

# Chapter 5

## Literacies for Urban Life in Smart Cities: Digital, Algorithmic, Play, and Inclusion

### ABSTRACT

*The primary purpose of this chapter is to explore literacies for urban life and the ambient in smart cities with a focus on the digital, the algorithmic, play, and inclusion. To this end, a review of the research literature is conducted in the context of smart cities, learning cities, and future cities. Issues, controversies, and problems emerging from the literature review are highlighted, contributing to formulation of a conceptual framework for literacies and urban life and the ambient in smart cities. Using an exploratory case study approach combined with an explanatory correlational design, variables are explored such as interactive public spaces and information and communication technologies (ICTs), along with the nature of their relationships. From the perspective of literacies for urban life, insights from correlations inform understandings of smart cities, learning cities, and future cities while highlighting challenges and opportunities going forward for research and practice.*

### 1. INTRODUCTION

Regarding the algorithmic, Roche (2017) highlights the complexities and challenges “of integrating technical and human geo-sensing capabilities towards smart cities” and the need to address social issues. Play, according to Glas, Lammes, de Lange, Raessens, and de Vries (2019), in the context of the playful citizen, “can be considered a problem-solving force” while for de Lange (2019) in the context of the playful city, “play redefines roles and relations between professionals and citizens in processes of making cities.” Morrison, Bjørnstad, Martinussen, Johansen, Kerspern, and Dudani (2020) focus on the digital dimension of urban life in addressing the notion of “design futures literacies” in the context of a world that is becoming “more complex and contested, economically and politically.” Among literacies for inclusion in urban life, Qutab, Adil, Gardner, and Ullah (2022) refer to “social and digital inclusion” in relation to “citizen literacies.” As such, this chapter is significant in that it addresses the range of

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literacies required that are associated with the digital, the algorithmic, inclusion, and play in the context of smart environments and smart cities, forming the basis for exploration in this chapter, giving rise to the motivation for the main objectives that are described as follows.

**Objectives:** The main objectives of this chapter are to a) explore literacies for urban life and the ambient in smart cities; b) formulate a conceptual framework for literacies for urban life and the ambient in smart cities; and c) explore the nature of the relationship between variables associated with urban literacies as a way of learning more about smart cities, learning cities, and future cities. These objectives give rise to the main research question under exploration in this chapter – *Why are literacies for urban life in smart cities needed?*

## 2. BACKGROUND

Florida and McLean (2017) identify six principles for inclusive prosperity developed for “real estate and other businesses” to “adapt and use in their communities in the United States” and beyond. Indeed, it may be that these six principles for inclusive prosperity could contribute to literacies for inclusion in smart environments, more broadly. The notion of “algorithmic guardians” is discussed by Zambonelli, Salim, Loke, De Meuter, and Kanhere (2018) in the form of “software tools and algorithms” that are “capable of somehow protecting us from undesirable behavior on the part of third party algorithms” conceived as they are “as far more evolved instances of current personal assistants.” Regarding play, De Lange (2019) describes a game (*Rezone the Game*) that involves a range of elements including “a physical board game with a number of 3D printed iconic buildings that represent the neighborhood” as well as “an augmented reality layer of real-time information about these buildings projected on a screen” along with a “computer algorithm programmed to let buildings descend into vacancy.” Morrison et al. (2020) emphasize the importance of “design futures literacies” considered “in terms of rapid and long-lasting environmental change” where “resource use and reuse” must be reconsidered “in futures that are uncertain, contingent and emergent.” Worthy of note are emerging initiatives such as that at the University of Waterloo (2022) involving “futures literacy” as “applied to cities” in the form of Future Cities involving “urban-focused research, knowledge mobilization, instruction, and civic engagement” providing “a forum for presentations, dialogue, and knowledge sharing.”

### 2.1 Definitions

Definitions are provided from dictionaries, the research literature, and other sources for key terms used in this chapter.

- **Algorithm:** Merriam-Webster (2021) describes an algorithm as “a set of steps that are followed in order to solve a mathematical problem or to complete a computer process.”
- **Inclusion:** Carnemolla, Robinson, and Lay (2021) describe inclusion as “a process of increasing participation and decreasing exclusion” involving “a responsibility of communities at a localised level.”
- **Literacies:** UNESCO (2021) describes literacies as “a means of identification, understanding, interpretation, creation, and communication in an increasingly digital, text-mediated, information-rich and fast-changing world.”

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