Original Research Article

Explaining the Mutual Relationship between Landscape Perception and Participation in the Process of Participatory Landscape Development*

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Abstract

Problem Statement: Creating communication between human and his/her environment has certainly played a vital role in human life and providing his/her material and spiritual needs from the distant past. This interaction has been exhibited in different eras and different landscapes and has reinforced the culture of the people of each country. Also, this interaction of environment and landscape with the help of perception and participation plays an important role in improving the qualitative dimensions of the landscape and it has been attempted to enhance it through a participatory landscape.

Research objective: The current paper aims to examine the perception characteristics of urban and participatory landscapes and to present adaptive factors of landscape perception and participation field.

Research method: In this study, a combination of content analysis and comparative methods has been used. First, it tries to reason about perception and participation, and then to seek ways of applying a comparative approach in a participatory landscape. The first section of this article focuses on theoretical discussions on perception and participation in content analysis, which have been made possible using qualitative strategies in the context of rational reasoning, then explores the perceptions and participation factors similarities via comparative analysis.

Conclusion: Landscape perception is depended on spatia-visual, Functional, behavioral-visual and participation on participatory theory, multi level rangeand Participatory template and method AND Participatory ladder. By using these definitions, Conceptual model is presented in this article which shows the two-way relationship between landscape perception and participation. Results show that Reciprocal outcome by personal,generalized and institutional trust is effective in development and formation process of participatory landscape. At the end design participatory landscape pattern Provided with the opinion of experts.

Keywords: *Participation, Landscape Perception, Participatory Landscape, Urban Landscape Quality.*

Introduction and problem statement

Nowadays, citizens' participation in urban design and landscape architecture-as one of the patterns of public participation-especially in the area of environmental perception to enhance the urban landscape perception leads to an increase in the level of optimal livability. Although thinking about this issue has puzzled Western developed countries since the 1971s, unfortunately in most underdeveloped and developing countries, including Iran, this issue has not yet received appropriate attention. Lack of attention to this fact leads to problems such as the loss of constructive interaction between people and the city's landscape and the great loss of human identity. On the other hand, participation is one of the most complex and controversial scientific topics in the field of architecture and urban planning and has been defined according to different contexts. Some scholars, in defining participation with a macro perspective, have considered it as the active participation of individuals in political, economic, and cultural life in general and in all social fields. Partnership is the process of all groups of people involved in all stages of development for the emergence of abilities and, as a result, the material and spiritual growth of human beings. Accordingly, participation has been identified as an important element in achieving democracy and sustainable development, but the roots of public participation in environmental design nowadays must be sought in the early years after World War II. At this time, the post-1971 years, there was a need for a new type of social planning that could meet the citizens' demands. The purpose of this article is to investigate the perception characteristics of urban and participatory landscapes and to present comparative factors of landscape perception and the domain of participation. In the following, the concepts related to the theoretical foundations including perception, landscape, and landscape perception and then participatory approaches to the landscape are discussed and finally, these participatory approaches are explained and compared.

Research background

Research in the novel knowledge of landscape architecture is not only of equal importance to research in other fields but also it is one of the most important components to deal because of the need to understand the boundaries of this knowledge more and more clearly. With such an approach, from the last two decades to the present, based on the fundamental studies of scholars such as Foreman and Godron, Turner, Foreman, Bell, Naimela, Ahren, McGrigal & Marx & McGregal et al.. have improved the quantitative and qualitative nature of the landscape so that the landscape can be assessed in the context of landscape architecture knowledge, based on the study of its processes and patterns and perceive a perfect image of it. In the 1980s, efforts were made to apply social science research methods in the field of landscape architecture, most notably Seta Low's research at the University of Pennsylvania (Low, 1981).

Economic and social concepts have changed over the past four decades, but the concept of partnership has always been deeply embedded in the development process and has become increasingly important. The 1960s, known as the Decade of Development, saw the excitement of the decolonization approaches of Third World countries, the influence of human factors, and the participation of the people as part of the process of participatory develop. In the 1970s, and especially in its early years, which was accompanied by economic stagnation and energy crisis and people were unable to meet their needs, the need for rethinking development policies and strategies arose. As a result, the appropriate approaches have been widely followed up and pursued. Following these efforts, UNESCO, at its 19th General Assembly in 1926, in Nairobi, put forward a human-centered endogenous development approach and called for its implementation in development programs. In this approach, the need for more participation was emphasized and became the key principle of development. The first goal of human-centered development was to meet

basic human needs. This goal Strongly focused on bysocially disadvantaged people and groups. In endogenous development, participation has gained an important role and position. It has been considered as one of the fundamental principles. In endogenous development, people retain their identity consciously and attain power from individual and collective thought. Consequently, people's participation in this process is a fundamental practical condition that forms part of the operational aspects of development. Accordingly, the theory of development, considering its purpose and content, covers the importance of participation at all levels from decision of goal setting and needs determination to program implementation and evaluation. Participation, while being a goal, is also one of the basic human needs (Yavar, 2001, 37-39). Citizens' participation in urban and urbanization affairs emerged in the United States in the late 1950s and early 1960s. During this period, numerous laws on citizen participation were approved that changed the nature of urban decision-making processes. The concept of the partnership was introduced in England in the mid-1960s and was subsequently welcomed by other democratic countries. Participation is not just about giving people information, having good relationships and persuading them, it is about opening the government to encourage and interactions of people (Habibi & Saeedi Razvani, 2006, 17).

Theoretical Foundations
• **Urban landscape and environmental perception**
There are various definitions of urban landscape (Lynch, 1960; Cullen, 1961; Appleyard, 1979; Lang, 1987; Gehl, 1987; Punter, 1991; Norberg-Schulz, 2000; Dupont, Ooms, Duchowski, Antrop & Van, 2017; Ferretti 2018; Lore & Swital, 2018; Danielsson, 2019). In the simplest possible definition, the urban landscape is the appearance and outer shell of the city and, includes all elements that fall within the range of human vision (Carmona, 2010). The urban landscape is a combination of buildings and spaces

among them, formed by the distribution and layout of living and non-living elements of the city; it is experienced through movement and understood by citizens (Tilley, 2006). Urban landscape is an important and understandable part of urban space that, due to its wide variety and constituent elements, has a multidimensional and complex concept. The visual dimension of this concept, along with its perceptual aspects, has shaped and defined the urban landscape (Cullen, 1961; Norberg-Schulz, 2000; de Oliveira, 2016; Morgan, 2017; Xue, Gou & Lau 2017.; Phillips, Slepia & Hughes, 2018.; Kelly 2018; Wang et al., 2019). In other words, the landscape of a city is the tangible and perceptual elements of the city that are distinguished by the patterns of the city, the physical-natural features of the city, and the spatial configuration. These developments shape the structure of space through its spatial and social logic and develop it according to context, cultural and social context, and the physical environment around it (Rapoport, 1992).

Landscapes are understood through human activities, their perceptions, and functions (Norman, 2011). The meaning of Landscape can be the study of everything related to the appearance or visualization or experience of a space or an environmental context (Francis & Hutchinson, 2012), accordingly, urban landscapes as a context, provide this experience to the users (Jinghui, 2012). According to Habib, the urban landscape is a part of the shape of the city that the observer receives. In fact, a landscape that can have a clear image is also able to have a social role because it helps people to know where they are. Accordingly they can read the environment and adjust their activities more efficiently, and can even share memories and social media. Increase (Habib, 2006). On the other hand, these perceptions shape the landscape and actually convey messages through our senses (Cottet, Rivière-Honegger & Piégay, 2010). The physical environment of the city is prominently shaped as the source and sings of mental images and memories, and each individual is given a sense of belonging

to the urban landscape (Kincaid, 2005). Therefore, it is essential to understand the factors that lead to the creation of memories and connections between urban landscapes and subjective perceptions that lack of attention to it will lead to cultural disorder. The relationship between mental perceptions as a constant and urban physical structure as a variable creates a balanced context between the city and the collective memory that leads to the presence of people in this context. Thus, the urban landscape must act as a context for the formation of collective memories and the mental perceptions of its users (Rachel & Rachel, 2013).

Although the term urban landscape, was evident in the works of John Nash in the early 19th century and the late 19th century by Camillo Sitte, it was first used by Thomas Sharp in 1948 (Carmona, 2010). Sitte's theory of the aesthetic approach to the city provided the necessary context for some of the visual debates in urban spaces, which Cullen eventually was named the founder of the city's image theory. From Cullen's perspective, the urban landscape is the art of integrating visual and structural into the complex of buildings, streets, and places that make up the urban environment (Cullen, 2016), in other words, it is a vision from which an urban space can be seen. In this approach, the city is understood as a totality of mass and space through visual relations. Nevertheless, the urban landscape, in addition to the physical dimension, also encompasses the sense and meaning of the urban space. It is shaped by human activity in space and is experienced and understood over time (Deniz & Topcu, 2012). What constitutes an urban landscape are the physical, social, and cultural characteristics of a city that encompass urban space, its constituent elements, and its citizens' perceptions (Varol, Ercoskun & Gurer, 2011).

The main feature of the perceptual/contextual urban landscape is that it is presented as a socio-spatial structure (Zakavat, 2006, 30). Today, the landscape has come up with more comprehensive and accurate definitions as a mirror of culture and history that has cultural, social and aesthetic dimensions. On this basis, the landscape is the manifestation of human relations with nature around him from the past to the present, and it is a tablet on which he has written his works accurately and deeply. Thus, the landscape is a history of narration (Mansouri, 2004, 71). In today's definition of landscape, it is not an object. It is not enough to understand how the components of the environment combine with one another and how the physiology of perception works; one must also recognize the cultural, social, and historical differences of perception. In other words, what makes up the human mind must be known (Berque, Conan, Donadieu & Lassus Roger, 1994, 23). The urban landscape is a phenomenon that is demonstrated merely through human experience and in the interaction between man and the environment. The concept of the urban landscape in this model goes beyond the spatial and three-dimensional concept, and in terms of the dimension of meaning, a framework transformation takes place from the paradigm of space to the paradigm of place (Golkar, 2008, 107). Urban space is the context in which events and actions occur and form the memory (Habibi, 2008, 16). Indeed, the urban landscape requires the study and application of cultures and identities inherited from the past (Junjira & Nopadon, 2012). Another case in point is communal rituals. Collective rituals have a profound effect on the inhabitants of the city and lead to strengthening a sense of solidarity and belonging (Aminzadeh, 2007). At the same time, another vital element in the urban landscape goes back to historical areas through which memories of the past are recounted (Junjira & Nopadon, 2012).

Over 80% of human communication with the environment is made through sight; therefore, human landscape and perception play an important role in perceiving and understanding the environment and determining its satisfaction and dissatisfaction (Golchin, Narooei & Masnavi, 2012). Two different theories prevail in the common disciplines of cognition and visual perception; "deductive theory"

views perception as a process involving memory, past experiences, and semantic capabilities, while "explicit theory" views perception as the relationship between perception and the environment (Caiani, 2014). Visual perception, visual comfort, visual organization, and visual values are related concepts. Visual comfort can be described for places that are used in a healthier, safer, and more desirable manner due to the quantity and quality of information and conditions they provide, and to higher formal or social surveillance (Daviran, Khodaei, Gholami, Daneshdoost, 2012). In a definition of visual organization, it considers discipline, coherence, and cohesion governing the visual relationship between the elements and organs of the body, the clarity, and the presence of visual qualities that constitute an identity in the urban landscape (Ansari, Sadeghi, Ahmadi & Haghighatbin, 2008). In addition, visual values are the most important parts of environmental quality. Desirable visual qualities have a direct and constructive relationship with the desirability of environmental values and qualities (Zandieh & Zandieh, 2010). Richard Hedman believes that people are seeing much more than we can imagine. People are enjoying the re-experience of places that are visually vibrant, and places that always seem to have new spatial relationships and influences (Pakzad, 2009, 470).

Landscape can be seen as a collection of signs of perceptions of the environment, culture, beliefs, and context that cover a variety of shapes, patterns, and effects of life (Pourdehimi & Nourtaghani, 2012, 17). According to Meining's perspective, the landscape can be perceived as several theoretical concepts and approaches (Meining, 1979). Even the landscape can be conceived as a source of wealth, a habitat, a complex system, a human ideology, a place, a beautiful complex or a problematic factor (Rastandeh, 2007, 45). With the advent of the third millennium, topics such as social responsibility, sustainability, responsiveness, and environmental integration in the field of landscape architecture have come into play. The complexity of such

issues makes landscape architects more inclined to research as an important part of the planning and design process (Milburn & Brown, 2003, 55).

• **The factors of shaping the landscape perception**

Landscape is an objective, mental, dynamic and partial phenomenon that is the result of interaction between humans and environment, and society with history (Mansouri, 2015). One of the dimensions of the urban landscape is its objectiveness which is embodied via the quality of manifestation of the physical environment factors, but this dimension had been qualified for a kind of mental and subjective existence due to the presence in the historical conditions and repetition in the human groups who perceive it and it has been changed to a factor that connecting people in a society (Golkar, 2006, 45). Objective construction of an urban landscape is a phenomenological view of the city entered the urban literature from the conceptual studies done by Lynch (1960), Appleyard & Lintell (1972), Norberg-Schulz (1988), & Lang (1988) to express the human role in the perception of the phenomenon, the need for meaning and location features. Lynch's method of "attaining the meanings of the city through the acquisition of the mental maps that the inhabitants of the city drew for themselves" (Lynch, 1960) became the basis for cognitive geography which is now part of the basic tools of urban environment, studies that perceive the urban environment as meaningful entity.

On the other hand, the urban landscape perception is a mental process that takes place through the relationship between man and the space around him. Man receives the sensory messages of the environment and creates an image of the environment in his mind. One of the effective factors in the formation of this image is individual or collective memories of the environment (Habibi, 2004). In line with the connection between the urban landscape and mental perceptions, we need to identify the factors that cause something that leads to shape something in the minds of space

users. Passage of time, historical sights, public spaces, events, and signs are among these factors. Generally, during the formation of cities and throughout history, landscapes have been emerged that are linked to the memories of the people and remain in the minds of the inhabitants of their residence environment (Lynch, 1995).

According to what has been said in the definition and formation of landscape perception, physical, activity and semantic features have always been important. Physical and activity characteristics are important in line with objective interaction with perspective and semantic features are important in line with perceptual and subjective interaction with perspective. The formation of the character and the mental image of the landscape is not detached from the place, the events and the features that are effective in its creation. Factors that influence the formation and definition of location personality, image identity, and the view and image character of the view are as follows:

A) Physical Properties: As mentioned, each location has an built or natural body without which location recognition would not be possible. Near and far landscapes, natural and artificial landscapes, bodies, spatial bodies, signs, indistinguishable elements, floor and roof main elements, skylines, thresholds, paths, boundaries, limits, and so on create a context that location recognition without identifying them is not possible properly and they give the local climate and location personality certainty (Lynch, 1960; Steele, 1981; Zeidman & Maguire, 2016; Dupont et al, 2017; Senes, Pernechele, Berto, Fumagalli & Barbiero, 2018; Lande, 2018; Danielsson 2019; Milioris, 2019). The body of a place with its proportional and form characteristics has a specific geometrical orientation which has a major influence on the formation of semantic and locative components of location and indeterminate functions and is particularly important in image and landscape character (Norberg- Schultz, 2004, 173).

B) Functional features: According to what was

mentioned, in addition to the form (body), a place derives its unique characteristics from the presence of distinct functions and specific biological activities and is felt and seen in the light of daily life, activities, and functions (Relph, 1976; Trancik 1986; Kauffmann, Ramanoël, Guyader, Chauvin & Peyrin 2015; Jasińska, 2016; Chen & Tao, 2017; Ishak & Haymaker 2018; Borucińska-Bieńkowska, 2019).

C) Semantic-Cultural Properties: Another effective attribute in converting the environment into place is the semantic quality of the environment (Appleyard, 1979; Gehl, 1987; Punter, 1991; Relph, 2007; Wan & Shen, 2015; Ratcliffe & Korpela, 2016; Rapoport, 2016; Monteyne, 2017; Lore & Swital, 2018). As has been argued, the peripheral environment can be transformed into a meaningful environment if it has rich facilities in line with meaningful identity determination and can make a meaningful connection with a world of objects and things (Norberg- Schultz, 2004, 22). What is referred to as meaning is the result of its associations that are rooted in the learnings, experiences, cultures, and habits of individuals, and mark each person's perception, mental image, and attitude about that space and the activities in it (Falahat, 2012, 54). Meanings have existed before us and have a history and life, but are re-constructed and reproduced in interaction with our spatial and temporal life (Primozik, 2009, 40); (Fig. 1). Paying attention to the cultural characteristics of each region is one of the most important factors that are effective in understanding and defining place-related meanings since each site is a context for the interactions between humans. In fact, the cultural features of society, such as the spirit, infiltrate and manifest in the body of place and manifest themselves in the spatial context,. So the semantic component of a place is a qualitative and metaphorical context derived from the presence of collective events and memories of attributes. This is one of the features by which the place has become meaningful (Kiani & Pourali, 2011, 63).
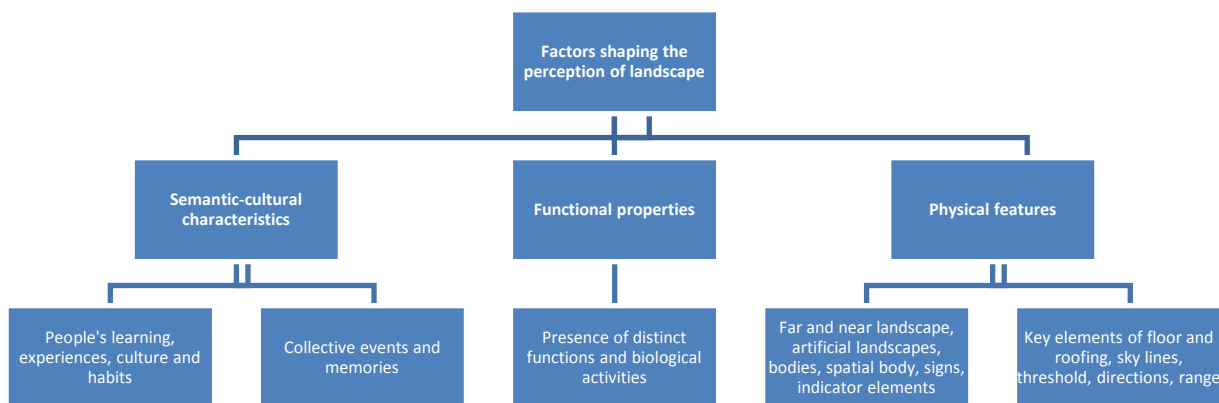
Fig. 1. Factors shaping landscape perception . Source: authors.

• Participation

The Latin root of the word "participate" means to have or posses, to have something other than ones' own, and to take part in something other than one's own. Literally, participation means getting people involved in doing something. Partnership is seen as a reciprocal matter that a person accepts it willingly and cooperates with a person or group to do something (Shakuri, 2011, 8). The process of participation is to define and analyze problems, design and formulate solutions, mobilize resources and use them at all levels to meet the needs and develop the presence of the people.. In the participation process, actors can monitor and control the processes that affect their lives (Peris, Cebillo-Baque & Calabuig, 2011, 85). All people are involved in the participation process, either directly or through institutions that express their desires and interests (Sadashiva, 2008, 8). In fact, today, commitment to public participation in development programs within institutions is one of the key features of development-oriented governments (Pollard, 2010, 705). The following are some of the definitions in this regard:

1. Participation is the formation of socially disadvantaged groups in order to meet some of their urgent needs through assistance that the government does not provide them or they are out of its financial capacity.

2. Participation leads the helpless people to empowerment and transforms their potentials into real capacities and increases their power to enjoy life (Motiei Langroudi, 2003, 81).

Participation should be seen as a development tool. If development is considered as thought, participation is a tool. In fact, the result of development is empowerment of people and empowerment means knowledge, efficiency, and sustainability. (Alavi Tabar, 2000, 15). There are three important components in this definition: getting involved, helping, and being responsible. An in-depth understanding of this definition requires an overview of these three components:

A) Mental and emotional engagement: Participation is not limited to physical endeavors, and first of all, it means mental and emotional engagement. In addition to participation, the person is also involved in the skills and abilities provided (Midgley, 1987; Wiedemann & Femers, 1993; Sanoff, 2000; Bailey & Grossardt, 2010; Hopkins, 2010; Ross, Baldwin & Carter, 2016; IAP2, 2017).

B) Motivation to help: An individual in the participation process has an opportunity to use his or her abilities, initiatives, and creativity to achieve group goals. Partnership differs from agreement; in agreement, the agreed individual does not provide particular assistance, but only approves of what he or she is proposed, but participation is a mutual social exchange between people. In fact, in the partnership, the participant plays a key role in trying to show his/her abilities (Ibid, 51).

C) Being responsible: Participation by motivating

individuals leads them to take responsibility for the group's efforts. In fact, participation takes place only when dependence and responsibility take the place of irresponsibility and indifference (Alavi Tabar, 2008, 15-16); (Fig. 2).

• **Participatory landscape**

Participation is one of the necessities of urban life and it is realized when the chitizens are out of their individual lives and become citizens with a sense of collective responsibility (Piran, 1995, 132). The participatory landscape approach is one of the ways to re-connect people with the city and emphasizes the audience-oriented perspective. The participatory design process is an organized and principled process through which unskilled users, supervisors and project stakeholders help one another to transform urban space into a valuable place (IAP2, 2017).

Now, after years of experience in the designing, planning and developing urban and rural spaces, developers have come to believe that the key to successful designs, decentralization and enhancing the presence of users and natives people in architectural projects is to use participatory patterns. Participation is a process in social and civic self-education, human right and a precondition for development (Chambers, 2008, 212). Stepwise design is an interaction that its objective is the formulation of a design question with the participation of the owner and the design team. Some scholars, such as Lawson and

Lang, believe that "cognition, design, selection, execution, and evaluation after execution" are key stages of the design process (Lawson, 2005, 125). According to Randolph T. Hester, the main goal of the participatory design process is to use collective creativity to develop sustainable social and environmental development. From his point of view, participatory design seems to improve creativity in the design process. One of the most important characteristics of changes resulting from new participatory attitudes is the consideration of participatory tools as mediators between users and professionals. In these projects, the designer assumes the role of the facilitator and uses various participatory tools to communicate the ideas and thoughts of users. The ideal environment for participatory processes where people are more motivated to participate is an environment where the contribution of each group is equal. To give enough information to people who are often unaware of design, workshops can be used to inform current status and a way to express their creative ideas in design. Training and development of the necessary skills must be considered before beginning the choice of participatory planning and design (Hester, 1990, 46).

Sannoff considers participation as important in the presence of the user in producing the architectural work. In the participatory approach, he points to several factors to the architectural design process: "There is not always the best

Participation (development tool)		
(Being responsible) Participation is realized when indifference and irresponsibility give way to dependence and responsibility	(Motivation to help) Partnership is a mutual social exchange between people	(Mental and emotional engagement) In participation, in addition to an individual, the skills and abilities and facilities provided are also engaged.

Fig. 2 . Three Important Components of Participation as a Development Tool. Source: authors .

answer to a design problem, the experts' decision is not necessarily better than others. The design process must be transparent; the process is always ongoing and changing" (Sannoff, 2000,5). Sannoff's proposed participatory approach involves four stages of awareness, perception, decision making and implementation (Salama, 1995, 83). Collective emotion is considered as one of the most important elements of participatory design, especially in developing countries. In the psychological approach to collective design, the goal is to enhance the collective feeling through the participatory design process (Hertzberger, 2001, 249). Designing a participatory landscape is not only a means of achieving the objective dimensions of the landscape but also it is a goal that highlights the subjective dimensions of its audience. When landscape usersparticipate in its design, their mental perception of landscape changes and many social and environmental values are added to it (Mansouri & Foroughi, 2018, 22). There are several reasons for the need for citizens' participation in the planning and managing cities, some of which are: (a) the limited facilities o f governments to provide funding and manpower to offer services at the local level; (b) to prevent the lack of programs inconsistency with local conditions; proportionality between needs and the nature of t h e provided opportunities; (c) the spread of cultural values that fostered norms of equality and democracy and led to increased citizen participation.

Research method

This study uses a combination of content analysis and comparative methods. This paper first seeks to discuss about perception and participation, and then to explore ways of applying a comparative approach in a participatory perspective. The first part of this article is devoted to the theoretical discussions and understanding of the subject literature in the field of perception and participation through content analysis which is made possible through the use of qualitative strategies in the context of

rational reasoning and the second part is devoted to examining the perceptions and participation factors sharing from the context, comparative analysis is used.

Logical reasoning is a kind of movement identification, a move from the introductions to the result; it involves steps and there is a gradual continuity. Therefore any kind of separation in this movement damages its structure and makes it impossible to obtain a result. Based on such characteristics, logical reasoning is called motor identification (Khansari, 2004, 3). Comparative content analysis is one of the main approaches in the field of social sciences, especially in comparative sociology. McCabe and his colleagues have focused on the necessity of comparative analysis for two reasons: (a) the need to avoid ethnical analysis that is most effective; (b) the necessity of studying this method to test and refine theories, concepts; and Hypotheses (McKay & Marsh, 1999, 278, quoted by Ghafari, 2010); (Fig. 3).

Findings

For this study, the factors effective on the perception of landscape and participation from the theorists' point of view have been identified and categorized carefully in theoretical literature and studies. By examining the theoretical foundations, landscape perception is divided into three physical, functional and semantic features. According to theorists, data in the physical (spatial-visual) domain, including body (form) improvement, visual diversity, and connection between context and surrounding; in the functional (spatial-functional) domain, including social-functional interactions and performance improvement; and in the semantic (visual-behavioral) domain also includes an individual's relationship with the environment (design), an individual's relationship with the environment (semantic) and socio-cultural exchanges. In Fig 4, landscape perception analysis based on the data obtained from the research is presented.

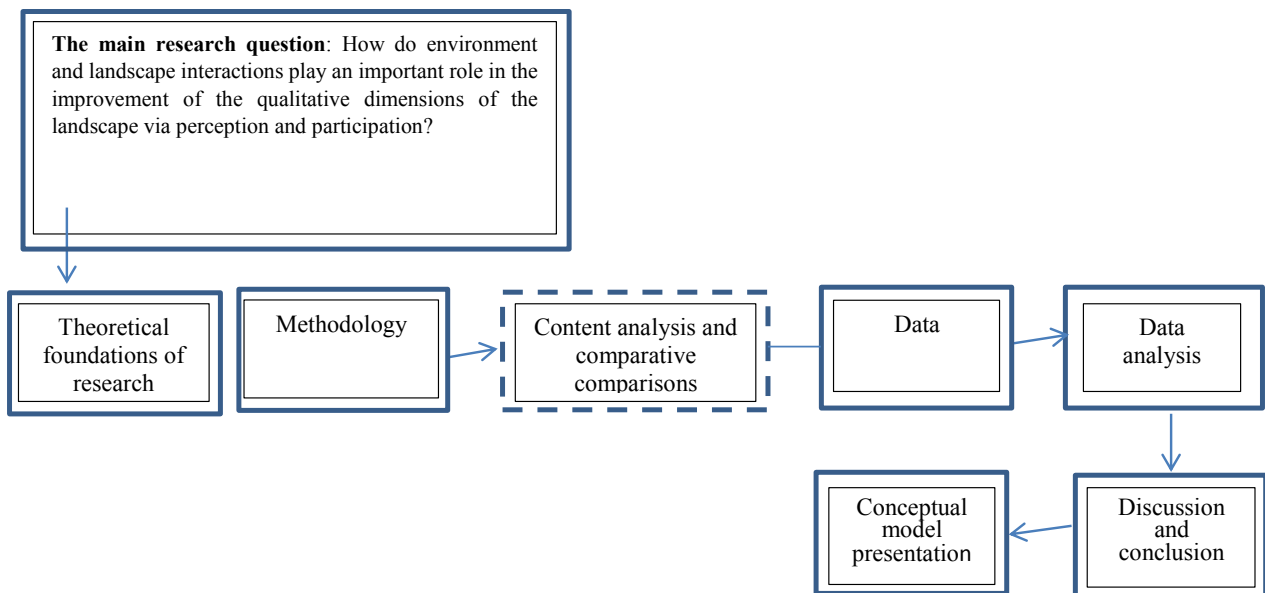Then, the factors and indicators effective on the

Fig. 3. Research Method Framework. Source: authors.

perspective perception from the perspective of theorists are categorized in Table 1. In this table, the landscape perception is divided into physical, functional and semantic features, and according to each of these factors, its sources and documentation are listed.

According to Table 1, the frequency of theorists' theory of landscape perception is presented in Fig. 5. Considering this diagram and according to the theorists, it can be said that the physical features are at the first level, the cultural-semantic properties at the second level, and the functional properties at the last level.

Likewise, by examining the theoretical foundations, participation is divided into four characteristics of participatory theory, multilevel range, participatory model and method, and participatory ladder. Based on a rational theory of participatory theory, including awareness, perception, decision making, execution, planning, monitoring, multi-level range, including cooperation, citizenship monitoring, awareness about decisions, agreement with decisions, consultation and empowerment; participatory model and approach in line with the

decision-making cycle, participatory workshops, empowerment, users' representations; and finally, the participatory ladder, including citizenship degree, citizenship control, consulting, information, public participation in decision making and informing the public. Fig. 6 presents the analysis of participation based on research data.

Then, the factors and indicators that influence participation from the theorists' point of view are categorized in Table 2. In this table, participation is divided based on the repetitive indices of participatory theory, multilevel range, participatory model and method, and participant ladder.

According to Table 2, the frequency of theorists' theory of participation is presented in Fig. 7 Considering this chart, it can be said that according to the theorists, the participation index is at the first level, decision-making index at the second level, awareness at the third level and citizenship monitoring index at the last level are.

Discussion and Conclusion

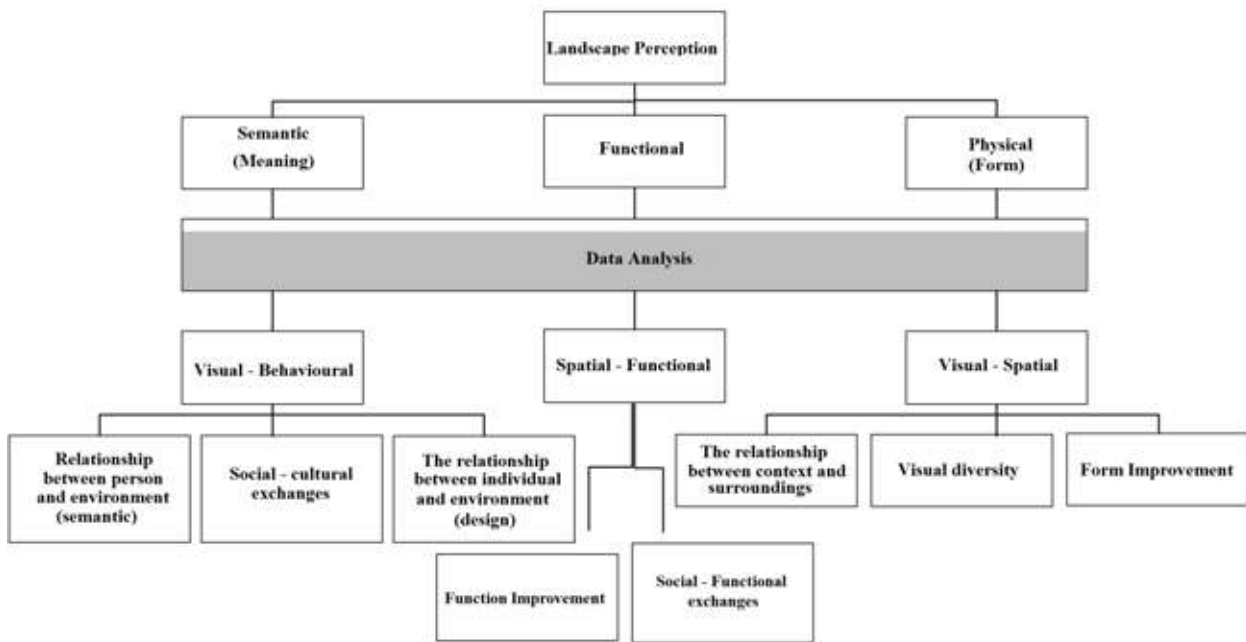Perception is not only a psycho-physiological phenomenon but also a psychosocial phenomenon.

Fig. 4. landscape perception data analysis .Source: authors.

Table 1. Factors effecting landscape perception from theoretical perspective. Source: authors.

| Approach	Indicators	References
Spatial-visual perception (physical prop-(erties	Form improvement; Visual diversity; connection between context and surrounding	Lynch (1960); Cullen (1961); Fleishman & Rich (1963); Steele (1981); Hillier & Hanson (1984); Punter (1991); Schulz (2000); Salvesen (2002); de Oliveira (2016); Zeidman & Maguire (2016); Habibi et al. (2016); Suthasupa (2017); Morgan (2017); Dupont, Ooms, Duchowski, Antrop & Van (2017); Filyushkina et al. (2017); Oberg, Drori,& Delmestri.(2017); Xue, Gou & Lau (2017).; Ferretti (2018); Senes, Pernechele, Berto, Fumagalli & Barbiero (2018); Puren, Roos & Coetzee (2018); Lande (2018); Kelly (2018); Phillips, Slepian& Hughes (2018); Danielsson (2019); Li & Du. (2018); Milioris (2019); Wang et al 2019
Functional-spatial perception (functional (properties	Form improvement, social and functional exchanges	Relph (1976); Trancik (1986); Gobster (1995); Kauffmann, Ramanoël, Guyader, Chauvin & Peyrin (2015); Kefayati & Moztarzadeh (2015); Jasińska (2016); Parysek & Mierzejewska (2016); Chen & Tao (2017); McClinchey (2017); Ishak & Haymaker (2018); Borucińska-Bieńkowska, 2019
Visual-Behav-ioral perception (cultural-seman-(tic properties	An individual's relationship with the environment (design), an individual's relationship with the environment (semantic) and socio-cultural exchanges	Appleyard (1979); Lang (1987); Gehl (1987); Punter (1991); Relph (2007); Polat & Akay (2015); Wang et al. (2015); Wan & Shen (2015); Warner, Rumble,Martin, Lamm, & Cantrell Naghibi, Habib & Shabani(2015).; Leng & Li (2016); Habibi et al. ;((2015). Wood (2015 (2016); Ratcliffe & Korpela (2016); Agyei & Van (2016); Warner, Lamm., Rumble, Martin & Cantrell (2016) Rapoport (2016); Ramani et al. (2017); Knez & Eliasson (2017); Monteyne (2017); Tavakoli (2017); Lore & Swital, 2018
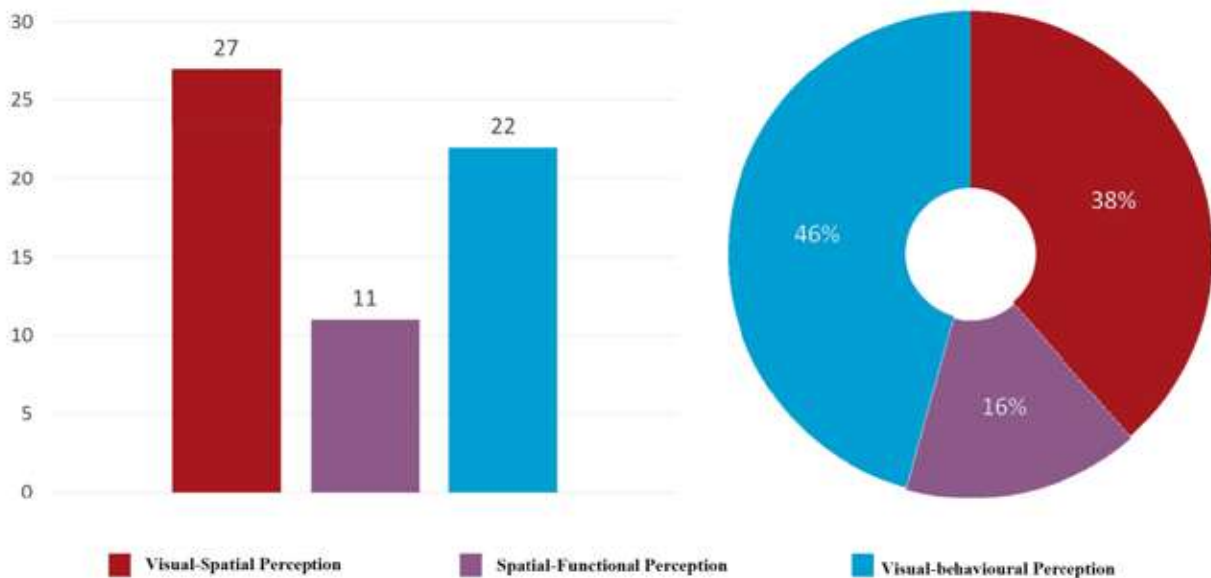
Fig. 5 . Frequency of theorists' theory in the field of landscape perception. Source: authors.
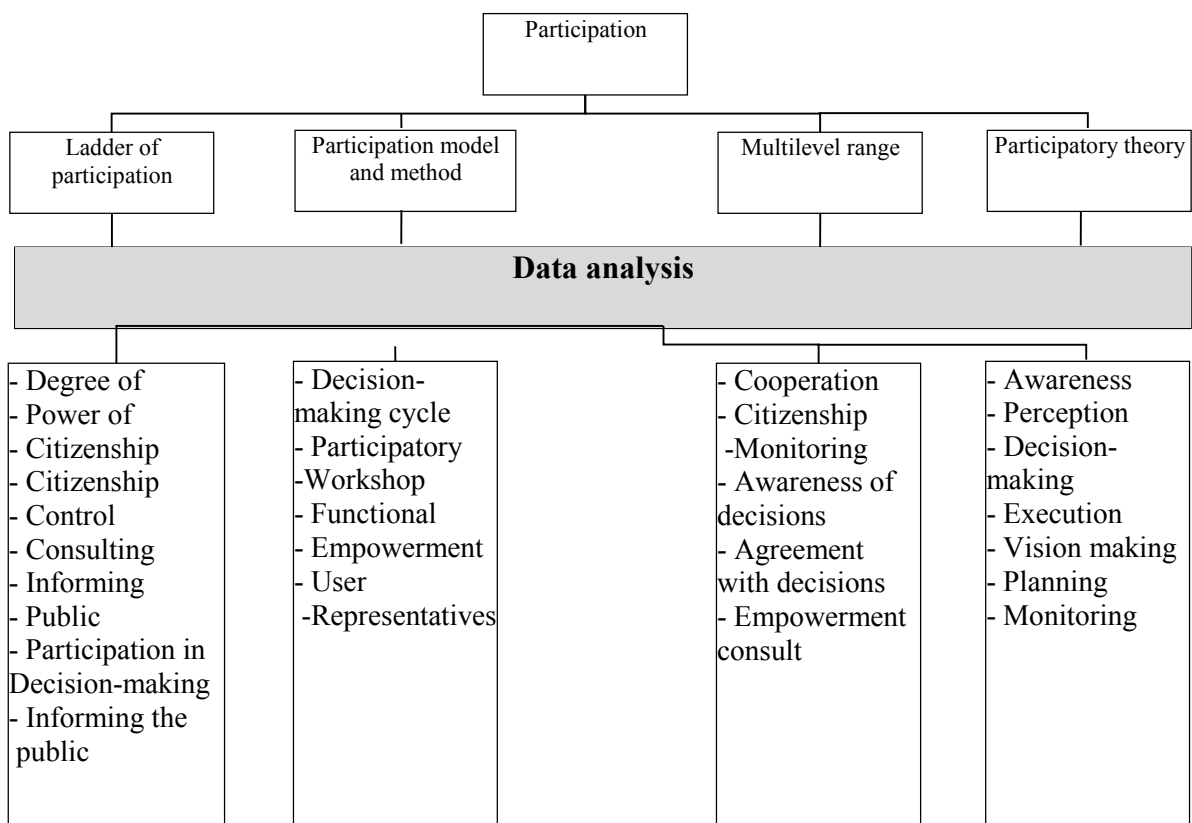

Fig. 6. Analysis of participation data. Source: authors.

Table 2. Factors affecting participation from the theorists' viewpoint. Source: authors.

| Indicators	References
Awareness	Arnstein (1969); Turner (1976); Deshler & Sock (1985); Paul (1987); Wiedemann & Femers (1993); Dorcey & British Columbia (1994).; Davidson (1998); Sanoff (2000); Francis & Lorenzo (2002); Delli Priscoli (2003); Chagutah (2009); Hopkins (2010); Nyerges & Aguirre (2011); Clifford (2013); Duperrin (2014); Usov (2014);) Kahila-Tani,Broberg, Kyttä & Tyger (2016); IAP2 (2017); Du et al. (2017); Brown, Sanders & Reed (2018).
Decision making	Arnstein (1969); Turner (1976); Crosby et al. (1986); Paul (1987); Swallow,Opaluch & Weaver (1992); Renn, Webler, Rakel, Dienel & Johnson(1993).Wiedemann & Femers (1993); Chambers (1996); Rowe (1998); Driskell (2002); Delli Priscoli (2003); Van Bochove (2008); Yang (2008); Deakin (2009); Hopkins (2010); Nadeem & Fischer (2011); Camay, Mosseri,Gray, Stein, Macguire, Jordan, Sanagavarapu & Leung, (2013); EU (2014); Ross et al. (2016); Wortley, Tong & Howard (2017).; IAP2 (2017); Du, Degbelo & Kray (2017).
Execution	Turner (1976); Paul (1987); Deakin (2009); Hopkins (2010); Kinzer (2016); Wagner et al. (2016); Du, Degbelo & Kray (2017).; Xie, Xia, Hu, Shan, Le& Chan (2017). Bherer, Gauthier & Simard(2017); Challies,Newig, Kochskämper & Jager (2017). Brescancin, Dobšinská, De Meo, Šálka & Paletto (2018). Santé, Fernández-Ríos, Tubío, García-Fernández, Farkova & Miranda (2019)
Consulting	Arnstein (1969); Deshler & Sock (1985); Paul (1987); Wiedemann & Femers (1993); Dorcey & British Columbia (1994).;; Davidson (1998); Sanoff (2000); Driskell (2002); Delli Priscoli (2003); Newman, Barnes, Sullivan & Knops (2004). Martin, Christidis, Lloyd & Pecl (2016).; Du, Degbelo & Kray (2017). IAP2 (2017); Marais, Quayle& Burns (2017); Griffin, Stoeltje,Geiselbrecht,Simek, Ettelman & Metsker-Galarza (2018).
Partnership and Cooperation	Arnstein (1969); Deshler & Sock (1985); Midgley (1987); Swallow,Opaluch & Weaver (1992); Lake & Disch (1992); Wiedemann & Femers (1993); Chakraborty & Stratton (1993); Renn, Webler, Rakel, Dienel & Johnson (1993).; Dorcey et al. (1994); Chambers (1996); Moffet (1996); White (1996); Davidson (1998); Sanoff (2000); Driskell (2002); Francis & Lorenzo (2002); Deakin (2009); Bailey & Grossardt (2010); Hopkins (2010); Mackrodt & Helbrecht (2013); Ross et al. (2016); Voß & Amelung (2016); Sinclair & Diduck (2017); Dean (2017); IAP2 (2017); Du, Degbelo & Kray (2017).
Empowerment	Midgley (1987); Chambers (1996); White (1996); Davidson (1998); Delli Priscoli (2003); Department of Health (2008); Van Bochove (2008); Yang (2008); Open Society Foundations (2014); UNDP (2015); IAP2 (2017); Du, Degbelo & Kray (2017); Hajdarowicz 2018
Citizenship Monitoring	Arnstein (1969); Deshler & Sock (1985); Wiedemann & Femers (1993); Driskell (2002); & Park (2016); Du, Degbelo & Kray (2017)., Li., Xia, X. H., Chen & Sun, (2018). (2018); Kovachev et al. (2018); Chunxing & Long (2018); Li & Du , 2018
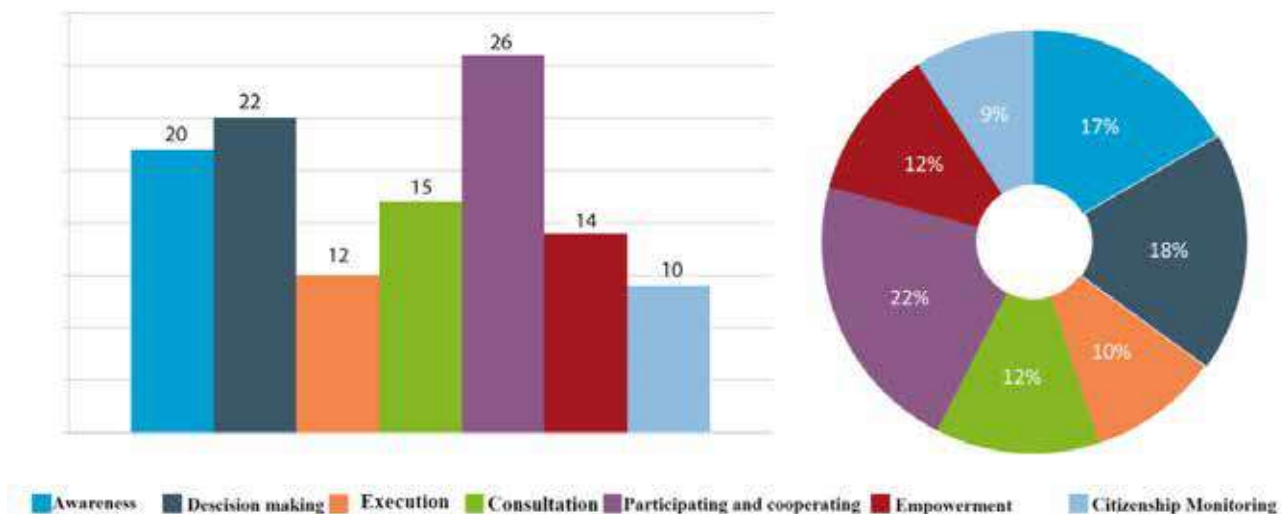
Fig. 7. Theory of theorists' theory of participation. Source: authors.

Attitudes, prejudices, stereotypes, and individual or social values are all determinants of social perception. In oth e r words, social perception stimuli is a perce p tual interaction with the social environment rather than a psycho-physiological response to environmental. In order to formulate the conceptual framework and theoretical backgrounds of landscape perce p tion and participation, the theories of the ex p erts must be addressed. Among the most important factors in landscape perception one can mention th r ee factors: physical, functional and semantic features. To this end, in the discussion of data, spatial-visual, functional-spatial, and visual-behavioral approac h es are discussed. But among the most important contributors to participation are participatory theo r y, multilevel range, participatory model and pattern a nd participatory ladders. The most important ach i evement of this research is the conceptual mod e l of the mutual relationship between landscape p erception and participation in the process of developing a participatory landscape, while their implem e ntation is accomplished by logical reasoning, that is, the help of theorists. In this case, a two-way relationship is formed between the factors of par t icipation and perception of the communication land s cape: (a) the relationship between "awareness " with "form improvement" and "context and s u rroundings connection"; (b) the relationship b e tween "decision making" and "empowerment" with "socio-cultural exchanges" and "relationship of an individual with environment (semantic)"; (c) t h e relationship of "supervision (monitoring)" with "performance improvement"; (d) relationship o f "counseling", "cooperation" and "execution" wi t h "the relationship of an individual with en v ironment (design)" and "social-functional interac t ions". Regardless of all of the issues mentioned i n the findings of participation

and landscape perc e ption, this process requires individual, genera l ized, and institutional trust to develop a particip a tory landscape. In this regard, it is suggested th a t theorists such as "Lawson", "Hester", "Sannoff " and "Hertzberger" use the design of a partic i patory perspective because of their influence on collective participation and creativity and its development.. It can be discussed that the existence of a two-way relationship between "Landscape Percept i on" and "Participation" in the development proces s of "Participatory Landscape" can be considered i n the following ways in the field of infrastru c tural studies: (a) any design from ideation, cognitio n , design fundamentals, stepwise design, selection, analysis, execution, evaluation after execution and formation of all of these are, in accordance with wh a t Lawson says, very important and effective; (b) through the participatory process of design, what He s ter calls collective creativity, achieve sustainabl e social and environmental development, what t h e world today is doing to develop in line wi t h environmental social, (c) everything, includ i ng data, findings, needs, ideas and what is to be presented, must have a clear design and implementation, and this is one of the important things that Sannof f discussed in terms of design transparency in a participatory approach, awareness, perception, expres s es segmentation and execution, and (d) what is at stake in the reciprocal relationship of perception and p articipation, Hertzberger (2001), discussed t he collective creativity to enhance the collec t ive feeling through the process of design participa tion, which is at the heart of the infrastructural st u dies. Finally, in participatory landscape design, c ollective creativity, with a step-by-step and transp a rent design, is for elevating the collective sense of priority and how all of the items relate is presented in Conceptual Fig. 8.
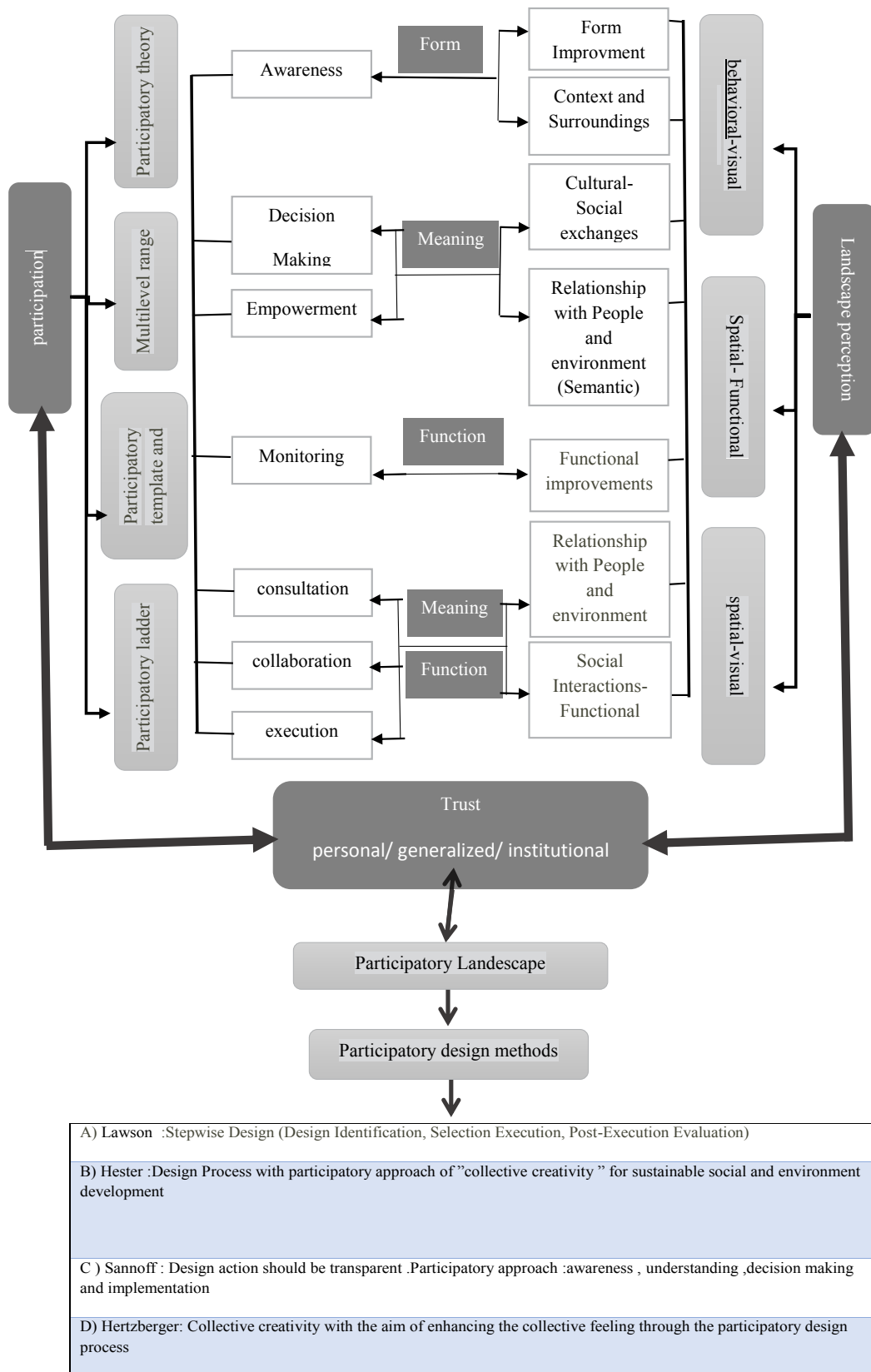
Fig. 8 . Conceptual model of the conceptual model of the two-way relationship between landescape perception and participation in the development process of participatory landscape. Source: authors.

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