

# Ministry of Education, Republic of Palau

## Executive Summary

Student Consultant, Jasmine Han  
Community Partner, Edwel Ongrung

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### I. Background Information

The Ministry of Education is one of the eight ministries of the executive branch of the Republic of Palau's national government. It is responsible for the education of children of Palau and runs the public school system of the Republic of Palau.

The ministry maintains all of the public schools in the country. They handle transportation, facilities, supplies, staff, curriculum development, and instructional technology. All of the upper level staff principals, administrators, etc. have email and utilize it frequently as their primary means of communication.

The mission of the Republic of Palau's Ministry of Education, in partnership with parents and community, is to ensure that the children and youth preserve Palauan culture and become contributing citizens and productive workers in a changing world.

*Our Students Will Be Successful in the Palauan Society and the World.*

This will establish a high quality of life and security for future generations of Palauan. In order to satisfy this responsibility, the ministry reviews and recommends funding, curriculum and personnel changes and develops educational plans and budgets to submit to the national government.

### II. Consulting Tasks

To support students with their career research, the Ministry of Education is providing career resources on-line by working with America's Career Resources Network organization. The MOE is developing a customized career resources system to suit the need of students at Palau. The grant from ACRN aims to establish and implement systematic strategies to provide students, youth, and adults in the Republic of Palau with critical career information resources and the skills they need to make effective educational career decisions throughout their lives.

The on-line system will contain information on career planning and development and other career resources and materials. It may also provide information that would be useful for students, parents, and teachers.

In order to integrate ACRN smoothly into the MOE site, and then to achieve the sustainability, implementations on several different areas are needed including, user interface, work process, and the system management.

### III. Outcomes Analysis and Recommendations

Palau Career Resources Network has been revised and successfully integrated into the Ministry's main website. It will allow:

- Easy access to PCRN site to the visitors of MOE website
- Quick access to PCRN contents without leaving the MOE website
- Better administrative control over the Ministry's multiple sites

The main issue of the old MOE website, the difficulty of adding the content to the website without the web programming knowledge, has been resolved by using a content management system. The process of assigning the responsibility of putting up content to different stakeholders has been carefully designed and documented. Such consideration will ensure that the website is sustainable after the consulting and the development term.

A student tracking system has been developed as a simple submission form on the main MOE website. A more comprehensive system and database design was considered. However, after carefully going over the needs, interest of the parties, and the current environment, it has been decided that the simple form will be sufficient to start collecting the data.

The tracking system intends to gather information about the students who graduated from schools at Palau. It allows the users to submit simple form that asks the user which school they graduated from what their current and future plans are.

In order to help students get connected to each other after graduating from the school, the MOE website is providing an alumni forum. The environment where this system resides will allow comparably more official and formal community and connections to reside when compared to other social networking websites. The ministry maintains very close relationships with the schools and students. Based on the understanding of the relationship and the mission of the ministry, it has been decided that MOE main website will contain an alumni social networking component.

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#### Community Partner

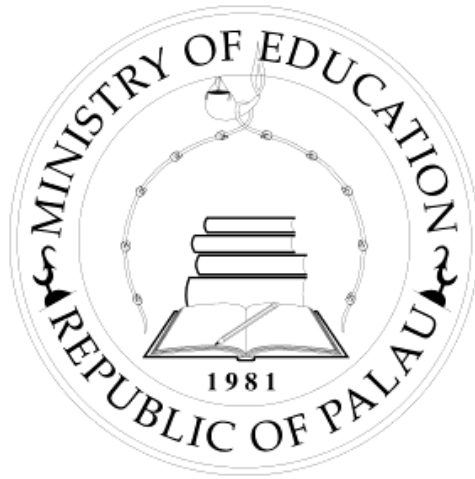
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#### About the Consultant

Jasmine Jung-Min Han  
*Jasmine.j.han@gmail.com*

Jasmine is a graduating senior in Information Systems and Human-Computer Interactions. She will begin working as a Web Technologist for AOL/Truveo Inc's Video Search division this fall.



## **Final Consulting Report**

Student Consultant, Jasmine Jung-Min Han  
Community Partner, Edwel Ongrung

### **I. About the Organization**

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#### **Organization**

The Ministry of Education is one of the eight ministries of the executive branch of the Republic of Palau's national government. It is responsible for the education of children of Palau and runs the public school system of the Republic of Palau.

Most of the funding for the MOE comes from the national government of Palau, however they also receive grant money from the US Department of Education and assistance from Pacific Resources for Education and Learning, a non-profit based in Hawaii dedicated to improving education in the region. Because of the diversity of sources providing funds, the MOE must follow guidelines required by the different bodies, including the U.S.'s No Child Left Behind Act.

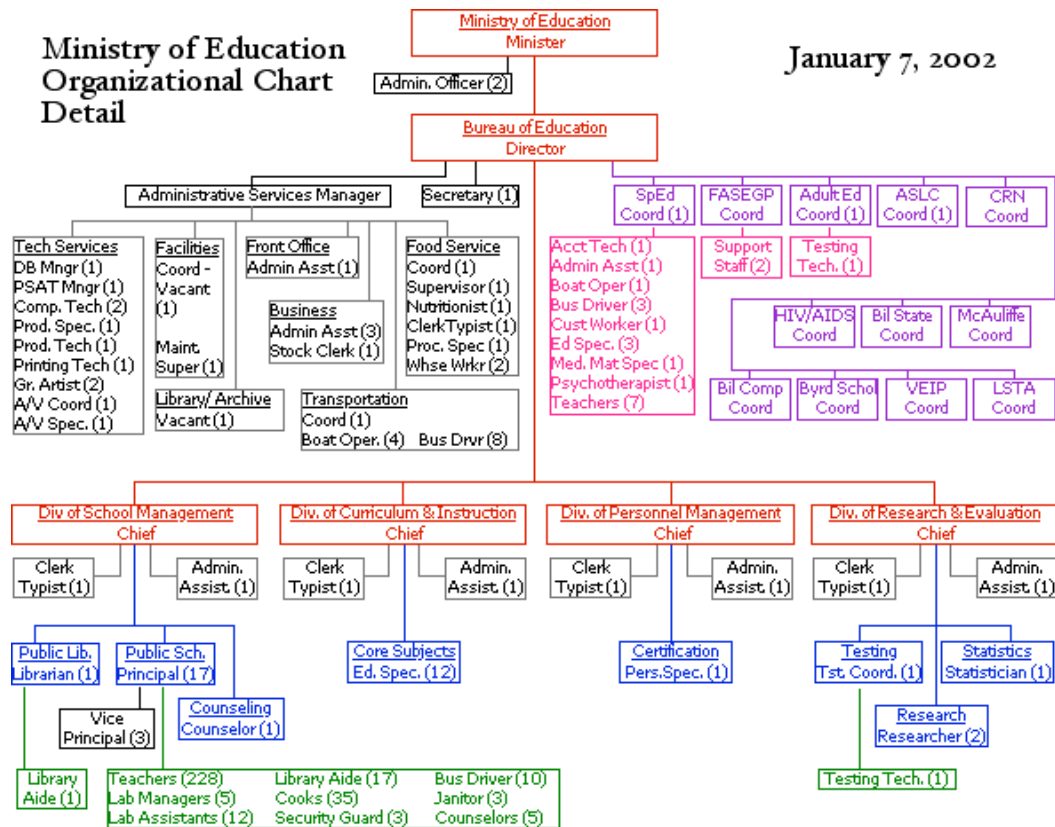
The mission of the Republic of Palau's Ministry of Education, in partnership with parents and community, is to ensure that children and youth preserve Palauan culture and become contributing citizens and productive workers in a changing world.

*Our Students Will Be Successful in the Palauan Society and the World.*

This will establish a high quality of life and security for future generations of Palauan. In order to satisfy this responsibility, the ministry reviews and recommends funding, curriculum and personnel changes and develops educational plans and budgets to submit

to the national government.

## Organizational Structure



The organization is overseen by a politically appointed minister and is run by a management team consisting of the top three levels. The Minister of Education is at the top level, Bureau of Education is at the second level, followed by four division chiefs plus an Administrative Services Manager.

The four core business processes are carried out by Divisions within the Bureau of Education.

- **Division of School Management**
- **Division of Curriculum and Instruction**
- **Division of Research and Evaluation**
- **Division of Personnel Management**

## Schools

Palau has 22 public elementary schools and one public high school, with a close working relationship between the public and private schools.

## **II. Scope of Work**

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### **Task 1. Palau Career Resources Network Integration**

To support students with their career research, the Ministry of Education is providing career resources on-line by working with America's Career Resources Network organization. The MOE is developing a customized career resources system to suit the need of students at Palau. The grant from ACRN aims to establish and implement systematic strategies to provide students, youth, and adults in the Republic of Palau with critical career information resources and the skills they need to make effective educational career decisions throughout their lives.

The on-line system will contain information on career planning and development and other career resources and materials. It may also provide information that would be useful for students, parents, and teachers.

### **Task 2. MOE Main Website Redesign**

In order to integrate ACRN smoothly into the MOE site, and then to achieve sustainability, implementations on several different areas are needed: user interface, work process, and the system management.

#### ***User Interface***

The current MOE site was designed in 1990s and last updated in 2001. It is very outdated and does not well represent the advanced technology and forward-thinking initiatives of the Ministry. Therefore, the interface will be redesigned to create a consistent look and feel between the ACRN site and the MOE site.

#### ***Work Process***

For the ACRN system and MOE site to be useful for students and other visitors of the websites, it is critical that they provide up-to-date information. The current Ministry of Education website was developed by an external client and it requires the understanding of web technologies for one to update information. It has hindered people at the ministry from easily adding new information. In addition, there was no designated person or process to manage the content and the system and caused one to pass on the responsibilities to each other.

In order to prevent such problems from occurring again, it is essential that the process for the content and the system management be clearly designed. Such process should take into considerations the organizational structure and the current work process in place. Breaking down the task into steps and assigning the responsibilities on specific person

will enhance the process.

### **System Management**

To be sustainable, the system needs to be easy to manage, maintain, and update. Therefore, the content management system will be a suitable way to develop a system. A Content Management System is a web application that facilitates the management of a web application. It provides an easy way for users to customize the site, create and manage the content, and control the site once the system is built.

### **Considerations for Sustainability**

The staffs responsible for managing the site will be provided with the research documents along with the necessary trainings to understand the Content Management System. A user manual for different tasks will also be created in order to support ease of use and troubleshooting in the future once the site consulting period is over.

### **Possible Additions**

In addition, the website can ideally receive and display information of students who have graduated. Currently, there is no system to keep the record of the students who have graduated from schools in Palau. Such information can be very useful not only for the MOE in analyzing the data but also for the current students to learn about what career opportunities they have and receive information and help from alumni. The system can help students build networks, receive assistance during the career research, and be introduces to the different industries.

### **Expected Outcomes**

<b>Stakeholders</b>	<b>Expected Outcome</b>	<b>How to Measure</b>	<b>Evidence of Change</b>
Content provider	Improved work process	Observe the site management and staff coordination	- Frequency of updates - Feedbacks from content providers
Content provider	Ease of use	User test	- Feedbacks from content providers
Management	Enhanced UI aesthetics	Evaluation from the management	- Evaluation analysis
Management	Better on-line representation of the ministry	Evaluation from the management	- Evaluation analysis

Site visitors	More informative content	Evaluate content, user interview	- Evaluation analysis
Site visitors	Ease of use	Heuristics Analysis, User test	- User feedbacks - Evaluation analysis

### **Additional Impact**

#### ***Programs:***

The centralized on-line system will provide an easier way for the ministry to better support their student career guidance program. It will decrease the management effort required to coordinate different sources.

#### ***Communication:***

Through using a content management system, the ministry will be able to achieve improved communication with various stakeholders, including the students, teachers, parents, visitors of the site, and the future partners.

#### ***Technical Management:***

New work process will be designed to separate the content management from the site administration. It will prevent technical team from spending their time on issues that can be dealt by non-technical users and help them to focus their efforts on more critical issues.

#### ***Information Management:***

Content management system will allow users who are not familiar with programming language to easily update information on the web. It will facilitate add, edit, and update process and managing the overall site content.

### III. Outcomes and Recommendations

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#### **Task 1. Palau Career Resources Network Integration**

Palau Career Resources Network has been revised and successfully integrated into the Ministry's main website. It will allow:

- Easy access to PCRN site to the visitors of MOE website
- Quick access to PCRN contents without leaving the MOE website
- Better administrative control over the Ministry's multiple sites

#### **Task 2. MOE Main Website Redesign**

The main issue of the old MOE website, the difficulty of adding the content to the website without the web programming knowledge, has been resolved by using the content management system. The process of putting the content and specific responsibilities on different stakeholders have been carefully studied and designed in order to avoid the problem with website being outdated with no one in charge of it. Such consideration will ensure:

- **Sustainability:** The sustainability of the website after the consulting and the development term.
- **Process:**
  - Improved work process through the carefully designed and defined process in place
  - Reduce the workload of tech team and help them to focus on more technical issues
- **User Interface:** Enhanced UI Aesthetics
- **User Engagement:** The system provides more encouraging on-line environment for the visitors of the website to be involved. Each division under the Ministry has its own blog to better communicate with the users. News page features newly updated contents and current events going on at the ministry which will continue to be updated. Forums will provide opportunities for the users to give feedbacks to the Ministry and also help them to establish a simple form of an on-line community. Such environment will likely to motivate users to be more engaged in the website.
- **User Interaction:** The new system provides more interactive way to obtain information. Unlike the old static HTML website, the new site features dynamic menu dropdown boxes as well as an interactive map that provides school information in different states of Palau. Pages with dynamic and interactive elements which don't sacrifice the usability of the site can improve the user experience on the site.



## ***Project Approach***

### Dual-mode Phases: Sequential and Parallel

The project plan was intended to provide a timeline which support both the sequential and parallel activities. It breaks down the project into sequential phases which acted as a guide in ensuring the completion of the project during the given timeframe. It also focused on providing an opportunity to prepare for the next phase.

### Model-View-Controller Approach

In order to gain flexibility to tackle multiple issues during the development process without affecting the different areas of the project, the project plan integrated MVC architectural pattern used in software engineering. For example, the user interface design process was completely separated from the feature implementation of the site and not affect the system functionality.

### Usability Engineering: Iterative Process

The plan adopted an iterative process in developing the web application to ensure the quality usability measure. During development, the system went through multiple iterations which involved high user engagements from the beginning of the process. The prototypes were reviewed by the users and stakeholders and iterated accordingly.

## **Task 3. Student Tracking System**

Student tracking system has been developed as a simple submission form on the main MOE website. More comprehensive system and database design has been studied during the time. However, after carefully going over the needs, interest of the parties and the current environment, it has been decided that the simple form will be a sufficient enough way to start collecting the data.

The tracking system intends to gather basic information about the students who graduated from schools at Palau. It allows the users to submit simple form which asks the user which school they graduated from, what their current and future plans are.

## **Task 4. Alumni Networking Forum**

In order to help students get connected to each other after graduating from the school, the MOE main website is providing an alumni forum. The environment where this system resides will allow comparably more official and formal community and connections to reside when compared to other social networking websites. The ministry maintains very close relationships with the schools and students. Based on the understanding of the relationship and the mission of the ministry, it has been decided that MOE main website will contain alumni social networking component.

## **Additional Impact**

### ***Communication and Process***

A structure and process in which the website could exist and thrive have been articulated. This is important because the MOE has typically operated under unwritten code/rules and having them clearly stated in writing can only improve the operational capabilities.<sup>1</sup>

### ***Technical Management***

The system has been designed to be flexible for the future implementation and integration of new features. Various possible features have been studied which includes, forums, alumni database, student tracking system, and online social networking systems.

Research has been documented for the organization's future development.

### ***Sustainability***

Trainings on local team has been conducted to introduce them to the content management system as well as to help them be familiarized with the new Ministry's system. Training documents have also been put together and posted on internal training system to be shared among staffs.

## **Recommendation 1. Expand Alumni Database**

There is no existing student data in digital format before 2001 and unique student ID has been assigned since 2006. Therefore, the verification of the student identity is quite a challenge. The current system provides a voluntary form the alumni can fill out to inform the ministry of their current status. It is simply collecting all the users' submission as a unique individual data.

After the system obtains enough data to capture an overall trend and the student unique ID system maintains sufficient data, it will be ideal for the ministry to develop a comprehensive alumni database. It should be able to take care of the ID verification, duplicate submission, and information updates when they return to the site. It can also be used in building more extensive alumni network.

## **Recommendation 2. Clear and Defined Responsibilities**

The guideline on the work process and the responsibilities on different stakeholders need to be informed to the users of the website. The defined instruction on different responsibilities and tasks will make the process clear and visible to everyone involved and allow the organization to have better control over the website and the content management. (See Appendix)

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<sup>1</sup> News on Ministry of Education, written by Edwel Ongrung

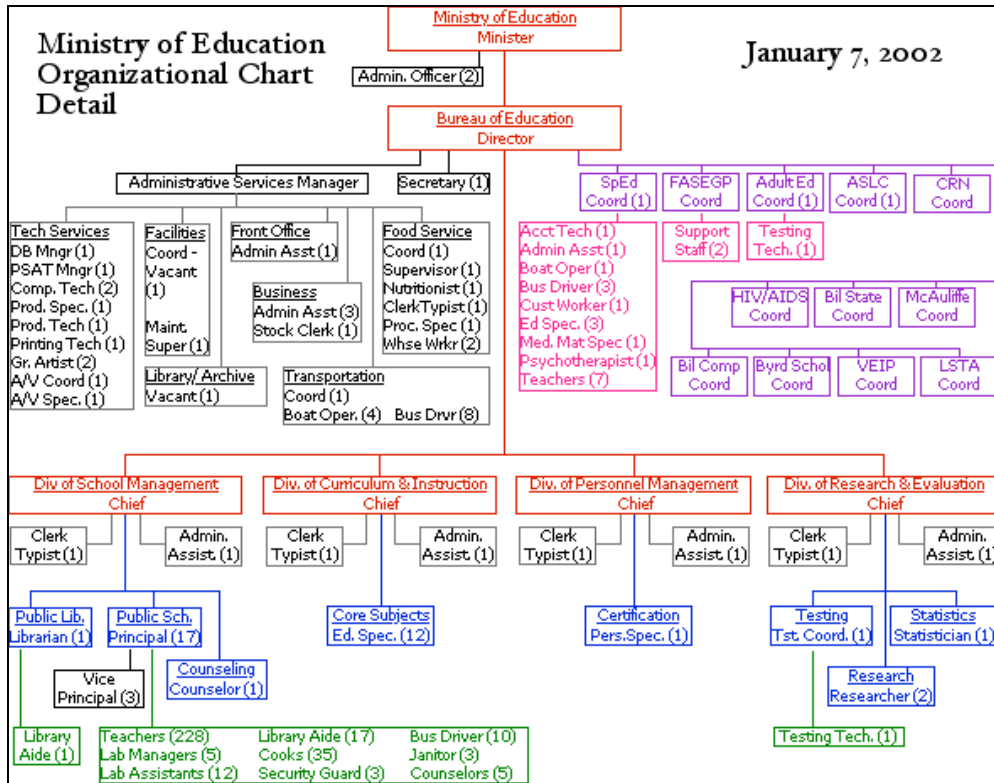
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## **About the Consultant**

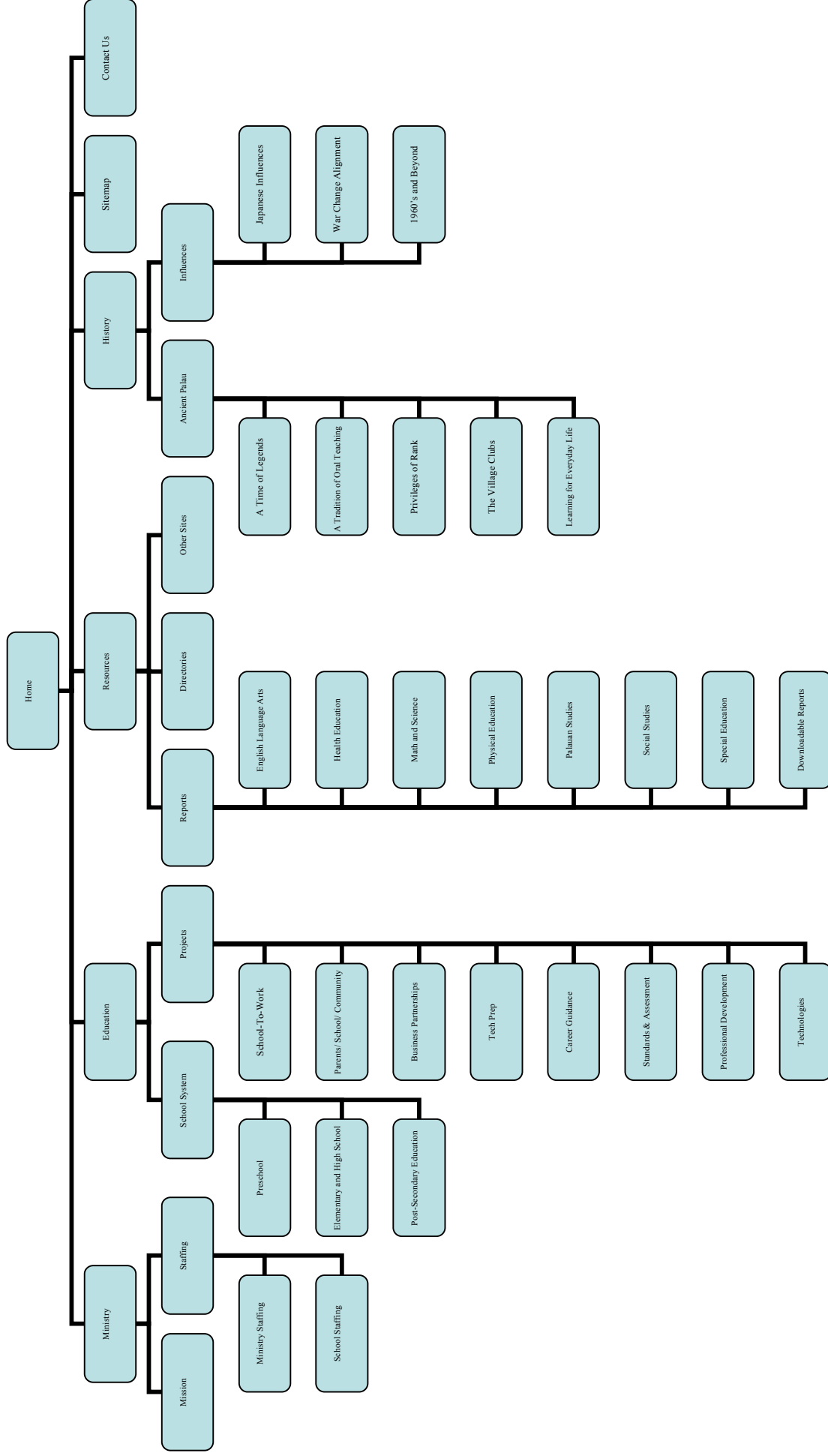
Jasmine Jung-Min Han is a graduating senior in Information Systems and Human-Computer Interactions with a minor in Communication Design at Carnegie Mellon University. Her concerns for global community and the environment led her to join a non-profit organization called Youth With A Mission including 2-month long outreach trip. She also worked as an intern for a non-profit environmental organization, called One Earth One Mission, and as a web developer and a project manager. With her interests in multimedia and technology, Jasmine has participated in Tech Bridge World Program at Carnegie Mellon University as a Media Technology Intern to promote the program by working on various website projects and video editing projects. She has been taking part in the Technology Consulting in the Global Community internship over the summer in Palau. She will be returning in the fall to start a promising career as a Web Technologist at AOL LLC/ Truveo Inc's Video Search Division.

# Appendix A – Old and New Site Structure

## Current MOE Site



# Original Site Structure



## **New Site Structure**

### **Primary Navigation:**

**News**

**Ministry:** Mission, Staffing (Ministry Staffing, School Staffing)

**Education:** School System, Curriculum, Reports

**Projects:**

**Career:** Palau Career Resources Network

**Network:** Palau Alumni Network

### **Secondary Navigation:**

**About Palau:** Ancient Palau, Influence, Useful Sites

**Directory:**

**Sitemap**

**Contact Us**

<b>Original Location</b>			<b>New Location</b>	
<b>Ministry</b>	Mission		<b>Ministry</b>	
	Staffing	Ministry Staffing	<b>Ministry</b>	Staffing
		School Staffing	<b>Ministry</b>	Staffing
<b>Education</b>	School System	Preschool	<b>Education</b>	School
		Elementary & High	<b>Education</b>	School
		Post-Secondary	<b>Education</b>	School
	Projects	School-To-Work	<b>Projects</b>	
		Parents/ School/ Community Partnerships	<b>Projects</b>	
		Business Partnerships	<b>Projects</b>	
		Tech Prep	<b>Projects</b>	
		Career Guidance	<b>Projects</b>	
		Standards & Assessment	<b>Projects</b>	
		Professional Development	<b>Projects</b>	

		Technologies	<b>Projects</b>	
<b>Resources</b>	Reports	English Language Arts	<b>Education</b>	Curriculum
		Health Education	<b>Education</b>	Curriculum
		Math And Science	<b>Education</b>	Curriculum
		Physical Education	<b>Education</b>	Curriculum
		Palauan Studies	<b>Education</b>	Curriculum
		Social Studies	<b>Education</b>	Curriculum
		Special Education	<b>Education</b>	Curriculum
		Downloadable Reports	<b>Education</b>	Curriculum/Reports
	Directories		<b>Directory</b>	
	Other sites		<b>About Palau</b>	
<b>History</b>	Ancient Palau	A Time of Legends	<b>About Palau</b>	
		A Tradition of Oral Teaching	<b>About Palau</b>	
		Privileges of Rank	<b>About Palau</b>	
		The Village Clubs	<b>About Palau</b>	
		Learning for Everyday Life	<b>About Palau</b>	
	Influences	Japanese Influences	<b>About Palau</b>	
		War Change Alignments	<b>About Palau</b>	
		The 1960's and Beyond	<b>About Palau</b>	
<b>Site Map</b>			<b>Sitemap</b>	
<b>Contact Us</b>			<b>Contact Us</b>	
			<b>Career</b>	PCRN
			<b>Network</b>	PAN

## **Appendix B – Work Process**

### 1. Parties involved with Site Management:

#### **Content Providers:**

MOE  
BOE  
4 Divisions

#### **Editor**

#### **Tech Administrator**

Tech Team

### 2. Work Process Outline

#### **Process 1: Full open access**

Each division heads will have permission to create/ add/ edit contents. When they are done composing a post, they will be able to post the document. The 'editor' will be reviewing the posts and make necessary changes to the post.

#### **Advantage:**

Division heads who are responsible for specific content gains direct access to the posting feature. There will be no delay in when the information gets posted to the site.

#### **Disadvantage:**

Since the time when the editing process occurs is uncertain, unrevised post can be published and read by site visitors for unknown period of time.

#### **Process 2: Quasi open access**

Each division heads will have permission to create/ edit contents. When they are done composing a post, the post will be reviewed by the 'editor'. It will be only after the 'editor' reviews the document, it is posted on-line.

#### **Advantage**

The editing is required during the process to post content on the web and therefore the post is always revised before being published.

#### **Disadvantage**

There can be delay in the time when the content is created and when it is published.

### 3. Work Process Design: Full Open Access

**Author:** content providers. Division heads

Each division has a static page and an update-able page.

The static page will display information about the division, the staffs, and contact information. Update-able page will feature news and events.



The division heads will be responsible for providing contents and will have permission to create, edit, and post the content. They will also be able to upload images and files.

**Editor:**

Editor will be responsible for editing the contents when needed.

**Tech Team:**

Tech team will be responsible for administering the overall site. They will be responsible for managing the site structure, defining different user roles and assigning proper permissions. Responsibilities will also include managing the uploaded files. However, the tech team will not be responsible for providing contents or editing the contents. The content-related tasks will be performed by 'Author's and 'Editor's.

## Appendix C – Palau Alumni Network

### Contextual Inquiry / Interviews Palau Alumni Network / Database

#### General

- **Are there any current alumni networks (offline)?**  
Class of 1979 is the most active community. They plan several events and provide scholarships. There only exist offline meetings.
- **Do schools provide information about alumni to current students?**  
We don't have much information about students who have already graduated.
- **Do teachers have on-line registration/ login access to perform administrative tasks?**  
Yes.
- **Will it make more sense to have the system be developed as part of PHS or MOE?**  
We are under MOE and we maintain very close relationship with MOE. MOE and PHS are linked on-line as well and PHS website is being hosted by MOE. Anything MOE does can help us and we get benefits from it.

#### Student Information

- **Where can I find post-graduate student information?**  
Scholarship office has some limited information about where some students are trying to go to continue their studies.
- **How many years of student data do you have?**  
We have student information dating back to 1962 on papers.
- **How many years of student data are stored in database?**  
We don't have any student information stored in database before 2001.
- **What kind of student information do you have in database?**  
Personal data:  
General Information:  
(Student ID, first name, last name, middle name, date of birth, age, birth place, hospital #, citizenship, ethnicity, grade, gender, SS#, place of residence, permanent residence, elementary school attended, last high school, transfer info  
Family Information:  
Father's name, mother's name, phone numbers
- **Do you currently gather any information from students upon graduating or after they leave?**  
Yes. We do 'exit interview'. We ask students where they are planning on going or doing upon leaving the school. However, they are not official and we don't get any more information after they leave. The management team from PHS wanted to develop student tracking system however, we didn't have resources available.
- **What are the common paths of students who are graduating from PHS?**  
Pursue academics: go to Palau Community College, go to Guam, Hawaii or mainland.

Pursue careers:

### **Career**

- **Are there career counselors at PHS?**  
Yes. Ulai Tomoiji.
- **Where do students find career openings?**  
Governmental jobs: Ministry of finance  
All others: Ministry of Commerce- Division of Labor – Bureau of Human Resources
- **What's the job hiring process?**  
Go through interviews, request student record.
- **What are main types of industry students pursue as a career?**  
Government, tourism
- **What are some current resources available for students?**  
'School-to-work' program: summer work experience  
'Workforce Investment Act':
- **How do employees check if the student actually graduated from the specific school?**  
Good question. It is currently almost impossible. Scholarship office requests some current grade record for recent graduates. However, old data is almost impossible to find.

# **Project Proposal**

## **Palau Alumni Network / Database**

In addition, the website can ideally receive and display information of students who have graduated. Currently, there is no system to keep the record of the students who have graduated from schools in Palau. Such information can be very useful not only for the MOE in analyzing the data but also for the current students to learn about what career opportunities they have and receive information and help from alumni. The system can help students build networks, receive assistance during the career research, and be introduced to the different industries.

### **1. Project Background**

While doing the pre-departure research, I learned that a lot of Palauan, especially the young people are leaving country for education and career. Talking with Palauan living in the States and with people that came back, I found out that about half of Palauan are out of Palau. (Approximately 9 thousand out of 20 thousand are staying outside of Palau.)

### **2. Problem Statement**

#### Resources

There is no on-line network or resources specifically designed for Palauan to be connected to each other and to their classmates. Especially if they move from where they used to go to school, it becomes a bigger challenge for them to be connected to others.

#### Record

Currently there is no system to keep track of students after they leave school. The management team from school desires for the information as well as the management team at Ministry of Education.

### **3. Advantage**

Having information of where students are going after school can be very useful for various audiences and purposes.

#### Management team

Analysis will provide management team an opportunity to evaluate the overall education system and the curriculum.

#### Administrators and teachers at school

By analyzing the data, the school can see the trend and understand students needs better. It will help the schools to continue to provide a helpful curriculum and career guidance.

#### Current students

Information/ advice from alumni

Current students can easily obtain information about the alumni and learn about the possible career path. They can also possibly receive information and advice from the alumni about

the career and about the location where the alumni are staying at.

### Alumni

Alumni can find information about their classmates and get connected. The system can help people who are staying outside of Palau to find other Palauan around the area. It can also help them to build an alumni network and possibly sponsor events for their schools in Palau.

## 4. Detailed Project Plan

The expected deliverable by the end of the term for this part of the project is not simply a completed system which collects data but a system which can potentially evolve into more complicated and comprehensive system.

### A. Information to be collected:

<b>Biological Information</b>	
First name	
Last name	
Nickname*	
birthday	

\* Palauan students often tend to have nicknames that they go by.

<b>Address</b>	
hometown	
current residency	

\* Hometowns tend to differ quite a bit from where they go after the school.

<b>School</b>	
last high school	
graduation year	
college	
Previous school	

<b>Occupation</b>	
Student	
Internship	
Employed	
Unemployed	

<b>Job</b>	
industry	
company/organization	
role	

## Appendix D – Design Iterations

### User Interface Design Prototype: MOE redesign

#### Design 1: MOE Full Background image

Variation 1



Variation 2

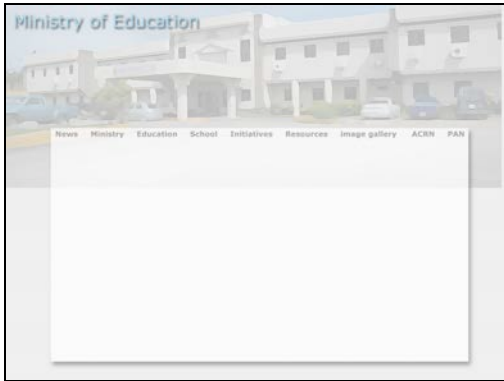


Variation 3

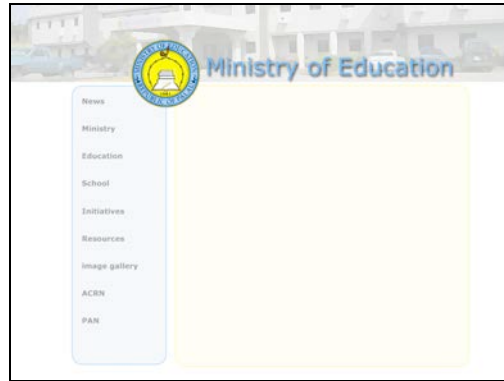


## Design 2: MOE Banner image

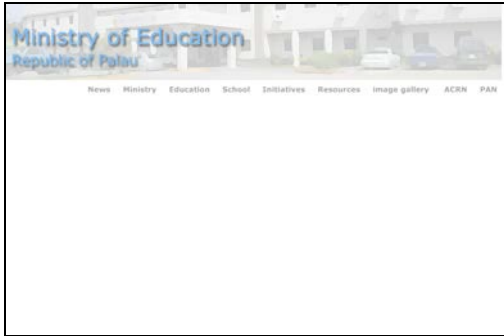
Variation 1



Variation 2



Variation 3



Variation 4



### Design 3: MOE Banner image, set width

Variation 1



Variation 2



Variation 3



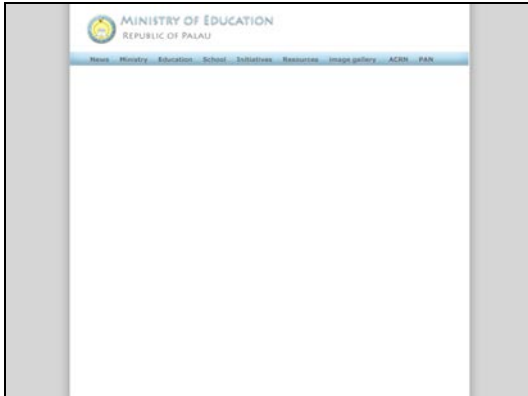
Variation 4





# Design 4: MOE no Banner background image

## Variation 1



## Variation 2



## Variation 3



## Variation 4



## Variation 5



## Variation 6



Variation 7



Variation 8



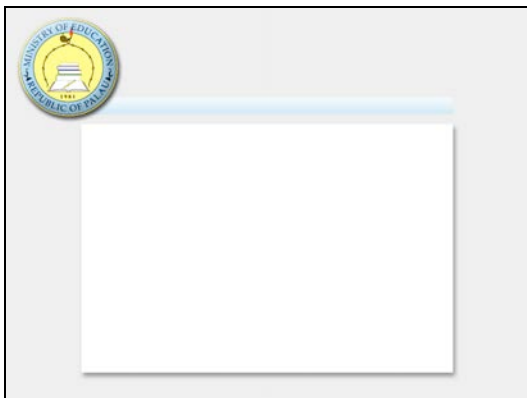
Variation 9



Variation 10



Variation 11

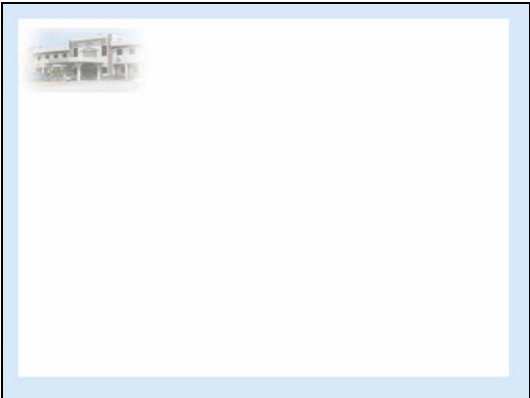


**Design 5: MOE Graphic Banner image**



**Design 6: Light Blue background**

Variation 1

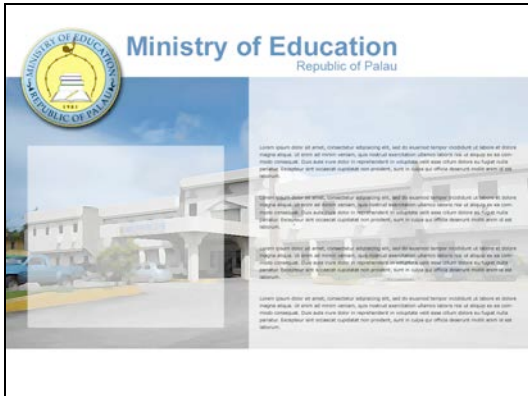


Variation 2

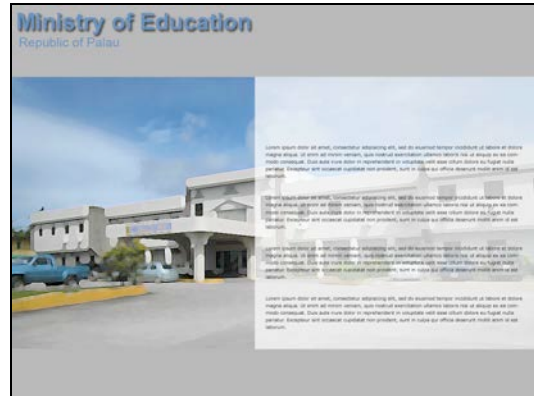


# Design 7: Two column

## Variation 1



## Variation 2



## Variation 3

