Civil Engineering and Architecture 10(6): 2475-2490, 2022
DOI: 10.13189/cea.2022.100619 http://www.hrpub.org

The Role of Socio-Cultural Factors in (Trans)formation of Dwellings: A Reference Palette for Theories, Methods, Tools and Techniques

C. Indra*, Kumudhavalli Sasidhar

Faculty of Architecture, Dr. M.G.R. Educational and Research Institute, Chennai, India

Received June 10, 2022; Revised July 19, 2022; Accepted August 20, 2022

Cite This Paper in the Following Citation Styles

(a): *[1] C. Indra, Kumudhavalli Sasidhar , "The Role of Socio-Cultural Factors in (Trans)formation of Dwellings: A Reference Palette for Theories, Methods, Tools and Techniques," Civil Engineering and Architecture, Vol. 10, No. 6, pp. 2475-2490, 2022. DOI: 10.13189/cea.2022.100619.*

(b): *C. Indra, Kumudhavalli Sasidhar (2022). The Role of Socio-Cultural Factors in (Trans)formation of Dwellings: A Reference Palette for Theories, Methods, Tools and Techniques. Civil Engineering and Architecture, 10(6), 2475-2490. DOI: 10.13189/cea.2022.100619.*

Copyright©2022 by authors, all rights reserved. Authors agree that this article remains permanently open access under the terms of the Creative Commons Attribution License 4.0 International License

Abstract Understanding the role of socio-cultural factors in dwellings has become important in the current trends of urbanization and modernization. This can be explored through primary studies and from previous studies done by researchers. When pursuing a primary study also, understanding the studies done by previous researchers becomes a necessity. Hence, this research paper would be beneficial for the researchers to do analysis of the previous studies. A methodology model was developed for the analysis of secondary data involving socio-culture and dwellings. Previous researches were identified and selected based on certain inclusion and exclusion criteria for this paper. The limitations were the time frame chosen for selection of literature from January 2010 to May 2021 and the search websites chosen were Google Scholar and EBSCO websites. The methodology comprised of five stages. The first stage identified and selected the previous researches for the study, based on the inclusion and exclusion criteria. The second stage listed the theories, methods, tools and techniques from the books of pioneers. The third stage comprised of two parts; the first part checked the applicability of the theory stated by the pioneer Amos Rapoport that, the socio-cultural factors were the main factors in the formation of dwellings on to the transformation of different aspects of dwellings. The second part applied the listed theories, methods, tools and techniques from second stage, on the selected previous researches and categorized accordingly. The fourth stage categorized the reasons for the theory of Amos Rapoport being proved true at certain instances or false at certain other instances. The lacunas in the focus of the research topic discussed in the selected secondary data were also identified for further exploration. The fifth stage identified the different avenues available for researchers and also formulated a reference palette of the theories, methods, tools and techniques. This paper would be an additional secondary data for researches in the discipline of architecture, socio-cultural studies and anthropology. It would create an awareness to the architects, designers, urban planners and policy makers on the importance of the role of socio-cultural factors when designing dwellings and framing policies for the future developments.

Keywords Dwelling, Vernacular Architecture, Architectural Anthropology, Traditional Architecture, Socio-Culture

1. Introduction

Basically, dwelling revolves around socio-culture and as this paper discusses the expressions of socio-culture on the formation and transformation of dwellings, understanding

the definitions given by the pioneers in the study becomes a necessity. In 1871, Tylor an anthropologist first coined the term culture in English [1]. Culture was defined by Tylor as a collection of values and perception of a society and the way they performed their activities [2]. Amos Rapoport, [3] a pioneer in the study of the relationship between the socio-cultural factors and the built environment studies defined culture, as a collection of intangible aspects and the corresponding activities. Culture was also defined by Paul Oliver, [4] an architectural historian, as a set of value systems, physical representations and the activities performed based on that. Culture was not only an intangible aspect; it was said to have been reflected in the social aspects and manifested in the built forms. [5]

This article examined the previous researches on the role of socio-culture and dwellings which happened over a period spanning from January 2010 to May 2021. The pioneer in this domain being Amos Rapoport [6] and his theory about socio-culture being a significant factor in the formation of house form, in the book "House form and culture" was considered as the basis for the analysis. Similar and dissimilar theories relating to socio-culture and dwellings from the selected secondary data were presented and categorized. The applicability of the theory on the formation of different aspects of dwelling and on its transformation was also checked and the results were analysed stating the reasons.

1.1. Objectives

1) To give a methodology model for analysis of secondary data on inter-disciplinary researches connecting two domains. Socio-cultural factors and dwelling were the two domains explored in this paper.
2) To find the applicability of the theories of dwelling formation on to the transformation of dwellings.
3) To formulate a reference palette of the theories, methods, tools and techniques available for studies interlinking socio-cultural factors and dwelling for the benefit of the future researchers.
4) To identify the lacuna in the researches that were published from January 2010 to May 2021 interlinking socio-cultural factors and dwelling and also to give an insight into the avenues available in the studies for future researchers

2. Materials and Methods

2.1. Methodology

The methodology comprised of five stages.

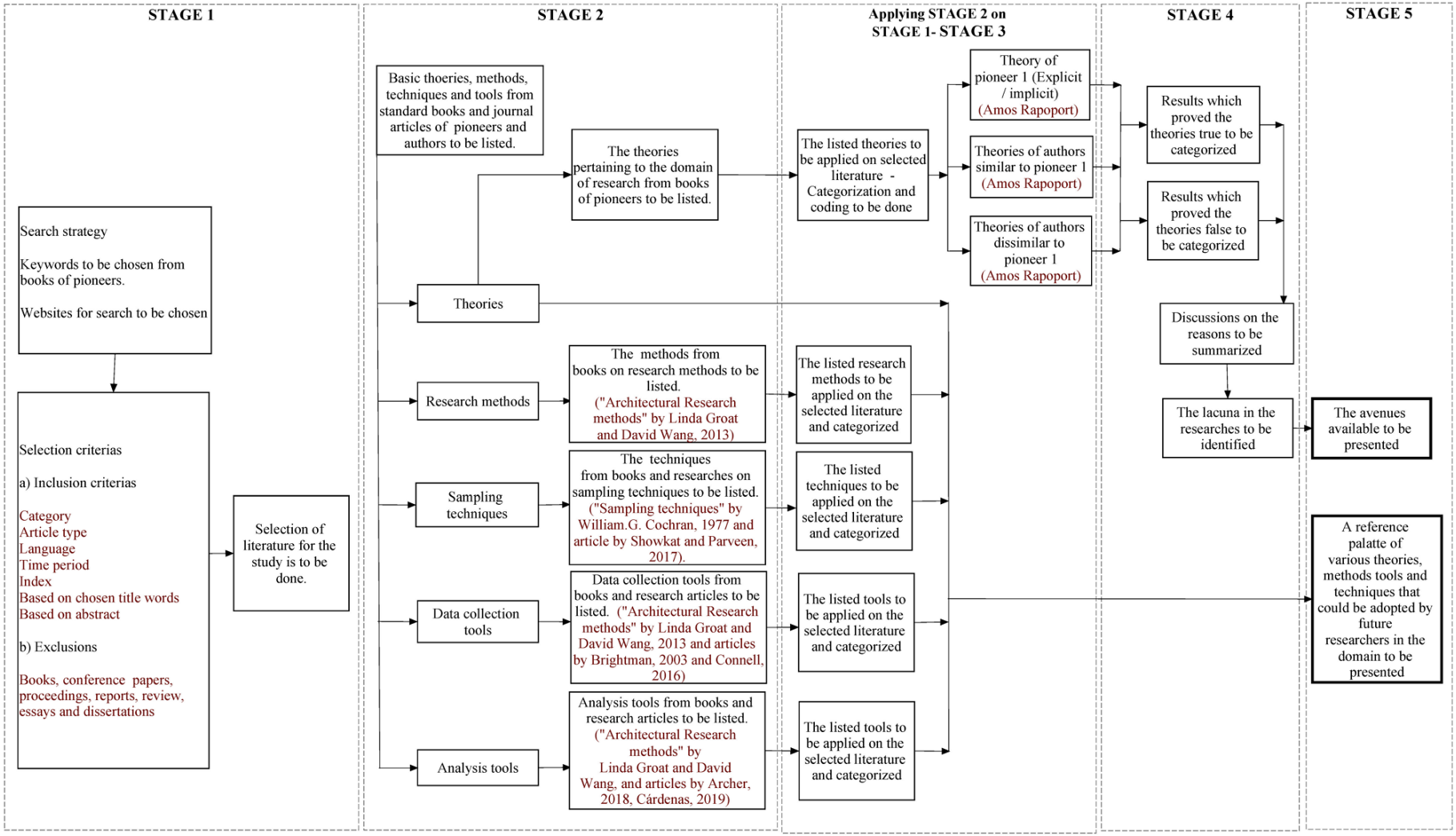
Stage 1: Search strategy and selection criteria were framed based on certain inclusion and exclusion criteria. The research articles which resulted from the above search criteria were considered for this analysis.

Stage 2: The details regarding the theories, methods, tools and techniques were identified and listed from the books and the journal articles of pioneers in the field of study.

Stage 3: The details of the theories, methods, tools and techniques from the selected literature listed in Stage 2 were applied on the previous researches which resulted from Stage 1 and were categorized.

Stage 4: The results of the selected literature were categorized based on the theories of pioneers which were proved true or false. Discussions on the reasons were summarized and the lacuna in the researches was identified.

Stage 5: The avenues available for future researchers were identified. A reference palette of the theories, methods, tools and techniques were given to future researchers.



Note: The Maroon colour text in the figure indicates the criteria, reference books and research articles referred by the author.

Figure 1. A methodology model for the analysis of secondary data involving inter-disciplinary researches. (socio-culture and dwelling in this paper)

2.2. Search Strategy and Selection Criteria

The selection of keywords was based on the terms used by Amos Rapoport, a pioneer in studies linking the socio-culture and architecture and Paul Oliver, an expert in the study of vernacular architecture.

Culture, architecture, spatial setting, migration, traditions, house forms, vernacular houses, socio-cultural, traditional settlement, cultural heritage, houses, built form, built heritage, architectural elements, and visual were the terms used by Amos Rapoport [6] in his books "House form and culture"; "The meaning of the built environment, A nonverbal communication approach" [7], and "Culture, Architecture and design" [3].

Culture, architecture, houses, vernacular house, built forms, traditions, built heritage, and settlements were discussed by Paul Oliver [4] in his book "Built to meet needs, cultural issues in vernacular architecture".

The search through the search strategy and selection criteria listed in Table 1, resulted in 18 articles which were considered for the study (Table 4).

2.3. Theories

The theory of Amos Rapoport, [6] in "House form and culture" states that the house form is affected significantly by the socio-cultural factors when compared to the other influencing factors. In line with and in continuation to the theory of Rapoport, F. S. Hudson [8] in the book "Aspect Geographies Settlement Geography" mentioned that all settlements have a cultural element and that has to be understood, to study the settlement. In agreement to the theory of Rapoport, R.Y. Singh [9] in the book "Settlement Geography" also said that, the socio-cultural factors played a major role in the formation of house form. Thus, being established that the theory had been proven and agreed by the above three authors who were experts in their respective fields, it was taken as the basis for analysis of the selected 18 articles researching at different contexts at different periods of time (Table 4).

2.4. Research Methods

The research methods listed in the book "Architectural Research Methods" were "Logical Argumentation, Simulation, Experimental methods, and Historical methods, Qualitative, Correlational, and Case Study / Combined Strategies." [10]

This paper categorized the research methods in the selected literature according to the above-mentioned methods.

Table 1. Table showing search strategy and selection criteria

Websites	Search options	Inclusion and exclusion criteria
Google scholar and EBSCO websites	Search Keywords	Chosen sets of keywords
		Set 1: culture, migration, traditions, house forms, vernacular houses
		Set 2: socio-cultural, traditional settlement, houses
		Set 3: cultural heritage, spatial setting
		Set 4: socio-cultural, architecture, houses, built form
		Set 5: built heritage; architectural elements; visual
	Category of Journal	Open Access Journals
	Article type	Peer reviewed articles
	Language	Only English
	Exclusions	Books, conference papers, proceedings, reports, review, essays and dissertations
	Time period	Jan 2010 – May 2021
	Indexing	Journals indexed in SJR Scimago Journal & country rank website.
	Selection of article based on chosen title words	Built form, culture and traditions, architectural elements, spatial concepts / settings / patterns, socio-cultural, dwelling and houses.
	Selection of article based on abstract	Abstract related to the relationship of socio-culture and dwelling architecture

2.5. Sampling Techniques

"Probabilistic sampling" and "Non-probabilistic sampling" were the two sampling techniques. [11] "Simple random sampling, stratified random sampling, systematic sampling, stratified systematic sampling, cluster sampling, and double sampling" were the types of "probabilistic sampling methods" [11]. The "non-probabilistic sampling methods were convenience sampling, purposive sampling, quota sampling and snowball sampling" [12].

The sampling techniques used in the selected literature were categorized based on the above mentioned types.

2.6. Data Collection Tools

The data collection tools mentioned in the book "Architectural Research Methods" by Linda Groat and David Wang [10] were as follow:

Secondary data collected through "archival information, documentary evidence, archaeological data, Encyclopaedias, books, Journals and internet sources." [10]

Primary data collected from

(i). "field work" in the form of "recordings of field notes, observations, survey questionnaires, focus group discussions, interviews and narratives". [10]

(ii). "Architectural documentation in the form of physical measurements and drawings". [10]

(iii). maps like "mind map, concept map, cognitive maps, and dialogue maps".[13] "GIS maps" for analysis based on the context and spatial relationships.[14]

(iv). "visual documentation by drawing, sketches, and photography". [10]

(v). data collected from "experiments and simulations through software". [10]

The data collection tools in the selected literature were categorized based on the above-mentioned tools.

2.7. Analysis Tools

The book, "Architectural Research methods" by Linda Groat and David Wang mentioned "quantitative analysis, qualitative analysis and mixed methods" for analyzing data [10].

Qualitative analysis comprised of the following types: "Content, Thematic, Grounded Theory to Narrative, Conversation, Discourse analysis" [15] and "GIS maps" [14]. There is "Computer-Aided Qualitative Data Analysis (CAQDAS) software" for qualitative analysis. [15] "ATLAS.ti, NVivo, MAXQDA, AnSWR, HyperRESEARCH, QDA Miner, Qualruss, Transana and Weft QDA were the software tools which can be used when purchased and open access software available were Weft, Open Code, AnSWR, and TAMS Analyzer" [15].

From the publication by Julián Cárdenas [16] there were three types of quantitative analysis methods based on the number of variables. When one variable was analyzed it was "univariate analysis", when two variables were analyzed then "bivariate" and when more than two were analyzed then "multivariate analysis". The techniques employed in univariate analysis were "frequency table, mean, and standard deviation". The techniques employed in bivariate were "contingency table (cross-tabulation), bivariate correlations, and One-way ANOVA". The techniques employed in multivariate were "Multiple linear regression, binary and multiple logistic regression, logit and probit models, discriminant analysis, factor analysis, cluster analysis, multidimensional scaling, two-way ANOVA, MANOVA, and structural equations". The software used in the statistical analysis were "Excel, SPSS, PSPP or Stata".

The mixed methods used were a combination of quantitative and qualitative analysis.

The analysis tools in the selected literature were categorized as mentioned above.

3. Theories - Categorization and Coding

The theories in the selected 18 articles were categorized and coded as follow: (Table 2)

(a) Researches mentioning the theory of Rapoport on the significant role of socio-cultural factors in the formation of dwelling architecture [6].

i). Explicitly mentioned were coded as AT1

ii). If it was meant implicitly they were coded as A'T1

(b) Similar theories mentioned by other authors were coded as BT1.

(c) Dissimilar theories mentioned were coded as BT2, BT3 and so on.

Table 2. Comparison of theories interlinking socio-cultural factors and dwellings from the selected 18 articles

Authors	Theory of Amos Rapoport (socio-cultural factors are significant in affecting the house form)	Similar theories by other authors	Dissimilar Theories (Other physical factors considered as significant factors affecting house form)
	Explicit / Implicit		
Brisibe [17]	A'T1	BT1 Indirectly mentions the significant role of culture in variation of architectural forms [18]	
Al-Haroun and Al-Ajmi [19]	AT1		
Furlan [20]	AT1		
Suprapti et al. [21]	AT1		Changes in the spatial organization are also due to economic factors. [6]
Nunta and Sahachaisaeree [22]	AT1		
Erdoğan [23]	AT1		
Tao et al. [24]	AT1		
Putra et al. [25]	A'T1	BT1mentions the dynamic role of culture. [26]	
Gulati et al. [27]	A'T1		
Maina [28]	AT1		
Rajendran L. et al. [29]	A'T1	B T1- The physical representations help in understanding the way people react thereby showing the interconnection between socio-culture and dwelling architecture. [30]	
Michiani and Asano [31]			BT2 - Even though understanding social, economic and cultural aspects are necessary materials and techniques play a major role in transformation of settlement and dwelling. [32]
GhaffarianHoseini and Dahlan [33]	A'T1	BT1- Socio-cultural factors affect the spatial organization in a house. [34]	BT3 - the climate and regional aspects affects the houses. [35]
Putra et al. [36]	A'T1	BT1 - Settlements and housing are physical manifestations of socio-cultural factors creating a sense of identity. [37]	
Shrestha [38]			BT4 - Socio-cultural and physical factors affect the traditional settlements and built forms. [39]
Özlem K. [40]	AT1	BT1 - Culture determines the form and also forms a guideline for transformation of physical environments [41]	
Zalloom [42]	A'T1	BT1 - Socio-cultural factors affect the spatial organization of a house. [43]	
Ara and Rashid [44]	A'T1		

The findings indicated that out of 18 articles, 16 articles quoted the theory of Amos Rapoport discussed in section 2.3. Out of which, eight articles mentioned Amos Rapoport explicitly and other eight articles even though did not mention explicitly have considered the theory and similar theories of other authors.

Dissimilar theories stated that other factors like:

(i). Materials and techniques,
(ii). Economic factors
(iii). Physical aspects
(iv). Climate and regional aspects also had a significant role in the formation and transformation processes of different aspects of dwelling.

4. Analysis and Results

4.1. Categorization based on the Research Methods

The research methods in the selected articles were categorized based on the methods stated in section 2.4. It was summarized and indicated by a pie chart (Figure 2). The results indicated that case studies / combined strategies were identified as the most preferred methods followed by qualitative methods in researches interlinking socio-culture and dwelling.

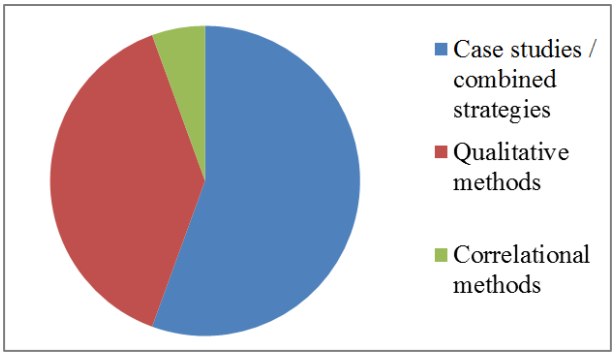


Figure 2. Pie chart showing the categorization of research methods from the selected literature.

4.2. Categorization based on the Sampling Techniques

The sampling techniques in the selected literature were categorized based on the techniques specified in section 2.5.

It was summarized and indicated by a pie chart. (Figure 3) The results indicated that stratified sampling was the most preferred followed by random sampling and purposive sampling amongst the 18 researches.

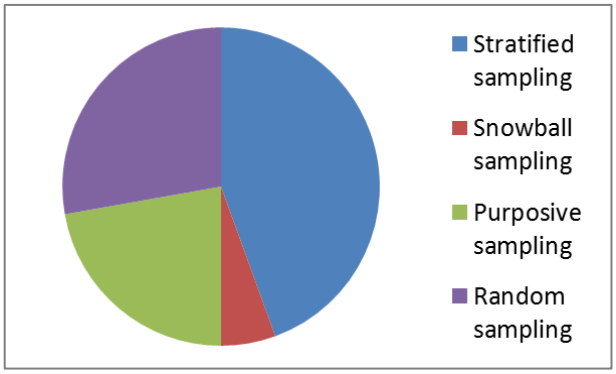


Figure 3. Pie chart showing the categorization of sampling techniques from the selected literature

4.3. Categorization based on the data collection tools

The data collection tools were categorized based on section 2.6 and indicated by a bar chart. (Figure 4)

From the selected literature, it was observed that the field work through observations, survey questionnaire, interviews, field notes and documentation through physical measurements and drawings was a mandatory tool for researches to understand socio-culture and dwelling. Participative workshops, narratives, and focus group discussions were sparingly used because they might provide a biased opinion. Spatial mapping was used to understand the relationship of spaces.

To understand the visual aspects of socio-culture and dwelling, visual tools like photography and sketches were most commonly used.

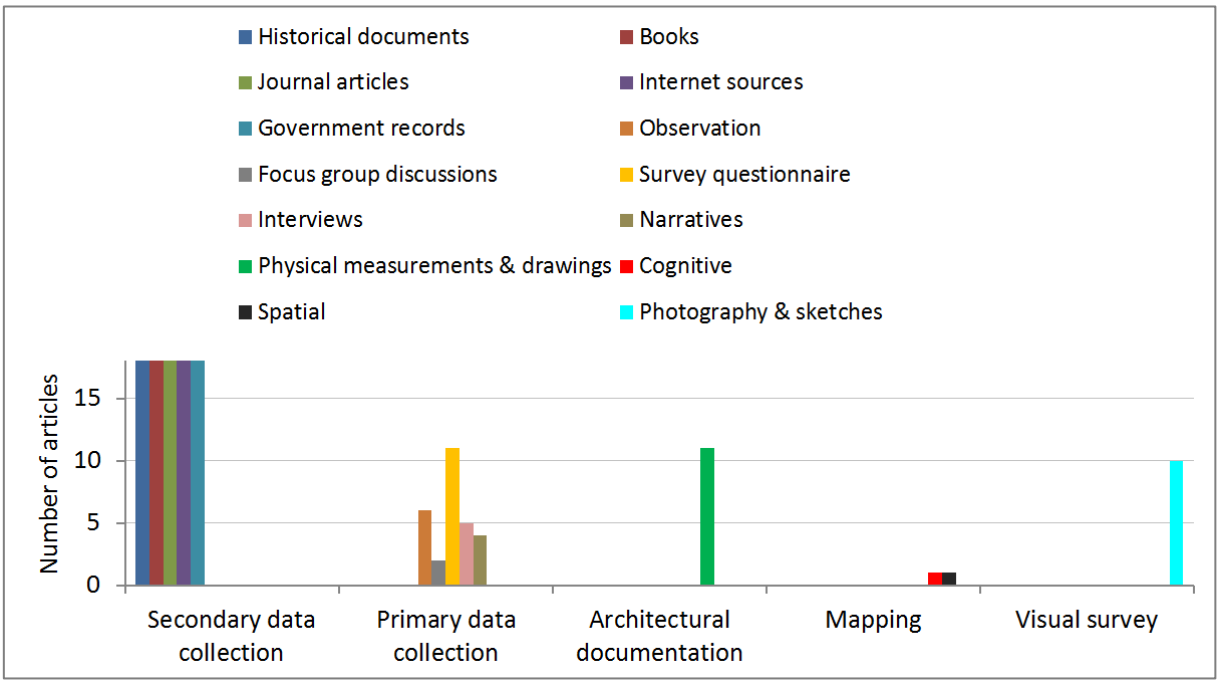


Figure 4. Bar chart showing the categorization of data collection tools from the selected literature

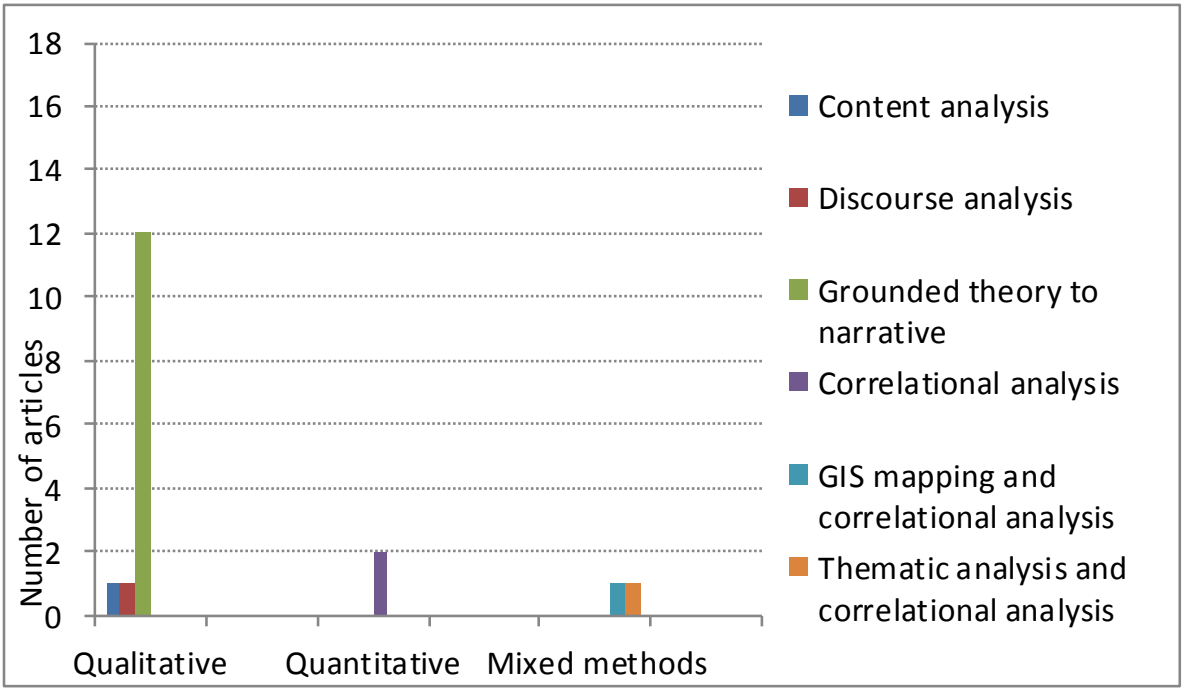


Figure 5. Bar chart showing the categorization of analysis tools from the selected literature

4.4. Categorization based on the Analysis Tools

The analysis tools used in the selected literature were categorized based on section 2.7. The different types of analytical tools listed were qualitative analysis, quantitative analysis and mixed methods analysis.

Among the listed types of qualitative techniques, 12 selected articles used grounded theory to narrative analysis; discourse analysis, content analysis, GIS mapping and thematic analysis were used by one article each in the selected articles. Two articles used Correlational analysis, a type of quantitative analysis. Thus the grounded theory to narrative, a type of qualitative analysis was found to be the most preferred tool in the researches interlinking socio-culture and dwelling. (Figure 5)

4.5. Analysis of Results of the Selected Literature

Analysis of the factors that led to formation and transformation of different aspects of dwellings according to 18 authors' research in their physical context at that point of time was summarized and given in Table 3.

The factors were coded as follow:
Socio-cultural factors – SC,
Environment – E,
Climate – C, Political – P,
Economic Factor – EC,
Materials & Technology – T.
No contribution was denoted by X.

A bar chart (Figure 6) was drawn based on the tabulated data (Table 3) and it could be found that socio-cultural factors significantly affected the formation and transformation processes of different aspects of dwelling when compared to the other influencing factors.

Table 3. Factors influencing house form, spatial planning and architectural elements.

Authors	Formation			Transformation		
	House Form	Spatial planning	Architectural elements	House Form	Spatial planning	Architectural elements
Brisibe [17]			SC, E			
Al-Haroun and Al-Ajmi [19]					SC	SC
Furlan [20]				SC, E		SC, E
Suprapti et al. [21]				SC, EC	SC, EC	
Nunta and Sahachaisaeree [22]				SC, C		
Erdoğan [23]				SC, C	SC, C	
Tao et al. [24]	SC, E					
Putra et al. [25]				EC		
Gulati et al. [27]	SC	SC				
Maina [28]				SC, P, EC, T	SC, P, EC, T	
Rajendran. L. et al. [29]					SC, T	
Michiani and Asano [31]				SC, EC	SC, EC	
GhaffarianHoseini and Dahlan [33]				SC, E	SC, E	
Putra et al. [36]				SC	SC	
Shrestha [38]				X SC, X E		
Özlem K., [40]				T		
Zalloom [42]					SC	
Ara and Rashid [44]	SC, T					

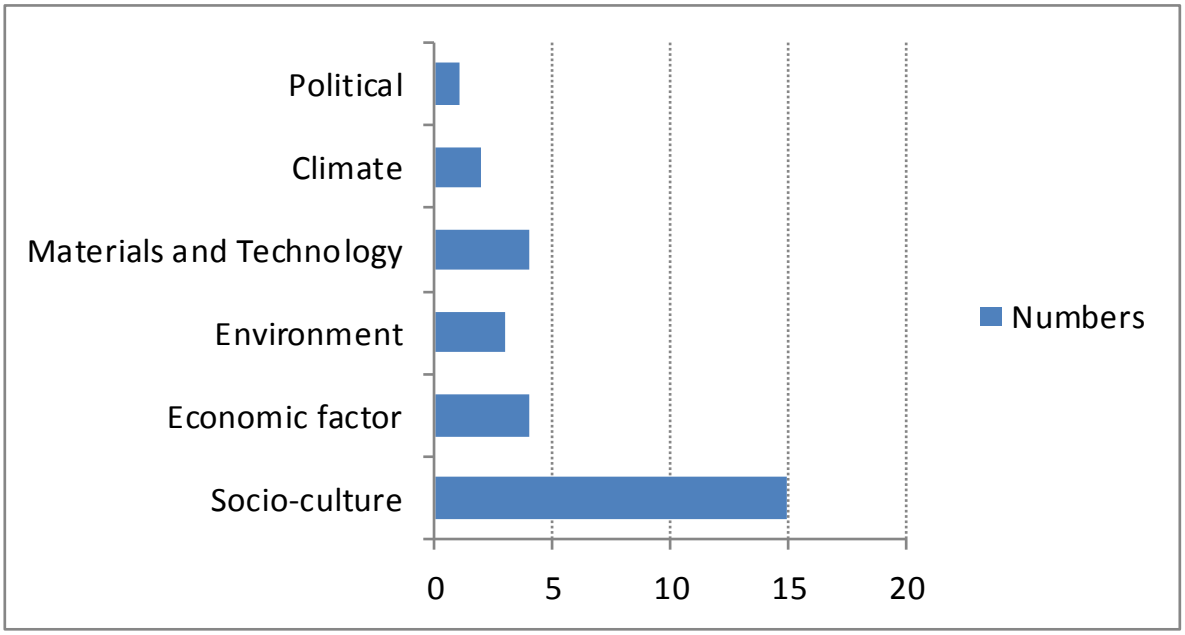


Figure 6. Bar chart showing the analysis of results from the selected literature

5. Results and Discussion

A methodology model for analysis of secondary data on researches connecting socio-cultural factors and dwelling was formulated in Section 2.1 and Figure 1 explained the various stages in the analysis.

The applicability of the theories on dwelling formation and on to the transformation of dwellings was checked and the results were summarized and tabulated in Table 3.

The discussions on the research methods, tools, techniques and the analysis of the results are as follow:

5.1. Research Methods

The results indicated that the studies interlinking socio-culture and dwelling employed case studies / combined strategies and qualitative methods for the research. In a more technical perspective, coding was used to convert the qualitative data to certain themes based on the content to quantify the data. It was found that when two different aspects were to be correlated, then correlational method was used in researches, so quantitative methods have more potential to be explored in this domain.

5.2. Sampling Techniques

Stratified sampling was the most preferred technique since the results obtained were more specific to the particular chosen group. But when there were limitations in categorizing into groups, random sampling methods, snow ball sampling or purposive sampling were chosen.

5.3. Data Collection Tools

Secondary data collection was mandatorily chosen to get background information on the chosen study. The actual activities based on the socio-culture and their influences on the different aspects of dwelling were better understood through direct field study but not through experiments or simulations. So direct field studies and their tools and techniques were the preferred primary data collection methods used for such researches.

5.4. Analysis of Results

An understanding of the socio-cultural factors was better when given descriptive and narrative explanations, so qualitative or partially qualitative analysis tools were preferred by the researches. When the research focus was on co-relating certain aspects then the quantitative techniques like correlation were used.

Out of the 18 selected literatures, 14 used qualitative methods and two used quantitative methods. Another two used mixed methods which showed that there was also a possibility to link the qualitative methods to quantitative methods. So the future researches can further explore on this.

5.5. Analysis of Results in the Literature

The analysis of results summarized in Figure 6 showed that 83% (15 researches) of the selected literature proved that the theory of Amos Rapoport on socio-culture and dwellings was applicable both in the formation and transformation of dwellings. It was also found from the studies that over a period of time the socio-cultural needs of the people and their perceptions changed which in turn brought about changes in the dwellings and vice versa. This indicated that there existed a strong relationship

between the socio-cultural factors and dwellings, in its formation (four out of 18 proved true) and transformation (11 out of 18 proved true) of different aspects of dwellings.

Dissimilar theories had also been used in the researches and a few had also disproved Amos Rapoport's theory. It has been found from the analysis of results, that other factors also influenced the formation and transformation of different aspects of dwelling. They were as follow:

Economic factors:

In case of societies where the aspect of generating revenue to sustain by creating more economic opportunities during the course of time was more important, the economic factors played a significant role in the formation and transformation of dwellings.

Environment and climatic factors:

These factors play a major role when the physical context chosen was based on a particular geographical location done during a selected period of time.

Materials and technology:

This factor was significant because the physical context chosen was influenced by globalization and modernization trends that showed a strong influence of the materials and technologies on dwelling aspects evidently due to new innovations.

Political factors:

In some physical context due to consequent political changes, the introduction of new styles, new policies, and guidelines by the government showed strong political influences and affected the dwelling aspects. In those studies political factors were considered to be significant factors in the formation and transformation of dwelling aspects.

The above discussions have contributed to the formation of a reference palette of the theories, methods, tools and techniques (Figure 7) for the benefit of future researchers.

The lacuna in the researches from the selected literature between a time span from January 2010 to May 2021 interlinking socio-cultural factors and dwelling was also identified from the discussions above.

This would help the future researchers by giving an insight into the avenues available in such studies.

6. Conclusions

Based on the results and discussions it can be concluded that not only in the formation but also in the transformation of dwellings, the socio-cultural factors are the major influencing factors.

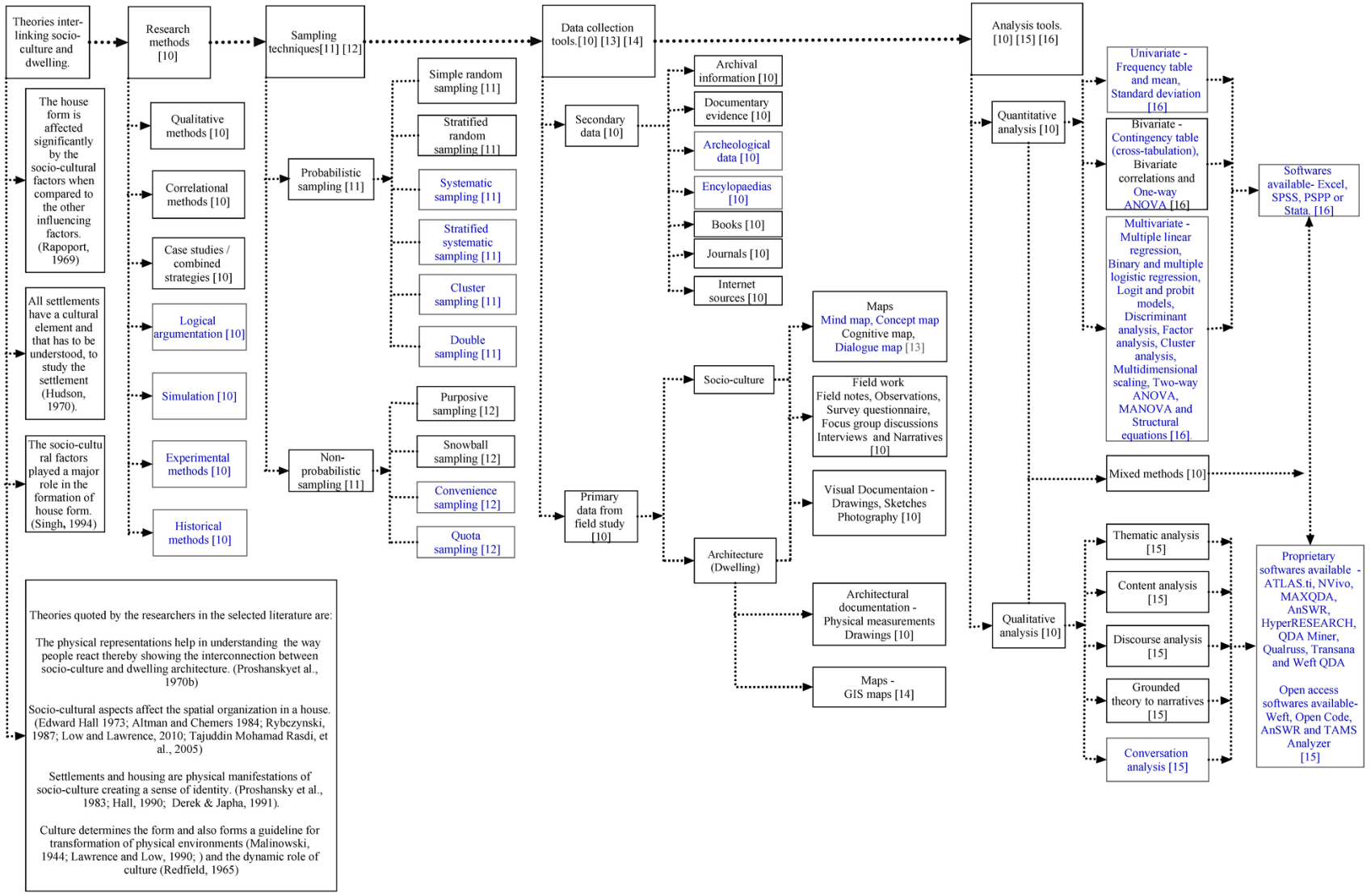
There is further scope for exploring more new theories other than the theory of Amos Rapoport, Paul Oliver, F.S. Hudson, and R.Y. Singh relating socio-culture and dwellings. Future researchers can identify those theories based on their literature study and relate them for further understanding and research.

The details in Table 4 show that the search strategy and selection criteria within the time frame of January 2010 to May 2021 resulted in case studies from the following continents. There were 13 articles which dealt with countries in the Asian continent, which were China [24], Indonesia [21] [25] [31] [36], India [27], Malaysia [33], Thailand [22], Kuwait [19], Iran [29], Nepal [38], Jordan [42], Bangladesh [44]. Two articles dealt with Turkey which has some territory on the Asian continent and some on the European continent [23] [40]. Two articles were from Nigeria in the African continent [17] [28] and one article from Australia [20]. The search had not resulted in articles which had case study setting from North America and South America. There is still much scope for exploring other physical contexts in Asia, Europe, Africa and Australia. Continents like North America and South America have a new avenue for such researches.

The search strategy and selection criteria resulted in only two articles in the selected researches which dealt with the architectural elements interlinking socio-culture and dwelling. So there is also plenty of scope for extending the research focus to the study of the influence of socio-cultural factors on the architectural elements in the future.

A methodology was formulated for analysis of secondary data which would be a methodology model for any future interdisciplinary researches.

A reference palette (Figure 7) containing the theories, methods, tools and techniques available for the researches interlinking socio-culture and dwellings were given for the benefit of future researchers in six parts. The first part summarized the theories interlinking socio-culture and dwellings stated by the pioneers and by the researchers in the selected literature. Second, third, fourth, and fifth parts summarized the research methods, sampling techniques, data collection tools, and analysis tools used in the selected literature along with the methods listed by the pioneers which are yet to be explored in this inter-disciplinary research. The sixth part listed the software available for both qualitative analysis and quantitative analysis for the reference of future researchers. This palette would be an additional secondary data for researches in the discipline of architecture, socio-cultural studies, and anthropology. It would create an awareness to the architects, designers, urban planners and policy makers on the importance of the role of socio-cultural factors when designing dwellings and framing policies for the future developments.



Note: The texts in blue color are the ones which were not explored in the selected 18 research articles

Figure 7. Reference palette of the theories, methods, tools and techniques for studies interlinking socio-culture and dwelling.

Table 4. Details of the selected 18 articles considered for this paper.

Websites	Sets of search keywords	Name of Journals	Number of articles	Articles selected for the Review	Authors	Year of Publication	Case study setting
Google Scholar website	culture, migration, traditions, house forms, vernacular houses	SAGE Open	2	Base Camp Architecture: Examining Variations in Fisher Dwellings in Nigeria and Cameroon [17]	Warebi Gabriel Brisibe	2016	Nigeria and Cameroon in Africa
				Cultural Traditions and Domestic Space: Ağaçbekler Home. [23]	Erdoğan N.	2017	Edirne, Turkey
		Archnet-IJAR	1	Cultural Traditions and Architectural Form of Italian Transnational Houses in Australia. [20]	Furlan R.	2015	Australia
		Journal of Asian Architecture and Building Engineering	1	Space and Culture: Isomerism in Vernacular Dwellings in Meizhou, Guangdong Province, China. [24]	Tao J., Chen H., Zhang S., Xiao D.	2018	China
		Journal of Architecture and Urbanism	1	From spiritualistic toward more pragmatic pattern: re-ordering Balinese houses and viability of the household traditions in tourism economy. [25]	Putra, I. D. G. A. D., Lozanovska M., Fuller R.	2019	Bali, Indonesia
	culture, migration, traditions, house forms, vernacular houses. socio-cultural, traditional settlement, houses	Journal of the International Society for the Study of Vernacular Settlements	2	Architectural Spaces as Socio-Cultural Connectors: Lessons from the Vernacular Houses of Lucknow, India. [27]	Gulati R., Sehgal V., Qamruddin J., Raushan A.S.	2019	Lucknow, India
				Constants Amidst Change: Socio-cultural Factors Influencing House Form in Tangale land, Northeast Nigeria. [28]	Maina J. J.	2013	Nigeria, Africa
	socio-cultural, traditional settlement, houses	ISVS e-journal	1	The Essence of Malay Vernacular Houses: Towards Understanding the Socio-cultural and Environmental Values. [33]	GhaffarianHoseini A., Dahlan N.D.	2012	Malaysia
		GeoJournal of Tourism and Geosites	1	Spatial orientation and the patterns of the traditional settlement in the Eastern Bali: Investigating new tourism attractions. [36]	Putra, I. D. G. A. D., Wirawibawa, I. B. G., Satria, M. W.	2020	Bali, Indonesia

Table 4. Continued

Google Scholar website	cultural heritage, spatial setting	Journal of Architecture and Urbanism	1	The spatial concepts of cultural heritage village toward a tourism development; A case study of Kadilangu Demak Indonesia. [21]	Suprapti A., Sardjono A. B., Indriastjario I., Pandelaki E. E.	2019	Kadilangu Demak, Indonesia
		Procedia - Social and Behavioral Sciences	1	Determinant of cultural heritage on the spatial setting of cultural landscape: a case study on the northern region of Thailand. [22]	Nunta J., Sahachaisaeree N.	2010	Thailand
	socio-cultural, architecture, houses, built form	Archnet –IJAR	1	Understanding socio-cultural spaces between the Hadhar and Badu houses in Kuwait. [19]	Al-Haroun Y. & Al-Ajmi M.	2018	Kuwait
		Frontiers of Architectural Research	1	Influence of inhabitant background on the physical changes of Banjarese houses: A case study in Kuin Utara settlement, Banjarmasin, Indonesia. [31]	Michiani M.V., Asano J.	2016	Indonesia
		Journal of Architecture and Urbanism	1	(Re)framing sociality as a socio-cultural paradigm: Examining the Iranian House culture and process. [29]	Rajendran L., Molki F., Mahadhizadeh S., Mehan A.	2021	Iran
EBSCO website	socio-cultural, traditional settlement, houses. socio-cultural, architecture, houses, built form.	Urbani Izziv	1	Residential neighbourhoods in Kathmandu: Key design guidelines. [38]	Shrestha B.K.	2013	Kathmandu, Nepal
	built heritage; architectural elements; visual	METU Journal of the Faculty of Architecture.	1	An integrated approach to conservation based on the inter-relations of tangible and intangible cultural properties. [40]	Özlem K.	2011	İbrahimpaşa a village in Central Anatolia, Turkey
	culture, migration, traditions, house forms, vernacular houses	METU Journal of the Faculty of Architecture.	1	Gendered spaces: The impact of the cultural aspects on the spatial organization of spaces inside the houses of Amman during the last century. [42]	Zalloom B.	2019	Amman, Jordan
	socio-cultural, traditional settlement, houses	Architectural Theory Review	1	Imaging Vernacular Architecture: A Dialogue with Anthropology on Building Process. [44]	Ara D., Rashid M.	2017	Chittagong Hill Tracts, Bangladesh
TOTAL NUMBER OF ARTICLES SELECTED FOR THE REVIEW			18				

REFERENCES

[1] Kroeber A. L., Kluckhohn C., "General History of the word culture," in Culture A Critical Review Of Concepts And Definitions, Cambridge, Mass., The Museum, 1952, pp. 9.

[2] Tylor E. B., "The science of culture," in Primitive culture, vol I, 4th ed, J. Murray, 1920, pp. 1.

[3] Rapoport A., "Culture Architecture and design," Locke Science Publishing Company, Inc., 2005, pp. 10-41.

[4] Oliver P., "Cultural traits and environmental contexts: Problems of cultural specificity and cross-cultural comparability," in Built to meet needs, cultural issues in vernacular architecture, 1st ed, Elsevier Ltd., 2006, pp. 59-60.

[5] Rapoport A., "Using "Culture" in Housing Design," Housing and Society, vol. 25, no. 1 &2, pp. 1-20, 1998. DOI: 10.1080/08882746.1998.11430282

[6] Rapoport A., "Socio-cultural factors and house form," in House form and culture, Prentice-Hall, Inc., 1969, pp. 34 & 58-60.

[7] Rapoport A., "The meaning of the built environment, A nonverbal communication approach," The University Of Arizona Press, 1982, pp. 11-242.

[8] Hudson F.S., "An introduction to settlement geography," in "Aspect" Geographies A Geography of settlements, Macdonald & Evans Ltd., 1970, pp. 3.

[9] Singh R.Y., "Rural settlements: A Culturo-Environmental approach," in Geography of settlements, Rawat publications, 1994, pp. 1.

[10] Linda N. Groat & David Wang, "Architectural Research Methods," 2nd ed, John Wiley & Sons, Inc., 2013, pp. 173-449.

[11] William G. Cochran, "Sampling techniques," 3rd ed, John Wiley & Sons, Inc., 1977.

[12] Showkat N., Parveen H., "Non-Probability and Probability Sampling, ResearchGate, https://www.researchgate.net/publication/319066480_NonProbability_and_Probability_Sampling (accessed Jan. 1, 2022).

[13] Brightman J., "Mapping methods for qualitative data structuring (QDS)," Strategies in qualitative research: Methodological issues and practices using QSR NVivo and NUD IST, May 8 & 9, 2003, pp. 1-11. https://banxia.com/pdf/de/Map_for_qual_data_struct.pdf

[14] Connell C. M., "Introduction to quantitative methods," ResearchGate, https://www.researchgate.net/publication/293816217_Introduction_to_quantitative_methods(accessed Jan. 1, 2022).

[15] Archer E., "Qualitative Data Analysis: A primer on core Approaches," ResearchGate, https://www.researchgate.net/publication/32877005_Qualitative Data_Analysis_A_primer_on_core_Approaches(accessed Jan. 1, 2022).

[16] Cárdenas J., "Quantitative Analysis: the guide for beginners," ResearchGate, https://www.researchgate.net/publication/337826695_Quantitative_Analysis_the_guide_for_beginners(accessed Jan. 11, 2022).

[17] Warebi Gabriel Brisibe, "Base Camp Architecture: Examining Variations in Fisher Dwellings in Nigeria and Cameroon," SAGE Open, vol. 6, no. 1, pp. 1-15, 2016, https://journals.sagepub.com/doi/pdf/10.1177/2158244016636942

[18] Rapoport A., & Graeme Hardie, "Cultural change analysis Core concepts of housing for the Tswana," in Housing the poor in the developing world, Routledge, 1991, pp. 35-61.

[19] Al-Haroun Y. & Al-Ajmi M., "Understanding socio-cultural spaces between the Hadhar and Badu houses in Kuwait," Archnet-IJAR, vol. 12, no. 3, pp. 68-89, 2018, https://www.academia.edu/43011216/UNDERSTANDING_SOCIO_CULTURAL_SPACES_BETWEEN_THE_HADHAR_AND_BADU_HOUSES_IN_KUWAIT?auto=citations&from=cover_page

[20] Furlan R., "Cultural traditions and architectural form of Italian transnational houses in Australia," Archnet-IJAR, vol. 9, no. 2, pp. 45-64, 2015, https://qspace.qu.edu.qa/handle/10576/5731

[21] Suprapti A., Sardjono A. B., Indriastjario I., Pandelaki E. E., "The spatial concepts of cultural heritage village toward a tourism development; a case study of Kadilangu Demak Indonesia," Journal of Architecture and urbanism, vol. 43, no. 1, pp. 36-46, 2019, https://journals.vgtu.lt/index.php/JAU/article/view/6057

[22] Nunta J., Sahachaisaeree N., "Determinant of cultural heritage on the spatial setting of cultural landscape: a case study on the northern region of Thailand," Procedia Social and Behavioral Sciences, vol. 5, pp. 1241-1245, 2010, https://www.sciencedirect.com/science/article/pii/S1877042810016423

[23] Erdoğan N., "Cultural Traditions and Domestic Space: Ağaçbekler Home," SAGE Open, vol. 7, no. 3, pp. 1-16, 2017, https://journals.sagepub.com/doi/pdf/10.1177/2158244017732815

[24] Tao J., Chen H., Zhang S., Xiao D., "Space and culture: Isomerism in vernacular dwellings in Meizhou, Guangdong Province, China," Journal of Asian Architecture and Building Engineering, vol. 17, no. 1, pp. 15-22, 2018, https://www.tandfonline.com/doi/pdf/10.3130/jaabe.17.15?needAccess=true

[25] Putra I. D. G. A. D., Lozanovska M., Fuller R., "From spiritualistic toward more pragmatic pattern: re-ordering Balinese houses and viability of the household traditions in tourism economy," Journal of Architecture and Urbanism, vol. 43, no. 1, pp. 47-61, 2019, https://journals.vgtu.lt/index.php/JAU/article/view/3692/8494

[26] R. Redfield, "Peasant society and culture: An anthropological approach to civilization," University of Chicago Press, 1956, pp. 1-162.

[27] Gulati R., Sehgal V., Qamruddin J., Raushan A.S., "Architectural spaces as socio-cultural connectors: Lessons from the vernacular houses of Lucknow, India," ISVS-ejournal, vol. 6, no. 4, pp. 30-48, 2019, http://isvshome.com/pdf/ISVS_6-4/ISVS-6.4.3-Ritu-Final.pdf

[28] Maina J. J., "Constants amidst change: Socio-cultural factors influencing house form in Tangale land, Northeast Nigeria," ISVS-ejournal, vol. 2, no. 4, pp. 23-40, 2013, http://www.isvshome.com/pdf/ISVS_2-4/ISVS%202-4%202%20Joy.pdf

[29] Rajendran L., Molki F., Mahadhizadeh S., Mehan A., "(Re)framing sociality as a socio-cultural paradigm: Examining the Iranian house culture and process," Journal of Architecture and Urbanism, vol. 45, no. 1, pp. 95-105, 2021, https://philpapers.org/archive/RAJRSA.pdf

[30] Proshansky H. M., Ittelson W. H., & Rivlin L. G.,(Eds.) "The influence of the physical environment on behavior: Some basic assumptions. Environmental psychology: Man and his physical setting," New York: Holt, Rinehart & Winston, 1970.

[31] Michiani M.V., Asano J., "Influence of inhabitant background on the physical changes of Banjarese houses: A case study in Kuin Utara settlement, Banjarmasin, Indonesia," Frontiers of Architectural Research, vol. 5, pp. 412-424, 2016, https://www.sciencedirect.com/science/article/pii/S2095263516300504

[32] Viquar S., "Modernization and cultural transformation: change in building materials and house forms, Karimabad, Pakistan," Master of Architecture Thesis, McGill University, 1998, https://escholarship.mcgill.ca/concern/theses/f4752j942

[33] GhaffarianHoseini A., Dahlan N.D., "The Essence of Malay vernacular houses: towards understanding the socio-cultural and environmental values," ISVS-ejournal, vol. 2, no. 2, pp. 53-73, 2012, https://isvshome.com/pdf/ISVS_2-2/ISVS-2-2%203%20Amirhosein-Final-Paper.pdf

[34] Tajuddin Mohamad Rasdi, M. K. M. Ali, E. Nihan, Syed Ariffin S. A. I., Mohamad R., & Mursib G., "The architectural heritage of the Malay world – The traditional houses," 1st ed, Malaysia Kuala Lumpur: Penerbit Universiti Teknologi, 2005.

[35] Muhammad Azzam Ismail & Abdul Rashid Fahanim, "Smart and Cool Home in Malaysia," Advanced materials research, vol. 224, pp. 115-119, 2011, DOI: 10.4028/www.scientific.net/AMR.224.115

[36] Putra, I. D. G. A. D., Wirawibawa, I. B. G., Satria, M. W., "Spatial orientation and the patterns of the traditional settlement in the Eastern Bali: Investigating new tourism attractions," GeoJournal of Tourism and Geosites, vol. 29, no. 2, pg. 614-627, 2020, http://gtg.webhost.uoradea.ro/PDF/GTG-2-2020/gtg.29218-493.pdf

[37] S. Hall, "Cultural identity and diaspora," https://sites.middlebury.edu/nydiasporaworkshop/files/2011/04/D-OA-HallStuart-CulturalIdentityandDiaspora.pdf (accessed June. 17, 2022).

[38] Shrestha B.K., "Residential neighbourhoods in Kathmandu: Key design guidelines," Urbani Izziv, vol. 24, no.1, pp. 125-143, 2013, https://web.s.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=8&sid=f0f3d2a9-3cd8-45d8-aaa4-1437bed950f3%40redis

[39] Proshansky H.M., "Environmental psychology," New York: Holt, Rinehart & Winston, 1970

[40] Özlem K., "An integrated approach to conservation based on the interrelations of tangible and intangible cultural properties," METU Journal of the Faculty of Architecture, vol. 28, no. 2, pp. 105-125, 2011, https://web.s.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=33&sid=f0f3d2a9-3cd8-45d8-aaa4-1437bed950f3%40redis

[41] B. Malinowski, "A Scientific Theory of Culture," The University of North Carolina Press, 1944.

[42] Zalloom B., "Gendered Spaces: The impact of the cultural aspects on the spatial organisation of spaces inside the houses of Amman during the last century," METU Journal of the Faculty of Architecture, vol. 36, no. 1, pp. 203-221, 2019, https://web.s.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=18&sid=f0f3d2a9-3cd8-45d8-aaa4-1437bed950f3%40redis

[43] Altman, M. Chemers, "Culture and Environment," Cambridge University Press, 1984.

[44] Ara D., Rashid M., "Imaging vernacular architecture: A dialogue with anthropology on building process," Architectural Theory Review, vol. 21, no. 2, pp. 172-195, 2017, https://web.s.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=31&sid=f0f3d2a9-3cd8-45d8-aaa4-1437bed950f3%40redis