

**Coping with multilingual needs with QR codes:  
assessment of the foreign users engagement in a Japanese museum**

(多言語ニーズへの QR コードを用いた対応：  
日本の博物館における外国人来館者の主体的参画に関する評価)

北海道大学大学院 環境科学院  
環境起学専攻 実践環境科学コース  
Abilla Espuna Sébastien Nonilo Henri

In Japan, the number of outbound tourists is increasing quickly, mainly under the influence of the rapid growth of a new middle class in other Asian countries. However, in most facilities, detailed information about local environment – nature and cultures – is translated only in English, when a translation exists. In this study, we assess how an easy-to-use tool, QR codes, could help to cope with multilingual needs. In this prospect, we present both a general description of the user engagement with QR codes in a museum and an assessment of the impact of the translation languages provided to users on their engagement.

The experiment was held in a natural science museum located in the middle of the Botanical gardens of the Hokkaido University in Sapporo, Japan. This facility is quiet popular among outbound tourists but provides a very limited amount of translated information. In 2017 and during 6 months, 26 QR codes have been attached near various specimen in the exhibit room giving access to information and questions (n = 1163 access to pages) on the user's smartphone . An English version and a Chinese version have been tested. In addition, 2 online surveys (n = 110) was always available during the experiment, and an on-site survey (n = 97) was held to reconstitute the user journey of all visitors, including non-users of QR codes. From those data, 6 variables have been assessed as components of the user engagement: the contents consumption, the attractiveness of QR codes, the users persistence, the familiarity with technology, the contents deep consumption and the users' perceived quality of the experience.

About the form of the user engagement, we found that actual users praise the system and even if the contents consumption is low, users persistence and contents deep consumption are high. We also determined that the specimen is the principal incentive of the user engagement well ahead of the quality of the system.

About the effect of the translation language, we found it is greater than anticipated: in a museum context, users try QR code only if they have a good proficiency in the proposed language. For example, even if their familiarity with QR codes is higher, Chinese readers used them only when a Chinese version was available; meanwhile, the user engagement of these Chinese readers is at least as good as that of English readers. Moreover as the Chinese version as been used slightly more (x1.15) than the English version, it appears that it is valuable to propose one.

Finally, as it appears that for curators the main issue with translation is to make one of high quality – including a need of rich contextualization – with limited resources, QR codes could be at least considered as a solution for a gradual and reversible deployment of a Chinese – and presumably Korean – translation.