr. Gloria Camaro, and the former head of the Institute Vice President, Manaros Boransing. This endeavor was the result of the faculty members' individual collection of known species. These individual collections from faculty members and students consisted of vertebrates, invertebrates and floral collections, bringing to life real images of the features of the different botanical and zoological organisms.

Later, an agreement was made between Dr. Gloria Camarao and Dr. Mamitua Saber, the former Dean of University Research Center of the MSU Main Campus, allowing Professor Tabaranza to collect other specimens from the Aga khan Museum. Eventually, the collections of former museum curator and a member of the Zoology faculty, Dr. Dioscoro S. Rabor, his former research staff Blas R. Tabaranza, Jr., and field technician Filomino Duron from the Aga khan Museum, were consolidated and arranged to project a good flow of information from the specimen to the observer.

Through time, the bulk of collected specimen increased, specifically due to the additional specimen gathered from the Aga Khan Museum. Dr. Gloria Camarao then requested room 201 of the School of Science and Mathematics (now College of Science and Mathematics) to be converted into a display center. Because of its very limited space, at that time the museum had looked more like a storage room for the various specimens of insects, marine and terrestrial collections than of a display center.

Eventually, the museum's collection expanded through the efforts of Professor Blas R. Tabaranza, Jr. and Mrs. Josephine Pascua-Evasco, who had a hand in managing the museum at that time. In the second semester of 1982, the Natural Science Museum reaped physical improvements that were financially supported by the School of Science and Mathematics, headed by Dr. Remigio G. Tee, who was Dean at that time.

Later in 1982, Professor Samuel Ochotorena succeeded Professor Blas R. Tabaranza in the management of the Natural Science Museum. As the museum was deemed important, the collection of different specimens was intensified, specifically during field work to neighboring places in Mindanao such as Surigao del Sur, Surigao del Norte, and Camiguin Island, among others. Later, Ms. Emma Pineda-Yecla and Mr. Emerito B. Batara took over as museum staff. The museum gradually emerged as a functional center for first-hand information about various zoological and botanical species.

From 1983 up to the present, the collection of specimens has been continually growing. Since the year 2000, the museum has been very visible and has come to be known by students from other schools all over Mindanao as a venue for their field trips. Researchers also consider the museum a good source of information that enriches their knowledge about the world's many organisms.

@Intermediatheque

The University Museum, the University of Tokyo

Ayumi Terada

The University Museum, the University of Tokyo (UMUT) was founded in 1996 as the first university museum for research and education in Japan. The history of UMUT goes back to 1966, when the University Documentation Center for Research Materials was founded. The Center's objective was to collect, classify and preserve natural, cultural and historical research materials in order to make them accessible for researchers; as such, it had already built a basis for the conservation and utilization of the university museum collection. After the Center's reorganization as UMUT, it began also to hold exhibitions open to the general public, even while further developing its research activities. In May 2016, UMUT's galleries in the main building of the Hongo campus were refurbished to publicly present the university museum's research activities from a fresh perspective. "Chronosphere" and "Macrosphere" are the keywords of the current permanent exhibition, which focuses on innovative research on the histories and possibilities of scientific specimens.

Since its foundation in 1877, the University of Tokyo has accumulated more than 6 million scientific specimens, half of which are located in UMUT. This UMUT collection includes precious historical materials that attest to the modernization of Japan. Approximately 50,000 items per year are added to the collection as a result of active research work (e.g. overseas fieldwork) and by obtaining collections from both public and private sources. Today UMUT's collection holds about 3.2 million items (as of 2012) and is grouped into 3 fields and 17 categories: Geosciences (Mineralogy, Lithology and Petrology, Mining, Palaeontology, Geography), Biology (Botany, Forest Botany, Pharmacy, Zoology, Aquatic Zoology, Anthropology and Prehistory, Medicine), and Cultural History (Archaeology, History of Architecture, Archaeological Arts, History of Fine Arts, Cultural Anthropology). There are now 37 researchers specialising in various fields based at UMUT's research department.

Information about the UMUT collection is accessible through publications and a database. A few volumes of *Material Reports* are published every year (a total of 108 volumes have so far been published), while *Ouroboros*, the UMUT newsletter, introduces newly acquired materials. The UMUT collection database is continuously growing, with an average of over 8,000 items added every year. Part of the database is accessible online through the University Museum Database (UMDB).

UMUT carries out various multi-dimensional educational programs for students, curators and members of the public. The programs give them direct contact with scientific specimens by allowing them to take part in the classification and conservation of specimens and the preparation of exhibitions.

In November 2001, the oldest extant building in the University of Tokyo, the main building of the Tokyo Medical School (built in 1876 and designated as an Important Cultural Property) was renovated to form UMUT's Koishikawa annex. The annex presently functions as a museum of architecture with a broader perspective. Its permanent exhibition entitled "Architectonica" showcases different types of architecture of the world.

In March 2013, Intermediatheque, a multidisciplinary museum of science and culture run jointly by UMUT and Japan Post, opened within the renovated historical building of the Tokyo Central Post Office. Intermediatheque is an experimental museum dedicated to interdisciplinary exploration, venturing into cultural creation through the fusion of various means of artistic expression. This is achieved through permanent and temporary exhibitions related to the scientific and cultural knowledge accumulated by the University of Tokyo since its foundation in 1877. A design policy facilitating the revival of the university's intellectual heritage within a contemporary urban cityscape is one of the highlights of the exhibitions.

In July 2014, TeNQ, a new space museum, opened as a collaborative project between UMUT and Tokyo Dome Corporation. Through its exhibition on laboratory activities, "The Exhibit of the Natural History of the Solar System," TeNQ serves as a treasure trove of scientific information on solar system exploration. TeNQ also has a real laboratory in the gallery.

UMUT's activities do not take place only within its buildings and outposts. Since 2006, UMUT has been trying to create a next-generation museological model through its research project *Mobilemuseum*. The traditional museum operates "inward"; its collections are kept within museum walls, to be viewed in its galleries. In contrast, the *Mobilemuseum* operates "outward," bringing its collections outside the museum and producing new exhibitions in unconventional venues. Over 140 *Mobilemuseum* exhibitions have so far been created, both domestically and abroad, in venues ranging from office spaces to educational institutions.

Key references of the Mobile Museum Boxes Project

Akira Matsuda

Cameron, Duncan F. 1971, "The Museum, a Temple or the Forum," *Curator: The Museum Journal* 14: 11–24.

Summary of the Article

In this famous article Duncan Cameron claims that museums are traditionally like temples, referring to the modernist idea of the museum as a repository of objects with eternal, universal value. Cameron then projects a new, different idea of the museum: the museum as a forum open for experimentation and innovation, one that encourages people to engage in dialogue through the medium of objects. While Cameron argues that the museum should be both a temple and a forum, the article is often considered to have heralded the start of a new museological era, in which the museum is required to be less object-centered and more people-centered.

Relevance of the Article to the Project

The idea of the museum as a forum inspired the project members to consider how they could reach out to and engage with wider audiences. They decided to take out museum collections to places to invite those who are not frequent museum visitors, especially the young, to engage with museum materials in a friendly environment. In this regard the Mobile Museum Boxes Project was an attempt to break away from the traditional model of the museum as a temple. It instead sought to create a "mobile forum" utilizing museum materials.

Weil, Stephen E. 1990. "The Proper Business of the Museum: Ideas or Things?," In: *Rethinking the Museum and Other Meditations.* Washington: Smithsonian Institution Press, pp. 43–56.

Summary of the Article

Weil contends that it is not what museums claim to do that matters, but what they actually achieve. To illustrate this point, he talks about an imaginary National Toothpick Museum. Although this Museum undertakes all the fundamental activities of the museum – collecting, preserving, studying and displaying various kinds of toothpicks – it is nevertheless not a socially viable institution as it does not respond to the needs of contemporary society. Through this humorous and thought-provoking example, Weil argues that museums today should not satisfy themselves by simply being socially unique institutions, but should make an important and positive difference in the lives of other people.

Relevance of the Article to the Project

The article convinced the project members that the aim of their project was to move beyond the traditional domain of museum activities. They agreed that their project had to be relevant in contemporary Filipino society, positively changing the viewers' understanding of the museum. The idea of setting up an exhibition in venues not conventionally associated with museums arose from such reflection.

Greenblatt, Stephen. 1991. "Resonance and Wonder," In: *Exhibiting Cultures: The Poetics and Politics of Museum Display*, ed. Ivan Karp and Stephen D. Lavine. Washington: Smithsonian Institution Press, pp. 42-56.

Summary of the Article

In this elegantly written article, the author Greenblatt talks about two different possibilities of museum display – evoking "resonance" and "wonder" in the viewer's mind. Resonance refers to people's cognitive engagement with objects; the viewer reflects on their meaning, conditioned by the context of display. Wonder, on the other hand, derives from the power of objects to generate in the viewer "surprise, delight, admiration, and intimations of genius." Greenblatt expresses concern about a recent trend of the museum world, in which resonance seems to be increasingly prioritized over wonder. He argues that museum display should pursue both resonance and wonder, and that it is often the second that leads to the first.

Relevance of the Article to the Project

Aiming to create exhibits that can generate both resonance and wonder, the project members decided to offer textual explanation based on scholarly work through labels, while at the same time seeking to make the boxes as beautiful and awe-inspiring as possible. Much attention was paid to aesthetic details of the exhibits, including the selection of visually inspiring objects for display; the color coding of the boxes and associated equipment; the lighting and the layout of objects. In general, the viewers seemed to be drawn first to the visual attractiveness of the displayed objects, and then read labels to learn about each exhibit, which suggests that the Mobile Museum Boxes generated first wonder, then resonance, as Greenblatt argues.

Merriman, Nick. 1991. *Beyond the Glass Case: The Past, the Heritage and the Public in Britain.* Leicester and New York: Leicester University Press.

Summary of the Book

This books shows and analyzes results of a nationwide survey carried out in Britain by the author, measuring the public use of and attitudes towards the past and museums. Drawing on Pierre Bourdieu's theory of habitus and cultural capital, Merriman claims that people's attitudes to museums have the strongest influence on their visit to museums, and that cultural influences and social status are important factors shaping those attitudes. He contends that the idea that museum visiting is a result of a free choice taken by the individual's wishes and needs is misrecognition. According to him, museum visiting is emblematic of "distinction," in that it is recognised as a cultured activity in which only certain sections of the population participate, while others exclude themselves through their lack of familiarity with museum culture. This mechanism of "distinction" is reproduced through the function of habitus of individuals in different social classes.

Relevance of the Book to the Project

The book drew our awareness to the need to tackle socio-cultural barriers to museum visiting in the Philippines. The members thought that the image of the museum as an authoritative, privileged institution was one of the most important factors deterring people from visiting museums. It was decided that the Mobile Museum Boxes should be easily accessible, both physically and intellectually, to a wide range of audiences, including those who do not normally visit museums.

McLean, Kathleen. 1993. "Labels: The Exhibition Storytellers," In: *Planning for People in Museum Exhibitions*. Washington: Association of Science-Technology Centers, pp. 103-114.

Summary of the Article

This article is a succinct practical guide to the making of exhibition labels. Written in plain language, it clearly explains the purpose of making labels and the process of designing labels in relation to the overall preparation of an exhibition.

Relevance of the Article to the Project

The article helped the project members prepare labels for the Mobile Museum Boxes effectively. Following the article's suggestions, the members produced two types of labels: topic labels and object labels. The article served as a useful guide for deciding details of label design – from layout to font types and sizes, text length and the clarity of language used.