

# Chapter 5

## Low-End XR Practices for Libraries

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### ABSTRACT

*This chapter presents and discusses a review and comparison of low-end 360-degree and extended reality (XR) practices. The goal of the chapter is to assist both technologically and organizationally with the ubiquitous acceptance of these two technologies as part of the move toward immersive teaching and learning. The chapter shares an overview of rather fluctuant terminology: 360-degree videos and images, virtual reality, augmented reality, mixed reality, extended reality, immersive teaching, and immersive learning. Fostering and accepting a standardized and understandable terminology is an important part of the application process of these technologies to enable immersive teaching and learning. Furthermore, this chapter will argue the importance of a low-end approach toward immersive teaching and learning due to constraints of various characters and as a part of the scalable construct of immersive teaching and learning in academic libraries and respectively on campus.*

### INTRODUCTION

This chapter presents and discusses a review and comparison of low-end 360-degree and Extended Reality (XR) practices. The goal of the chapter is to assist both technologically and organizationally with the ubiquitous acceptance of these two technologies as part of the move toward immersive teaching and learning.

The chapter shares an overview of a rather fluctuant terminology: 360-degree videos and images, virtual reality, augmented reality, mixed reality, extended reality, immersive teaching, and immersive learning, among others. As it will be shown, fostering and accepting standardized and understandable terminology is an important part of the application process of these technologies to enable immersive

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teaching and learning. Furthermore, this chapter will argue the importance of a low-end approach toward immersive teaching and learning due to constraints of various character and as a part of the scalable construct of immersive teaching and learning in academic libraries, and respectively, on campus. While not diminishing the importance and the potential of high-end immersive technologies, as well as their imminent establishment, we believe that for various reasons a low-end approach should precede the transition from traditional teaching and learn to immersive teaching and learning.

## **BACKGROUND**

Considering the character of a rapidly evolving technology, it is not surprising to witness a rather fluctuant terminology when discussing immersive technologies.

Around 2016, Educause, the United States Association for advancement “of higher education through the use of information technology” (<https://www.educause.edu/>) start promoting Augmented and Virtual Reality as a two-to-three years-adoption possibility for higher education (Cuervo, 2016, p.40). At that time, the literature on immersive technologies distinguished three main types of immersive technologies regarding definitions: virtual reality, augmented reality, and mixed reality (Milténoff, 2018). By that time, 360-degree video and images were largely approachable and used in education.

In the same 2016, the development of the AR industry was predicted to reach \$56.8 billion by 2020 (Caboni & Hagberg, 2019, p. 1126). The expectations and predictions, however, for immersive technologies, are nearly not where the enthusiasm was five years ago and currently those predictions are even more cautious (Brown et al., 2020; Zacks Equity Research, January 22, 2021).

Among all the revised taxonomies, the “Reality-Virtuality Continuum” proposed by Milgram and Kishino (1994), has been the starting point for researchers to classify the wide variety of realities. This classification ranges from real to virtual environments at the extremes of the continuum (Flavian et al., 2019). Its interpretation in the last decades, however, becomes the source of variations and, respectively, misunderstandings.

*Figure 1.*



360-degree videos and images are viewed as the departing point from the real environment toward the virtual environment on that scale. Virtual tours are currently one of the most common applications of 360-degree videos and images.

Virtual tours are a well-accepted approach in libraries, museums, as well as in outdoors and similar open spaces. Augmented Reality made its inroads into virtual tours as early as the beginning of the

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