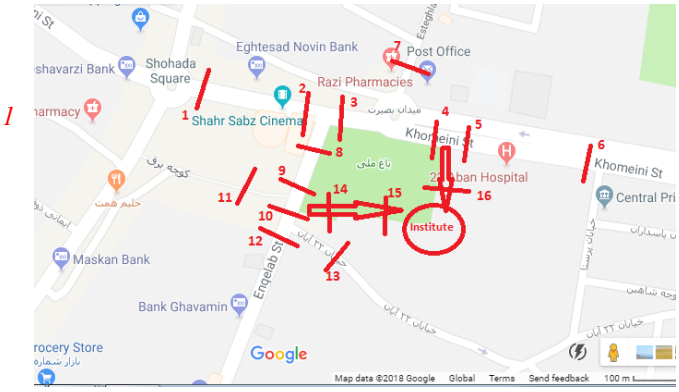

Figure 2: gate location for detecting traffic density of pedestrians in the range of study area

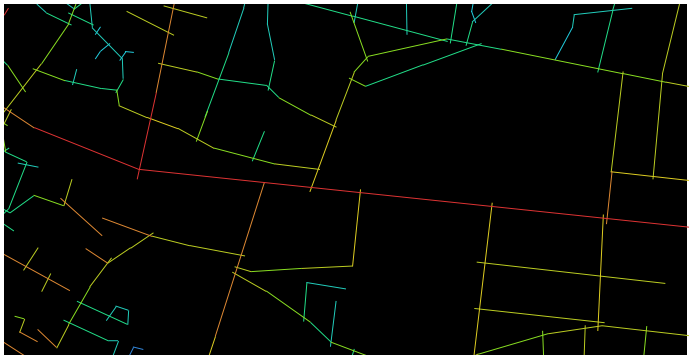

Figure 3: Global integration analysis (HH) from the institute area

Counting at the mentioned gates (Fig. 2) has taken place in the area of the intellectual development institute between the weekday and the weekend. The traffic count of people per gate was measured at 3 minutes in time interval 4-6 in the evening. In addition, based on strategic study around the institute 16 gates were considered for this phase of the study. These gates are selected due to the accuracy of the area covered by the study. Based on the average number of people that were calculated, the most traffic was at Gate 1 and 2 located in Imam Khomeini Street, which leads to the Shohada square. The connection to the main square of the city and the location of commercial, administrative and service centers in this direction may be due to the high traffic volume. Gates 14, 15 and 16 are located on paths that are located as a subway and on the edge of the national garden. Gate 14, due to the location of administrative and service centers such as the city council has more traffic (Figure 3); but Gates 15 and 16, despite being in the same direction and ending with the intellectual development institute for children and adolescents, has the lowest traffic in relation to the total gate considered in this study, which indicates the weakness of this access in sociability and accessibility.

	
The edge of national garden towards the institute, northern side	*The edge of national garden towards the institute, southern side*

Figure 4: how to access to the Lahijan's institute for the intellectual development of children and young adults

The highest rate of pedestrians was at the gates 1 and 2, located on the main street of the city (68 and 67, respectively), and the lowest rate of pedestrians in the gates 15 and 16 (4 and 2 respectively) (Table 1). According to the observations, the path leading to the intellectual institute due to the lack of visual space and the use of space as a parking lot, despite presence in the neighborhood of the National Garden and the proximity to the city center has less traffic and this indicates lack of attention of the visitors to the institute that is seen as a separated and unrelated space. This suggests that only families that are familiar with the site close to this area to fill their children's leisure time, and do not any motivation. It must be noted that a native village house was rebuilt next to the institute which had a significant impact on being the institute out of sight. The village house did not welcome by the visitors and only had an impact on the creation of a cozy corner that not only did not have a positive effect, but also increased the amount of crime in this area.

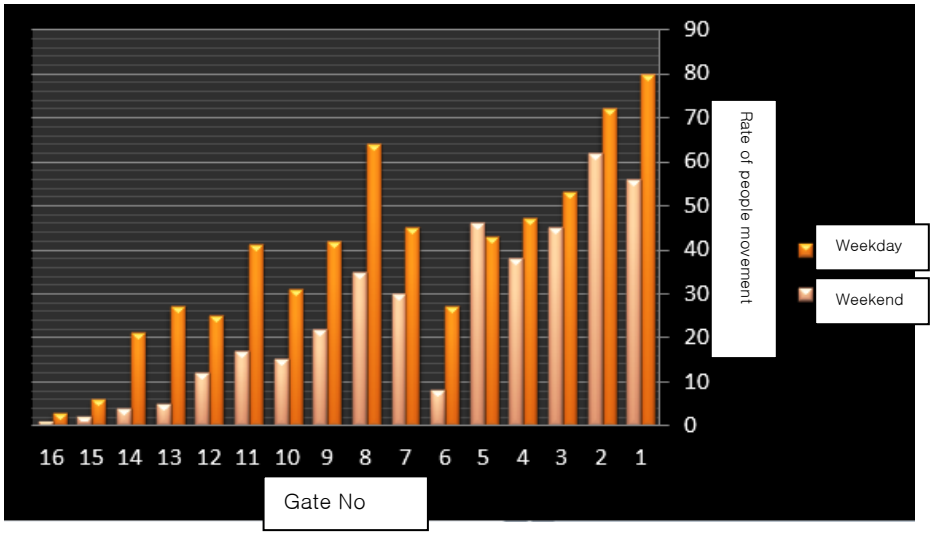

Figure 5: Comparison of traffic level of humans in the surrounding areas of the intellectual development institute between the weekday and the weekend

Table 1. Comparison gate observation method and accessibility position from simulation point of view using space syntax method

Gate No.	Traffic level Weekend	Traffic level Weekday	Integration HH (RN)	Integration HH (R2)	Integration HH (R3)	Connectivity
1	56	80	1.08	3.88	2.70	10
2	62	72	1.08	3.88	2.70	10
3	45	53	0.98	3.88	2.18	5
4	38	47	1.08	3.88	2.70	10
5	46	43	1.08	3.88	2.70	10
6	8	27	1.08	3.88	2.70	10
7	30	45	0.97	2.48	2.02	4
8	35	64	0.98	2.81	2.18	5
9	22	42	0.98	2.81	2.18	5
10	15	31	0.98	2.81	2.18	5
11	17	41	0.88	1.38	1.40	2
12	12	25	0.98	2.81	2.18	5
13	5	27	0.88	1.48	1.49	2
14	4	21	0.88	1.38	1.38	2
15	2	6	0.86	1.06	1.04	2
16	1	3	0.96	1.82	1.75	2

Based on the simulation data and the axial analysis (Figures 1 and 3) and (Table 1), the northern side of the national garden's access to the intellectual development institute has a good integration (0.96) as compared to the other accesses. These reports indicate that this route has necessary potential for proper access to the site, but, according to observations, factors such as considering the route for riding access would disappoint people from this route.

3.3 FINDINGS OF THE METHOD OF OBSERVING THE PEOPLE FOLLOWING IN THE INTERIOR OF THE INTELLECTUAL DEVELOPMENT INSTITUTE

In this stage of the research, the behavior of the visitors was observed from the entrance to their destination. The field of walking was taken into consideration in order to determine the effect of their movement trace on the map (Fig. 6). In order to make an impartial observation, individuals were randomly selected at different ages (36 children and 24 adults) and gender (26 men and 34 women) to identify the human's dynamic behavior in the environment. It must be noted that adult persons include employees and children's parents.

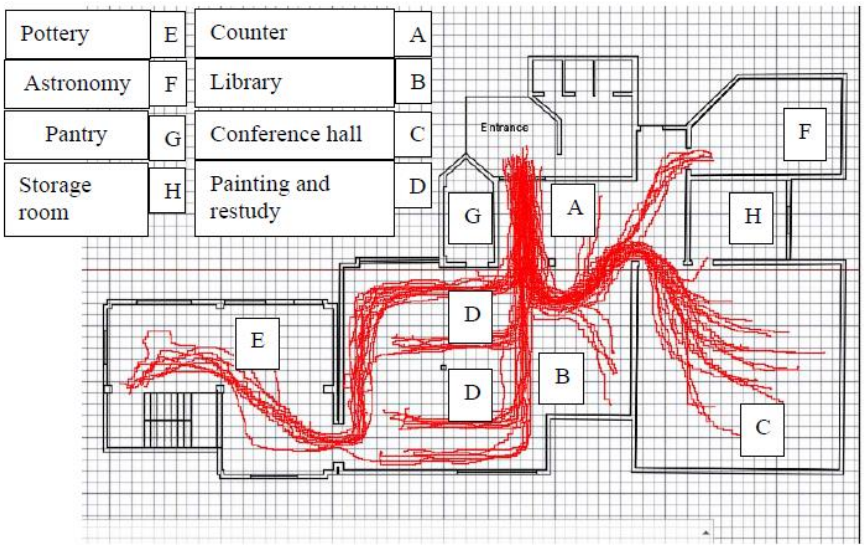

Figure 6: Simulation of pedestrian movement in the interior of the children's intellectual development institute

The observations showed that the most traffic is in the front area of the counter (area A). Visitors, based on the type of space syntax to reach the space of the Conference hall and the astronomy (C and F), must have difficulty accessing the spaces from the front of the counter, and this will influence the proper routing. Perhaps since the entrance filter of the counter is correct, but this access is not optimal in terms of accessibility and space delightsome.

3.4. DIRECTIONAL SPLITS FINDINGS IN THE SPACES OF DIVIDING INTERIORS

This method is intended to record separately (accurate recording of the number and percentage of individuals' orientation) in their movement in division spaces. Possible destinations are considered from division space and then the observation is done carefully. Division spaces in front of the counter and connecting the spaces were observed (Fig. 7) (Table 2).

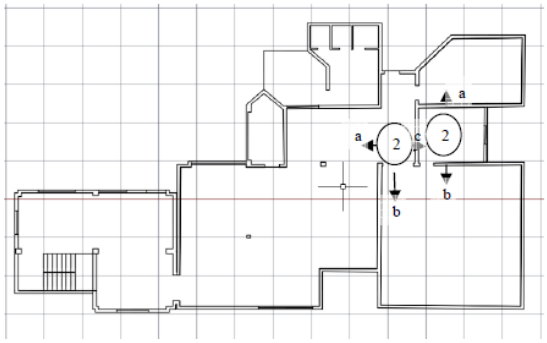

Fig. 7: Observation position for identify visitor's orientation

Table 2. Total traffic density of visitors in division space

Position	Traffic density in step 1			Traffic density in step 2		
	a	b	c	A	b	C
1	2	3	5	4	11	21
2	3	7	-	8	18	-

Evidence suggests that a greater percentage of people in the institute select C direction after the previewer (position 1). This indicates that the counter is situated in the traffic area. In position 2, there is also the most traffic to the communities' space, which may also indicate that after the entry, there is a need for a division space without movement problem such as a counter to the gathering hall (Table 2).

3.5. ANALYSIS OF SIMULATING INTERIOR SPACE OF THE INSTITUTE BY SPACE SYNTAX METHOD

As stated previously, space syntax theory is based on the consideration of social interactions in motor-visual terms of view. The results of simulation using space syntax method, which depicts how the spatial situation is from a morphological point of view, expresses factors relating to the social logic of space (Hillier and Hanson, 1984). In this method, the simulation is determined of how humans move in space and how space is accessed (Hillier et al., 1987). Considering the fact that space syntax is a method for measuring the position of space, this section focuses on the axial and visual analysis of institute space.

Table 3. Measuring the position of institute space based on axial map and VGA

		Space names							
		Counter	Library	Conference hall	Painting and restudy	Pottery	Astronomy	Pantry	Storage room
Axial Analysis	Integration	11.78	5.89	4.42	11.79	1.61	11.79	1.52	1.41
	Connectivity	15	14	11	14	1	15	1	1
VGA Analysis	Integration	13.52	13.66	9.62	12.98	4.43	7.48	5.51	5.21
	Connectivity	1291	1434	1034	1278	250	353	494	193
	Visual Area	109.85	132.50	93.35	119.97	23.70	31.84	37.95	20.67

Based on the axial analysis, it was found that the greatest integration was obtained in the counter space, restudy space painting and astronomy (11.79). With regard to the counter space, if it becomes a division space, this integration limit is appropriate because it provides easier access to other spaces. But in terms of study space and astronomy, this limit of integration and the degree of accessibility are not required (Fig. 6).

Visual analysis showed that the most visual integration was found in the library space (13.66), followed by counter, study and painting (13.52 and 12.98 respectively). This analysis also emphasizes upon changing library to the counter use. On the other hand, visual connectivity and visual area of the library have also the highest rate (1434 and 132.5, respectively) (Figure 8) (Table 3).

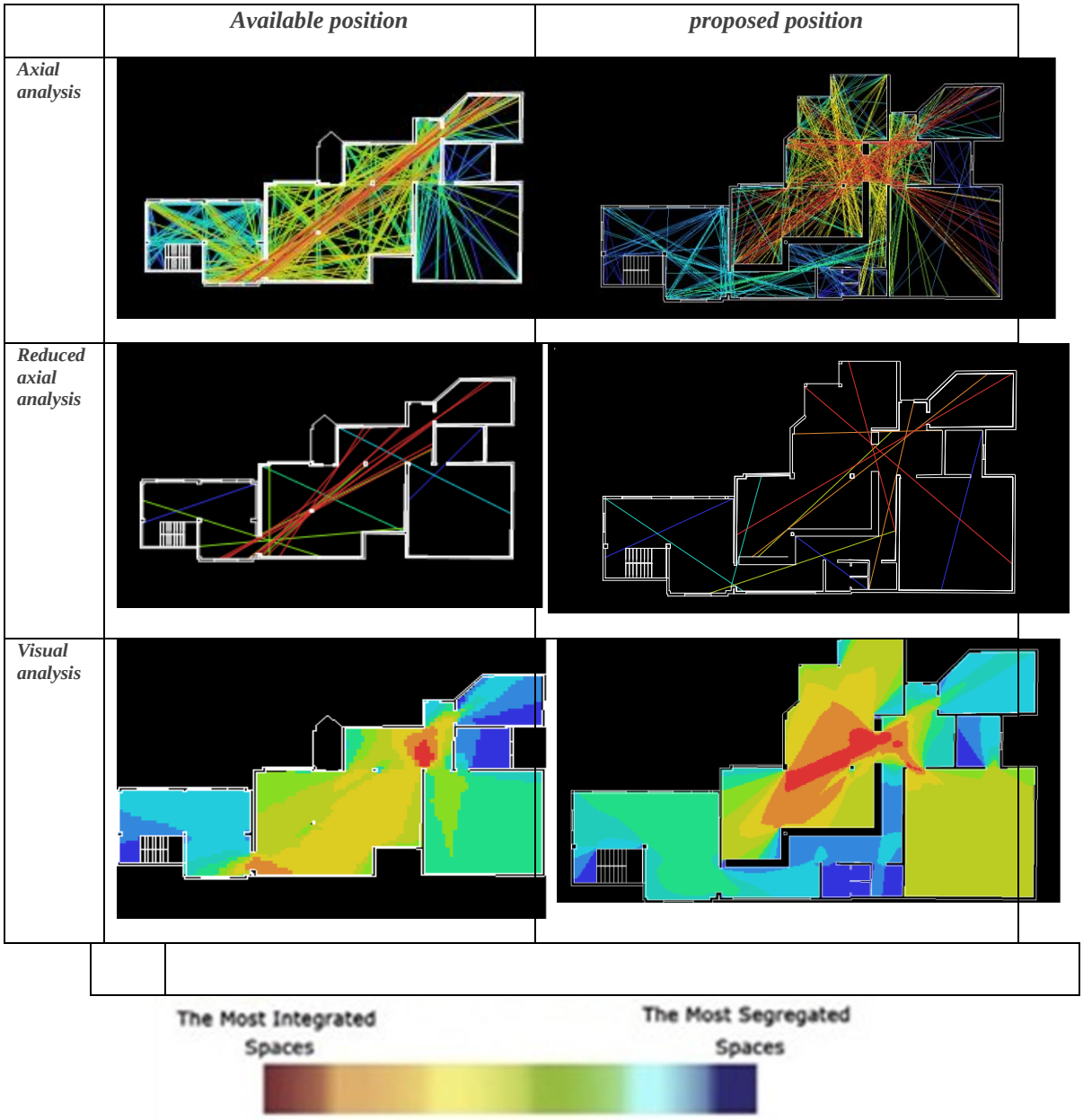

Fig. 9 analysis of axial and visual simulation from available and proposed position

Studies point to the importance of accessibility sustainability in terms of motor and visual feature to create vitality as a component of space social sustainability (Allen, 1999; Golledge, 1999; Syed Mahdzar, 2013; 2008; Karimi, 2012). Accordingly, in this research, a proposed position is provided to improve the motor-visual relations of visitors for the realization of social sustainability, in which attention to the proper relationship between spaces that can contribute to social sustainability can be assisted.

4. CONCLUSIONS

As stated, one of the major issues that researchers are addressing today is the realization of social sustainability in society. Creating a platform for social interactions and a sense of vitality in citizens is one of the factors that can be effective in this regard. All citizens, especially children and young adults- the future of society is for them- must be regarded in the establishment of effective factors on social sustainability.

The institute of the intellectual development of children and adolescents in Lahijan has been neglected

in the last decade and is not well received by the citizens. On the other hand, in this study, we tried to analyze the physical condition of space and the type of existing social interactions of space, in order to provide solutions for creating a sense of vitality in space.

The findings indicate that, given the proximity of the intellectual development institute to the city center and the connection to high-integration streets, gate observations showed that pedestrian traffic is very low from its proximity. The main reasons for this reluctance to the presence of a walking man on this route are the following: 1) creating a riding ring in the vicinity of the institute 2) building a rural home in the visual center of the institute, so that the space of the institute is out of sight 3) The rural home has created a cozy corner that has reduced space security.

In addition to changes in the outer spaces of the institute, the lack of optimal improvement within the institute complex also influences the weakness of vitality in this space. Behavioral observations of humans within the institute (human movement trace and directional splits) have shown that the type of spatial syntax and reconstruction performed have not been consistent with the optimal social behavior of the pedestrian in space. Therefore, the motor and visual potential of the human condition in space has been analyzed and suggestions have been made to improve motor and visual behavior that provide the basis for creating optimal social interactions. This could be beneficial to spatial vitality and, consequently, social sustainability.

This research specifies for architects and urban planners that vitality is an effective factor in social sustainability, which can be analyzed and measured properly by simulation using space syntax method. On-site observations from the environment are effective in understanding human behavior in the environment and will affect the decision to improve space.

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