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Typography in Publication Design

Teaching Maya to the Next Generation

Children's Publication Design in a Multilingual Context.

Denielle Emans, Assistant Professor of Graphic Design, Art & Design Department, Zayed University, Dubai, UAE, denielle.emans@zu.ac.ae

Abstract: This research paper discusses the cultural perception, value, and need for indigenous language preservation and underscores the importance of multilingual publications that enhance mother-tongue learning initiatives. The paper is presented and contextualized for the needs of Mayan children in the Yucatan Peninsula where publications that meet both multilingual and multicultural standards are rare at best. Following an introduction to the case study of the multilingual book "Have You Seen a Melipona Bee," the findings offer guidelines for designing multilingual children's publications and promote the strategic value of design to aid language conservation efforts.

Key words: multilingual design, typography, Yucatec Maya, children's publication design, mother-tongue learning, design anthropology

1. Identifying the Need: Maya Language Preservation

Deep in the Yucatan Peninsula, past the tourist sites and spring-break rituals, the indigenous Maya of Mexico are struggling to maintain their linguistic and cultural identity. To the majority of the world, the Mayan people are viewed as an ancient civilization defined by myths and ruins, offering little relevance to a digital age. As one of the largest indigenous populations in Mexico, the Mayan community is not only relevant to linguists concerned with the rapid depletion of global languages, but an important component of Mexican society today. In February 2011, Mexican legislators met to address pressing needs within the state of Yucatan and agreed on the urgency of taking action. Issues requiring immediate attention included dignifying the Maya language, eradicating acts of marginalization, and the need to preserve the struggling Mayan community (Yucatan Times, 2011). Preservation of the Maya language is not only essential to native speakers on an individual and group level, but also necessary for the cultural sustainability of Mexico in a rapidly shrinking global society.

Currently, most Mayans in the state of Yucatan speak Spanish, the colonizing and now ubiquitous language of Mexican education, government, media, and the church. The indigenous language of the peninsula, known as Yucatec Maya, is overwhelmingly relegated to rural areas and often omitted from schools with predominantly Mayan students. Teachers occasionally promote English as a globally relevant secondary language option, while simultaneously overlooking the intrinsic value of students' native language. Despite governmental efforts and national policy encouraging bilingual education strategies, a staggering number of Mayan children remain solely educated in Spanish after kindergarten and are given no instruction in the Maya written language. Bilingual students find themselves being taught in a system that privileges the Spanish language, causing them to internalize the idea that writing itself is associated with Spanish (Pellicer, 2004).

One tangible step toward a solution to the cultural imperative facing the Mayan community is to create and distribute multilingual books, journals, and periodicals to schools and classrooms across the peninsula. The production of print and digital publications using Maya, alongside Spanish and English, can elevate its status, perception, and usefulness in the eyes of speakers and non-speakers alike. Popular literacy where people "read newspapers and books regularly and write letters to one another as a matter of course" is a meaningful step towards language preservation (Bernard, 1992). Integrating multilingual publications into schools helps support Maya preservation initiatives and strengthens mother-tongue-based learning programs.

2. Identifying the Need: Maya Language Preservation

Research shows that children who learn to read and write in their native language, known as mother-tongue learning, are more successful in school than those who learn in their secondary language. "When children are forced to study through a language they cannot fully understand in the early primary grades, they face a serious learning disadvantage that can stunt their cognitive development and adversely affect their self-esteem and self-confidence for life" (Jhingran, 2009). The mother-tongue-based approach to education has a positive impact on a child's sense of identity, self-esteem and learning outcomes; it also promotes a culturally diverse global community (Benson, 2004).

Literacy instruction in a mother-tongue-based learning environment should promote balanced bilingualism to ensure children are literate in their L1 [first language] and also fluent in their L2 [second language]. Indigenous students are more successful if teachers provide literature in L1 and L2, while gradually introducing L2 before using it to teach or

give instruction in the classroom (Pinnock, 2009). Literacy skills and reading strategies successfully transfer between languages that use the same writing system, even when grammar, vocabulary, and orthography differ (Ernst-Slavit & Mulhern, 2003). Students are able to identify similar letters and sounds across each language by following segmented words or characters and can use extra-linguistic cues such as bold typography, repetition, and images to support reading. During the introduction of a multilingual story, teachers can familiarize students with the mechanics of each language, and children quickly discover the ease of multilingual reading by following color, along with typographic and graphic cues specific to each language.

The stories Mayan children read should not only be multilingual but also culturally relevant, reflecting the unique linguistic and cultural landscape they inhabit, while carefully avoiding stereotypes about indigenous culture. Children who see a positive representation of their heritage and language in literature derive self-esteem and pride in the oral traditions maintained at home. Culturally relevant publications may be used in the classroom to support and improve language expansion, independent reading, home-school connections, multicultural enrichment, reading for pleasure, or the transfer of reading in L1 to L2 (Ernst-Slavit & Mulhern, 2003). Teachers who regularly validate students' cultures provide a rich and effective approach to learning instruction and avoid the pitfalls of banal presentations of tradition and history (McLaughlin, 1995).

3. Developing a Solution: "Have You Seen a Melipona Bee?"

The careful balance between a culturally in-tune narrative and a thoughtfully designed multilingual publication can enrich the learning experience of students in a mother-tongue-based learning environment. Publishing in the devalued indigenous language, alongside the traditionally dominant language of the country, deliberately confronts and purposely rejects the overwhelming disregard and dismissive attitude towards Maya. The immediate need for multilingual publications in schools and classrooms across the Yucatan Peninsula provides a rich context to explore the role of design, narrative, and typography in this unique linguistic landscape.

Culturally relevant publications for children in the state of Yucatan require sensitivity to the needs of the Mayan community, an understanding of the cognitive abilities of children, and a thoughtful approach to multilingual design. To meet this objective, professors and students in Graphic Design, Spanish, and Anthropology joined together in the rural Mayan village of Yunku in July of 2011 to conduct research, engage in relevant coursework and

pilot a service-learning project for Mayan children. With twenty years of experience in the area, Anthropology Professor, Dr. Laura Vick, coordinated the study abroad program and continues to maintain a close personal relationship with the community of Yunku.

University courses for study-abroad students included "Graphic Design and Social Justice," "Contemporary Maya Culture," and "Intercultural Leadership." The service-learning component of the program matched college students with groups of Mayan children between the ages of 5 and 15 for guided activities, games, and lessons in Maya, English, art, computer literacy, and pre-Hispanic culture. Fieldwork focused on gathering stories through open-ended interviews with Mayan leaders, community members, and children. Documentation methods included photography, video, and journaling.

For graphic designers, the immediate objectives were to produce design guidelines for multilingual publications in the Yucatan Peninsula and to develop a publication suitable for mother-tongue-based learning for the Mayan children living there. The long-term goal of the project was to promote the value and importance of Maya throughout the peninsula, helping it to flourish alongside Spanish.

To meet the first project objective, a storyline was created based on the summer fieldwork. The various multilingual design variables elicited through research were then tested, using this storyline, by means of experimentation and analysis. The resulting guidelines, specific to multilingual publications include typographic, layout, and letterform distinctions that are detailed in section four of this paper. To meet the second objective, the children's story "Do You Know a Melipona Bee" was written, illustrated and designed to incorporate Maya, Spanish, and English by following many of the multilingual design guidelines established during the first project objective.

The narrative, characters, and setting of "Do You Know a Melipona Bee" were created based on the interviews and photography gathered in the village of Yunku. A two-hour interview with community leader and beekeeper Don Fabian was instrumental in narrowing the focus of the story to the melipona bee. The native melipona bee, known to Mayans as xunáan kaab, is a stingless bee kept almost exclusively in traditional log hives. The bees were domesticated and harvested by the Mayan people for centuries and provide the community with sweeteners, medicine, and a vital small-scale economy. The melipona bee can pollinate numerous plant species, while the honey and wax it produces are important to traditional Mayan cultural practices (Villanueva-G, Roubik, & Colli-Ucán, 2005). The

importance of the melipona bee to the village of Yunku and its successful habituation hybridization to hives inhabited by European bees, led to the creation of a children's story revolving around a friendship between two bee species.

"Do You Know a Melipona Bee" takes children on a journey through the Yucatan forest, introducing readers to indigenous animals of Mexico, while a honeybee searches for the melipona bee. The storyline was written in English by Denielle Emans (Graphic Design Professor) and translated into Spanish by Mercedes Guijarro-Crouch (Spanish professor and professional translator) and into Maya by César David Can Canul (Maya linguist). The story was developed to introduce children to basic animals and family relationships through the repetition of words and phrases in all three languages. Language specific issues were highlighted early in the design process to guide design decisions such as typeface choice, column width, color, and hierarchy.

The multilingual children's publication "Do You Know a Melipona Bee" uses Maya, Spanish and English in all components of the book, with the indigenous language dominating hierarchically in layout, point size, and color. This typographic prioritization breaks the general standards set for multilingual publications, but the overriding need to increase the value of Maya superseded the need to equally represent each language. The publication uses the super-family "Thesis" in a "single-stacked" layout, with Maya displayed first in "The Mix," Spanish second in "The Serif," and English presented at the bottom of the page in "The Sans."

The relative success of the publication is currently unknown; forthcoming research in Yunku in the summer of 2012 will help measure children's response to the book. However, preliminary discussions of early drafts of the book with Mayan children in two rural villages are promising. Children are not only enjoying the book but are very excited that it is written, in part, in Maya. Discussions have also stimulated sharing other culturally relevant stories through children's publications with researchers inside and outside of the Yucatan Peninsula.

4. Exploring the Possibilities: Multilingual Children's Publication Design

The primary design objective of a multilingual publication is to create an effective layout that equally represents each language to young readers. A publication should equally balance typography, applying size, weight, space, color, and quality of scripts consistently across all languages (Walker, Edwards, & Blacksell, 1996). A balanced layout should ensure

that children are able to identify each language, follow the text they want to read, and navigate through the entire publication with ease.

The abilities of young readers may vary according to children's ages, reading proficiencies, linguistic development, cognitive styles and preferences. Understanding the needs and limitations of young readers helps define publication requirements such as the appropriate approach to layout, the typographic presentation of each language, and the visual-verbal relationship between text and image. Design challenges may arise due to the distinctive typographic features of each language, varying line length of each translation, appropriate illustration style for each culture, and practical limitations such as budget.

Placement and position of text and images can significantly affect how young readers view, receive, and emotionally react to content. "The form of type itself colours, and even alters, the initial intent of a communication" (Cheng, 2005). The intended or unintended meaning of each design decision is amplified when several languages are presented in a single publication. The subtleties of design tell young readers as much about cultural codes and social values as the story itself. A design treatment can invariably suggest that one language is more important than another, resulting in a negative attitude toward the perceived subordinate language. Contributing factors to this phenomenon include publishing formats, distribution of languages, typographic variables, and the order in which each language appears on the page.

4.1 Translations and Line Length

The translation of a children's story into a different language should maintain equal writing quality, reading level, style, and formality between texts (Walker et al., 1996). Effective, well-written translations often create unpredictable results in text length that can fluctuate based on subject alone. A concept or phrase may translate concisely in one language but require extensive explanation in another. Each translation can produce vastly different word count and line lengths, potentially increasing paragraph size up to fifty percent or drastically cutting the length of a title.

4.2 Layout

The layout of a children's publication demands careful planning, a structured approach, and a healthy dose of creativity. A multilingual layout should ensure that each language is separated and easily identified using color, space, typography, graphic cues, or a combination of these. Each language should appear in a consistent manner on the cover,

title page, contents, body copy, references, indices, and spine. A flexible design approach using an elastic layout is ideal for absorbing varying text length and can leverage the use of white space, scaled images, and typography to optically harmonize the page.

Publishing formats that print separate editions of each language or bind languages into distinct sections weaken the overall validity and efficacy of a multilingual publication. The obvious benefit of reading without interruption is overshadowed by the fact that readers can inadvertently or decidedly disregard one language. Failure to equally represent each language is detrimental to the success of a mother-tongue-based learning environment and contradicts the fundamental purpose of the publication's existence. Popular multilingual layout solutions where each language plays an equal role on the page include a single-stacked, parallel column, or paragraphing approach.

A single-stacked layout divides languages one on top of the other in a single vertical column and gives priority to the language on the top of the page. In the Yucatan Peninsula, where the Maya language is often devalued, this format should only be used if Maya appears as the language on the top of the stack. In this case, it may be helpful to place Spanish in the middle as a bridge between languages to help children make the connection between Maya above and English below. Using this approach may also require color or graphic separators to help children successfully differentiate between languages that horizontally break apart the page.

A parallel column layout presents languages side by side in parallel columns and may require a wider page size to accommodate the width of three columns on one page. Children can quickly adapt to reading across a publication by column, but this approach may be difficult for readers accustomed to following text from column to column. Columns can appear across a 2-page spread and should prioritize the indigenous language in the left most column to assure first priority reading. Minor adjustment to typography, point size, or leading will likely be needed to equally fill the columns due to varying translation lengths.

In a paragraphing layout every paragraph block in one language is followed by a corresponding paragraph block in the other, and so on. This approach is generally considered the most difficult format for reading longer multilingual texts and practically ensures an unbalanced and broken read for children and adults alike.

4.3 Typography

Typography, color, layout and hierarchy play an important and necessary role in the function, clarity, and success of a multilingual publication. Typography in particular is a powerful tool that can enhance the separation, identification, and readability of multiple languages. Achieving balanced typography in a children's multilingual publication can be accomplished using a single typographic treatment, a super family, or the thoughtful application of a variety of typefaces.

Multilingual design solutions often apply a single typographic treatment to all of the text, giving each language the same font, size and weight. Assigning one type treatment to all of the text safeguards language equality yet relies heavily on layout or color to separate languages. The use of color in publications designed for children can increase the distinction between texts and may be placed behind each language to guide reading. Limiting the contrast between colors helps ease any undue emphasis on one language and reduces the eyestrain of reading in color.

An extensive typeface family that has more than three variations such as serif, sans-serif, and mix offers increased visual separation between languages while safeguarding the optical harmony of a publication. Often referred to as a super-family, broad typeface families are available through a variety of type foundries including, but not limited to, Thesis by LucusFonts, Compatil by Linotype, Rotis by Monotype, ITC Legacy by ITC, and Museo by Exljbris. The type variations within a super-family are designed for equal visual weight, invalidating potential assertions of language preference due to typographic distinction. The need to place additional emphasis on individual words is achieved using the italic, bold, or bold italic specific to each variation, although the varying grammar system and structure of each language may affect where emphasis appears.

Using the same font or typeface family throughout a multilingual publication can theoretically exaggerate the differences in line and paragraph length between translations. In some cases, noticeable line length disproportions may demand greater typographic variation than adjustments to type size or leading can accomplish alone. The use of multiple typefaces can effectively equalize uneven line length and eliminate concerns of space imbalance on the page. Meticulous attention to the legibility of each typeface is essential, and maintaining language equality must remain the foremost priority of the design.

Observing traditional guidelines for combining multiple typefaces helps ensure that fonts complement or contrast one another, but never conflict. Understanding the structural differences and particularities helps guide design decisions and should be based on the unique proportion, form, height, width, and density of each typeface. Research suggest that there is little difference in children's reading performance when a serif typeface is compared with a sans-serif typeface, but the use of ornamental, mimicry, or script typefaces for any one language is discouraged and may cause severe legibility issues (Walker, 2005). The careful choice and combination of a serif, sans-serif, and slab typeface can successfully uphold language equality, differentiate texts, and minimize differences in line length.

4.4 Letterforms

In the Yucatan Peninsula, the three most commonly used languages (Maya, Spanish, and English) are read from left to right and utilize the basic modern Latin alphabet. Mayan children reading and writing in this context understand that each language possesses common characteristics, general principles, and directional criteria. Sensitivity to the distinctive differences between languages is needed to understand the use of diacritical marks, letter frequencies, letter combinations, punctuation, and word length.

The use of diacritical marks in Maya and Spanish are common occurrences used to indicate the pronunciation of words. English lacks the diacriticals that are common in other languages and only a few foreign loanwords retain their accents (Cheng, 2005). Certain vowel combinations in Maya should not be separated by a hyphen at the end of a line because they represent one long sound (‘aa’ ‘oo’) or indicate a high tone (‘á’ ‘ée’) with an acute mark. Block caps or type that bleeds off the top of a page may read naturally in English, but can cause problems for children learning to read Maya or Spanish and needing to rely on diacritical marks to pronounce words.

Careful adjustment to the kerning between letters and leading between lines of text is needed when typesetting Maya in relation to Spanish and English. The frequency of the descending letters ‘j’ and ‘y’ and ascending letters ‘k’ and ‘b,’ for example, creates more intrusion in the space between lines of text than occurs in English and Spanish and requires careful increases in leading to minimize the effect. Maya also has an abundance of frequently used words that are only two or three letters long and are often used with an apostrophe. These short words may appear several times within one sentence such as “A’al ti’ yum k’ulub ka u ye’es tech u bejil.” Close tracking aids in suitable text flow and

should be kept in mind when considering justification of paragraphs as it may cause inconsistencies in paragraph weight.

In terms of punctuation, Maya and Spanish utilize open inverted question and exclamation marks (‘¿...?’ ‘¡....!’) whereas English applies these marks exclusively at the end of each sentence. In Spanish, the period and the comma follow a quotation mark, whereas in English the period and the comma are usually in front of the quotation mark. Spanish and Maya also use fewer capital letters and require more characters than in English. In summary, the punctuation, letter combination, and diacritical differences between Maya, Spanish and English present unique challenges for designers and opportunities for typographic experimentation abound.

5. Evaluating the Result: Next Steps

Thoughtful publication design can enhance mother-tongue-based learning using multilingual, culturally relevant, affordable design solutions. Encouraging results within the village of Yunku indicate a need for localized reference and training materials to encourage expansion in this niche industry, with potential growth to other regions of Mexico, along with Central and South America. Training materials for designers and teachers should develop as a part of a multicultural curriculum that includes an structured, documented, and sustained assessment plan to evaluate student learning outcomes for speakers of indigenous languages. New publications should be developed and reviewed by capable translators, designers, and community members. Reference materials require an inclusive review of current multilingual publications in the Yucatan Peninsula and should include new publications that speak to a range of realities, represent different childhoods, and are inclusive of the Mayan experience.

Strategic design approaches to aid language preservation initiatives in both print and digital mediums should be further explored in research and practice. Interactive digital books on e-readers, iPads, or mobile technologies can seamlessly integrate with multilingual programs and raise their status locally and nationally. The use of sound, interactive elements, and typographic experimentation can give children an enjoyable and engaging language learning experience, while providing guidance in reading, grammar, and pronunciation. This technology may be expensive for an individually funded project, but it is an affordable solution for private development firms, government agencies, and/or foundations that support literacy training.

It is critical to explore the role that promising new design solutions can play in promoting the skills, knowledge, and perspectives children will need to compete in the 21st century. Nobel Peace Laureate, Dr Rigoberta Menchú, writes:

> Now more than ever, unity in diversity is vital for human development and justice. Reflecting this in our schools is vital. All those working to improve the quality and reach of education now have an opportunity to recognize the vital role that children's language plays in learning, and to put genuine investment and commitment into good quality multilingual education (Pinnock, 2009).

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