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擴增實境導入書法展覽之應用研究

The Application of Augmented Reality Technology for
Calligraphy Exhibitions

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摘要

　　過去有不少擴增實境技術應用於博物館展品的展示與導覽，但針對書法展覽中加入擴增實境的案例較少，也較缺乏由展示內容角度觀照擴增實境技術如何影響觀眾經驗與學習的實證研究。基於上述背景，本研究發展並導入不同的導覽媒體在書法展示中，希望探討媒體訊息的結構化與呈現策略，如何影響觀眾的觀展經驗以及學習表現。本研究共招募 40 名二十歲以上成人，於一模擬展示之場地，使用紙本摺頁與擴增實境兩種不同的導覽媒體，自由觀賞宋代書法家黃庭堅的草書作品〈花氣薰人帖〉，並觀察記錄其在自由觀展、使用導覽工具、以及利用導覽工具了解展示內容的各項行為與表現。觀看展示結束之後，也以問卷調查及訪談方式，蒐集並瞭解受試者對自身經驗與導覽媒體的主觀評估意見。

　　本研究依據書法作品特質與主題內容，設計並發展兩套不同互動形式之導覽工具，一為由觀眾驅動並提供即時回饋與互動的「擴增實境導覽工具」，另一套則是以「紙本摺頁導覽工具」提供結構化的導覽內容。兩套導覽工具均提示書法展示觀賞的五大重要項目，包括正楷翻譯、印鑑說明、特徵說明、同字比對、筆順動畫。研究結果顯示，不論使用哪一種形式的導覽工具，受試者的整體學習成效，包括對展示內容的理解、記憶、評價與體驗都有提升，且兩組表現一樣好。其中使用擴增實境導覽工具的受試者也肯定擴增實境能夠減少他們在參照資訊、查找資訊的不便，協助他們更願意親近與快速理解草書作品內容。而在體驗價值的問卷評估結果，顯示出導覽工具對提升受試者的體驗價值有幫助，受試者認為紙本摺頁具有較高的教育價值，而擴增實境導覽工具則具有較高的娛樂價值。

　　本研究藉由擴增實境技術，為書法展示提供新的導覽工具，研究結果支持在展示場域中透過導覽媒體，能提供觀眾合適的參考框架，讓即便不熟悉書法的觀眾也能快速了解觀賞重點並賦予觀賞趣味與意義，本研究也根據研究發現，提出未來研究與實務的建議。

關鍵字：書法展示、擴增實境、博物館經驗、博物館學習、體驗價值

Abstract

While augmented reality technologies have been applied to the display and navigation in museum exhibits, fewer cases have been found in free-form and more abstract type of content, such as Chinese calligraphy exhibits. From the perspective and approach of exhibit content, this study adopted an empirical methodology to explore how the structure and presentation strategies of guiding media affect visitors' experience and learning performance.

A total of 40 participants volunteered to take part in this study. Two different guiding media including a brochure and a mobile AR app were developed and used in a simulated exhibition venue. The subject of the exhibit is "Flowers' Fragrance (花氣薰人帖)," a masterpiece of cursive script created by Huang Tingjian (黃庭堅，1045-1105), a Chinese calligrapher, painter and poet of the Song Dynasty. Participants used the assigned guiding medium to freely explore the exhibit, and their visiting behaviors and performance were observed and recorded. After the visit, the participants were administered a questionnaire and also interviewed to provide their subject evaluation toward the visiting experiences in general, and the guiding media in specific.

Based on the chracteristics and themes of the colligraphy works, this study designed and developed two versions of guiding media with different interaction modes. One is an AR navigation app where proactive interaction with instant feedback is available. The other is a brochure where reactive interaction with structured instruction is available. Both versions were consistent in disclosing 5 critical items of information about the exhibit artwork. Findings of the study suggested the overall improved visiting experiences and learning performance for all participants, no matter which type of guiding medium was used. Generally, participants' understanding, memory, and subjective appraisal of the exhibit were improved, and participants who used the AR guiding have shown as good

learning performance as their peers who used the brochure. Participants also affirmed that AR can resuce their inconvenience and inefficiency in cross-referencing and searching information, which also enlightened them on Cursive Scripts. The results of the evaluation also supported that the guiding media were helpful to enhanced the experienced value of the participants, where the participants believed that brochure had high educational value, and AR app has higher entertainement value.

This study adopted AR technology to provide an alternative way for visiting calligraphy exhibit. The results and findings supported that guiding media were helpful to provide visitors, even those who were not subject- or museum-savvy, with a referencial framework to develop their meaningful visiting experiences. Based on the findings, this study concluded by providing suggestions and strategies for future research and practices in the field of museum and visitor studies.