

# Importance of bioclimatic design of school yards



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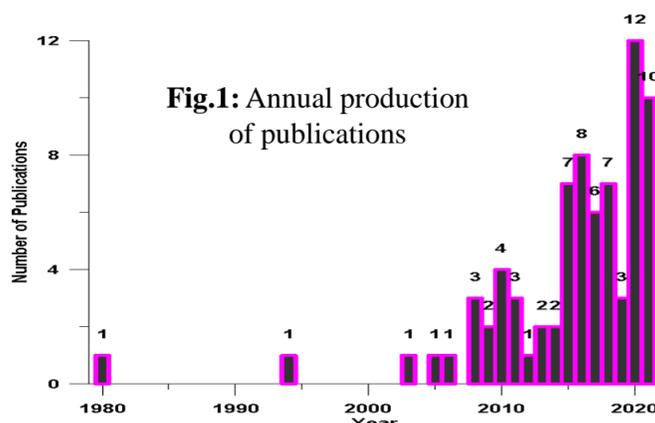
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## INTRODUCTION

The school community spends a lot of time in the schoolyard playing, studying, participating in physical activities and working together [1]. Stakeholders, in collaboration with schoolyard users, are developing a range of strategies, methodologies and eco-friendly materials to redesign these open spaces using bioclimatic principles [2,3,4]. The advantages of greening school exteriors are many [5], especially in cities where buildings and roads are very dense and nature is scarce [6]. Green schoolyards can provide the solution by improving microclimatic conditions and increasing citizens' perception of thermal comfort, health and well being [7,8] and at the same time represent an alternative solution and contribute to the achievement of Greece's energy and climate goal for 2030 [9].

## METHODOLOGY AND RESULTS

A Review was carried out by using the PRISMA method. The 75 documents that emerged from the Scopus database from 1980 to 2021 were analyzed. Fig.1 presents the published documents per year and it results that the concept of bioclimatic design of school exteriors is a topic of interest of the last decade.



## HIGHLIGHTS

From the analysis of the 75 papers selected, emerged that the schoolyard environment is a complex task involving many but related fields. The most significant factors highlighted in this study are shown in Fig.2. The first factor focuses on how a green schoolyard affects a city's resilience and its microclimate (local ventilation, temperature, and humidity) (Environment and Microclimate). The second factor focuses on the methods of creating schoolyards using bioclimatic parameters (Materials and Designing strategies). The third factor relates to the schoolyard's users' perceptions of thermal comfort and how that may affect their mental and physical health (Thermal Comfort and Health). The fourth factor focuses on users' environmental attitudes and their efforts to reduce their ecological footprints (Environmental Practices). The fifth factor focuses on how green schoolyards affect learning performance (Learning Process).

## CONCLUSIONS

The research findings help to identify the key factors of this study and the future research trends, and are also useful to policy makers in their efforts to create an efficient energy policy [10] and to cope with and recover from the negative effects of the pandemic.

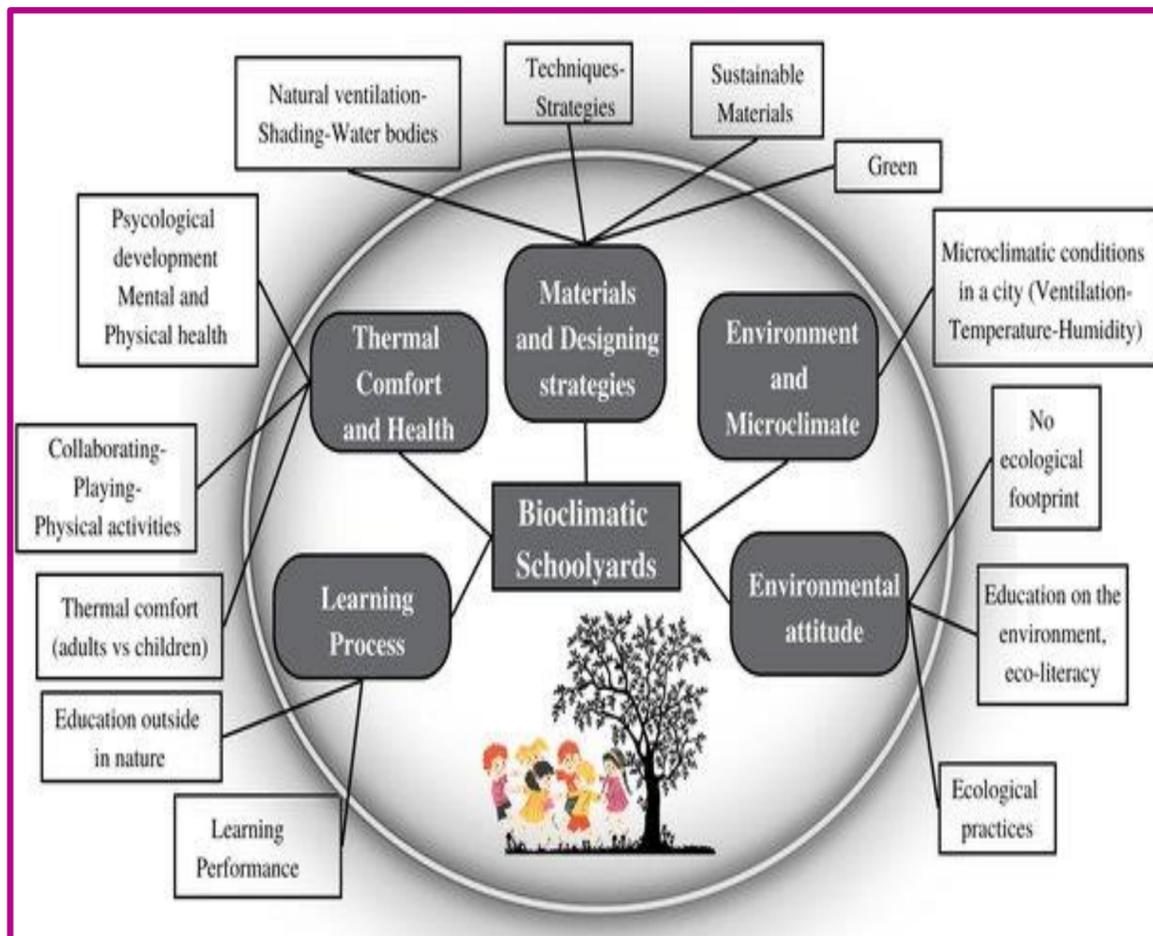


Fig.2: Graph showing the relationships between some of the most significant factors in the bioclimatic planning of schoolyards

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