



KEY POINT SUMMARY

OBJECTIVES

To determine if wayfinding aids like colored doors, shapes on floors, and signage could help children with ASD navigate to a given destination, thus promoting independence

An exploratory study testing environmental wayfinding aids as an intervention for children with autism

Irish, J. E. N. 2022 | HERD: Health Environments Research & Design Journal, Volume 15, Issue 4, Page(s) 114-130

Key Concepts/Context

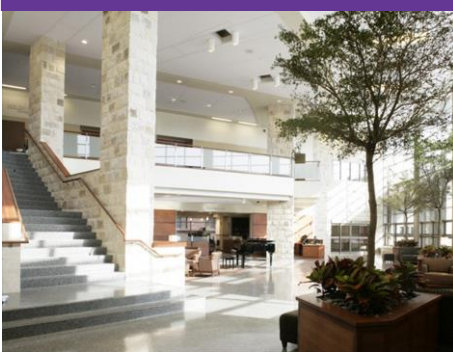
Previous research has found that some people with autism spectrum disorder (ASD) have difficulties navigating complex physical environments, such as hospitals. Previous research has also indicated that due to the hypersensitive nature of some people living with ASD, sensitive environmental designs may be especially important for them. This study suggests that wayfinding aids such as signage, colored doors, and shapes on the floor may help some hospital visitors with ASD achieve additional independence.

Methods

This study took place within an elementary school that was vacant for the summer. A wayfinding route 483 feet in length was established through the corridors of the school in an attempt to model the complex environments of healthcare settings. Before the actual experiment took place, wayfinding aids were installed along a route through the school's halls and were tested with a typically developing child.

The wayfinding aids included color-coded doors (red doors for the music classroom, green doors for the restroom, orange doors for the classroom, and yellow doors for the computer room), corresponding colored shapes placed on the ground leading up to the doors (square or circular shapes), and signage that also featured corresponding colors, straightforward language, sequential room numbers, and pictograms. Wayfinding aids were applied to a total of 26 doors, including two sets of double doors that had to be passed through.

The experiment featured both a control group and a treatment group. All participants were aged between eight to 11 years old and were unfamiliar with the study site. Participants were randomly assigned to either the control or treatment group. No wayfinding aids were installed for the control group; instead, a script that pointed out existing wayfinding cues was used to lead the participant to the



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destination. The treatment group members were guided with a script as well; however, this script guided attention towards the wayfinding aids during the navigation process.

Data were collected through observation, behavioral mapping, audio/video recording, and in-person interviews. Measurement variables included the failure or success of reaching the destination, taking an indirect or direct route, amount of time taken, and degrees of independence.

Findings

There were nine participants in total, mostly male with a ratio of 7:2. All participants were able to verbally communicate, and while no mobility difficulties were initially indicated, three participants were found to have noticeable (but not severe) ambulatory difficulties.

All participants successfully reached the destination point, which statistically means that the wayfinding aids did not help the treatment group reach the destination more frequently. However, one participant in the control group reached the destination indirectly (went to an incorrect room before finding the destination). This would indicate that the wayfinding aids may have helped the treatment group reach the destination directly.

Three participants in the treatment group were the slowest out of all participants in terms of reaching the destination; these three participants were the same ones noted to have ambulatory difficulties. The slowest participant was continually distracted. Interviews revealed that participants in the treatment group were able to recall the wayfinding floor aids; all five remembered colored squares while four remembered the colored circles. Four participants in the treatment group remembered all of the classroom signage as well as several other signs along the path. The authors believe that these higher rates of recall could be attributed to the fact that the signs used for the treatment group made better use of color and straightforward wording. There were also high rates of recall regarding the pictograms, with one participant saying he could remember all of them.

Limitations

The authors note that a small number of participants (nine in total) were involved in this study, and that this sample size may complicate the generalizability of the data. Due to the controlled nature of the experiment, the participants did not encounter as many distractions or disturbances as they might in real-world environments. The fact that three participants with ambulatory difficulties were randomly assigned to the same group adversely affected the results.



Design Implications

Colors and shapes embedded into the environment, as well as pictograms used in signage, may all be easier for children with ASD to recall, and therefore may be useful design features to help with independent, direct navigation to destinations. Color coordination between doors and floor shapes, as well as simplified wordage in tandem with pictograms on the signage may also be helpful.

And Also...

Helpful pictures of the experimental wayfinding features are included in this study.

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