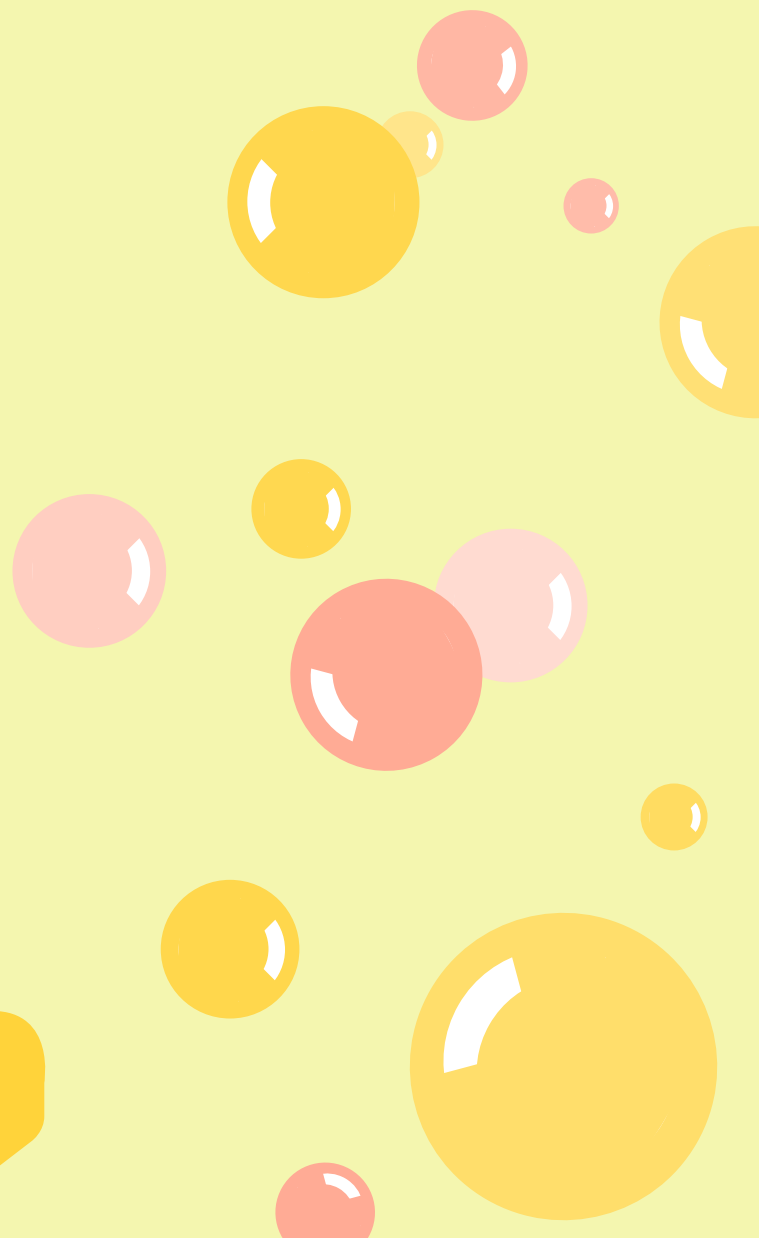


Designing Everyday Activities

Living Environments for Adults with Autism

Katie Gaudion

kingwood



About the research partners

The Kingwood Trust

Kingwood is a registered charity providing support for adults and young people with autism. Its mission is to pioneer best practice which acknowledges and promotes the potential of people with autism and to disseminate this practice and influence the national agenda. Kingwood is an independent charity and company limited by guarantee.

www.kingwood.org.uk



The Helen Hamlyn Centre for Design, Royal College of Art

The Helen Hamlyn Centre for Design provides a focus for people-centred design research and innovation at the Royal College of Art, London. Originally founded in 1991 to explore the design implications of an ageing society, the centre now works to advance a socially inclusive approach to design through design research and projects with industry. Its Research Associates programme teams new RCA graduates with business and voluntary sector partners.

www.hhcd.rca.ac.uk



BEING

BEING was commissioned by The Kingwood Trust to shape and manage this ground-breaking project with the Helen Hamlyn Centre for Design. BEING is a specialist business consultancy that helps organisations in the public, private or charitable sectors achieve their goals through the effective application and management of design.

www.beingdesign.co.uk



Contents

2	Foreword
3	Expert Reference Group
4	Introduction
8	Context
12	Research
14	Objects of Everyday Use
20	Doing Things with Things
26	Key Findings
30	Design Guide
42	Conclusion
46	Bibliography
48	About the Author

Foreword

Lady Hornby, Chair, Kingwood

One of the greatest challenges we face at Kingwood is helping the people we support live happy, fulfilled lives; ones that are as rewarding as possible. A key ingredient of this is how they experience everyday activities and use everyday objects that one might find in an average home.

Vacuuming, boiling a kettle, washing clothes or making a sandwich can all pose a challenge for people with autism, but all can form an important part of their everyday lives and in some instances are key to living independently.

This publication captures 12 months of research on how the sensory preferences and special interests of the people Kingwood support can influence how they experience everyday activities and be an indicator as to what they like to do.

These insights contributed towards the development of prototypes and a design guide which provides a range of ideas for people with autism, family members and support staff to think about how to tailor, adapt, extend and create everyday activities around a person's needs and aspirations, making them more meaningful and enjoyable.

I am once again delighted that Kingwood continues to play a pioneering role in developing new ways of supporting people with autism, one that takes a person-centred approach and focuses on each individual's goals and aspirations to help them realise their potential and find ways for them to live active lives at home and within the wider community.

As always we are grateful to the RCA design team, to Kingwood staff and the people we support and to all who have contributed to this project. We hope it will increase our understanding of how people with autism experience everyday activities and help them to become more actively engaged within their own homes and the wider community.



Expert Reference Group

The role of the Expert Reference Group was to provide guidance and support for the project, broaden its perspective

and assess the findings and results. A formal meeting was held at the Royal College of Art in April 2013.

Name	Role	Organisation
Sue Osborn	Chief Executive	The Kingwood Trust, UK
Kevin Charras	Administrator	ARPEnv (Association for Research in Environmental Psychology)
Monica Cornforth	Media Relations Consultant Parent of adult with autism	Independent, UK
Valerie Fletcher	Executive Director	Institute for Human Centered Design, USA
Dr Matthew Goodwin	Assistant Professor	Bouvé College of Health Sciences, Northeastern University, USA
Derek Hooper	Equality and diversity consultant and trainer	Derek Hooper Ltd, UK
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Richard Mazuch	Director of Design Research and Innovation	Nightingale Associates, UK
Marc Sansom	Director	International Academy of Design & Health, UK
Richard Seymour	Director	Seymour Powell, UK
Frances Sorrell	Chair	Sorrell Foundation, UK
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Ad Verheul	Founder of Snoezelen	De Hartenberg Center, The Netherlands
John Zeisel	President	Hearthstone Alzheimer Care, USA

Introduction

Everyday activities and autism

Everyday activities are important to enable adults with autism to lead more independent and fulfilled lives. But how they might perceive those activities – and the domestic objects associated with them – can be a challenge. Can a design-based approach encourage greater engagement in daily activities?

This publication is the fourth in a series that describes design research projects carried out by the Helen Hamlyn Centre for Design at the Royal College of Art in partnership with The Kingwood Trust. The overall aim of the work is to improve the everyday experiences for those with autism spectrum disorder (ASD) through a better understanding of their needs, aspirations and physical environment.

Autism is a lifelong and complex neurodevelopmental disorder that affects the way a person communicates and reacts with other people and the world around them. As a spectrum disorder it affects people in different ways. People with autism may have rigid routines and special interests; they can be sociable or find social relations difficult; some have learning disabilities whilst others possess high levels of intellectual ability.

In addition to this people with autism might experience hyper-sensitivity (over sensitive) and/or hypo-sensitivity (under sensitive) to the sensory elements of the environment. Sensory sensitivities are now recognised as a core symptom of autism and in 2013 they were included in the fifth edition of the diagnostic and statistical manual of mental disorders (DSM-5) for autism spectrum disorder. With an estimated prevalence rate of 1 in 100 (NAS), autism is by no means rare.

People with autism may require help to live in their own homes. Depending on their needs, this help may range from a few hours a week to 24-hour cover. They may need assistance with personal care and all house-related tasks – including meal preparation, cleaning and grocery shopping – or simply a few hours a week of emotional support or assistance with managing finances.

The research project described here was undertaken at The Kingwood Trust with people of limited verbal communication and learning disabilities. They can be described as having 'high support' needs, which is defined as requiring more than 15 hours a week, or in some cases constant support.

They are not necessarily typical of most people with autism and it is important to point out that the findings of the study might not be generalisable. Indeed, due to the diverse nature of autism as a spectrum disorder, it would be very difficult to create a generic set of design guidelines and outputs.

Sharing experiences

However, while this publication relates specifically to the needs and aspirations of the people that Kingwood supports, and its ideas may not be easily transferable to other people on the autism spectrum, it nevertheless documents a set of approaches about making everyday activities more interesting and stimulating that can be shared more widely. The experience of working with people with limited speech is valuable in itself in many contexts.

The research investigates how those whom Kingwood support perceive everyday activities and engage with them. The project seeks to help Kingwood's support staff to develop a design framework that will help to transform or adapt everyday activities in the home. The objective is to make the ordinary extraordinary – to design activities that foster opportunities to develop skills and encourage meaningful interactions between people with autism and Kingwood support staff.

Everyday activities such as doing laundry, cleaning, cooking a meal or operating electrical appliances help us to develop life skills, to live independently and to keep our homes clean and enjoyable to live in. Most of us take this for granted even though performing these activities demands a substantial amount of body co-ordination, motivation and adaptive skills such as physical dexterity, motor skills, planning, organisational abilities and social communication skills.

Research has found that such everyday activities may present challenges for people with autism (Liss, M et al 2006, Perry, A et al 2009,

Stone, W et al 1999). Further difficulties in organising, planning and sustaining attention while performing an activity may also present challenges. Unusual sensory sensitivities may impact a person's experience with both everyday objects and the physical environment in which the activity is to be performed (Bagby et al 2012).

A different perception

A person with autism may also perceive and conceptualise people, objects, the physical environment and activities to be performed very differently from the way neuro-typical people would.

There is some research that explores a person's idiosyncratic relationships with objects (Charlop et al 1998, Ungerer et al 1981, Baron-Cohen 1987, Williams et al, 1999, William et al 2005, Williams et al 2006 and Loveland 1991/1994). For example, we vacuum our floors to keep them clean by removing dirt and dust particles. However, what if we did not understand the concept of dirt and dust? Would we still want to vacuum our floors? What would the presumed purpose and motivation be, and how would we even understand what a vacuum cleaner was for?

Interestingly some research studies suggest that daily living skills improve with age (Freeman et al 1999, Green et al 2011) but the rate of skills development slows down as the child enters adolescence. The presence of a learning challenge may further decelerate skills development. (Feeman BJ, Green et al 1999, Szatmari et al 2009).

There has been little research exploring the development of independence in daily living skills from adolescence to adulthood in people with autism. However a recent ten-year longitudinal study (Leann et al 2012) took a sample of people with autism aged between 10-52 years and explored the effect age may have on the levels of daily living skills.

This study concluded that such skills improved during adolescence but began to plateau for people in their early twenties and then decline. Leann et al concluded that 'future research needs to explore what environmental factors may be associated with continued gains of daily living skills for adults with ASD as well as the best practices for teaching these skills'. This project addresses those future research needs.

Introduction

Opportunities for development

How can adults with autism continue to acquire daily living skills even if they are no longer in the education system?

Once educational support ends at the age of 21, young adults are turned over to systems typically set up for maintenance and safety, not growth and development.

As people with autism spend the majority of their lifetime as an adult, one might wonder why this is the case. Under the current system the majority of adults with autism do not keep up with the skills development of their peers by attending college or getting competitive employment after school (Taylor et al 2011).

Until recently, support has generally consisted of individualised programming, one-to-one intervention and ongoing interaction with teachers and therapists. This high-intensity programming is costly and not always within reach of everyone.

Therefore it is no surprise that nearly two-thirds of adults with autism in England do not have enough support to meet their needs and at least one in three adults with autism experience severe mental health difficulties due to a lack of support (Rosenblatt, 2008).

This research project set out to explore how adults with autism could continue to acquire daily living skills even if they are no longer in the educational system and reside in supported living accommodation.

Everyday activities are filled with opportunities for growth and development, so the research aimed to create people-centred support tools for the Kingwood staff to use and so tap the learning potential of performing these everyday activities.

Furthermore, the support tools will allow adults with autism to acquire life skills that can be deployed in different contexts outside the home.

The project has three main outputs:

1. Visual profiling tools that help both adults with autism and their support staff to identify, express and observe preferred home activities.
2. Prototypes and a design guide to illustrate how people can be motivated to become more actively engaged with their own homes by:

extending and correlating their sensory preferences and special interests; and embracing the way they like to do things. These guidelines will also provide ideas on how to re-design everyday objects and offer advice on purchasing such objects with reference to how well they might meet the needs and interests of people with autism.

3. Two staff development workshops for support staff entitled 'Ready Steady Make' and 'Doing Things With Things Differently'. These workshops promote the development of skills and the exchange of experiences among support staff. The sessions also explore how adults with autism might perceive their surroundings, so leading to participants generating helpful ideas related to the growth and development of the people they support.



Context

Key Approaches

Taking part in any activity is important. Participation in everyday activities benefits quality of life both directly – through performing tasks that are useful and interesting in themselves – and indirectly, by promoting health gains and increasing the range of possibilities for social interaction.

This research project focuses on activities of daily living in the home, something that can be usefully divided into two levels of activity. Lawton and Brody (1969) were the first to describe these two distinct levels. 'Activities of Daily Living' (ADL) included the basic tasks of dressing, bathing, grooming, using the toilet, eating, walking and getting in and out of bed. 'Instrumental Activities of Daily Living' (IADL) delineated more complex tasks such as cooking and cleaning. These tasks require skills that are important for independent living. It is upon this level that the present research focuses.

IADL is further defined as follows: '...instrumental activities of daily living functions are concerned with a person's ability to cope with her/his environment in terms of such adaptive tasks as shopping, cooking, housekeeping, using transport, managing money, managing medication and the use of the telephone.' Katz, (1983).

Everything we do is a social act. All knowledge is taught, created and mediated through an environment that has various levels of affordance (Gibson 1979) i.e. an affordance is the fit between a person's capabilities and the environmental supports, which then create opportunities for action. Almost every action in life is impossible without some sort of past action or present reaction from our fellow humans.

Take the act of making a phone call. It requires technology developed by someone else and someone else to talk to. It is through shared dialogues, meanings and understanding with other people that we begin to learn how to do different things.

So how do we learn to do things if we find it difficult to relate to and communicate with other people? This is the vexing question for many people with autism who are characterised by

social-communication difficulties (Happé 1999; Wing 1997). Their understanding of the world may be developed through their interactions with the physical environment rather than interactions with people. As a result, their shared interpretations and understanding of how to do things can be unique.

Kingwood play a pioneering role in developing new ways of supporting people with autism to realise their potential by concentrating on the individual and focusing on what is positive and achievable in their lives. Below are a series of practical interventions and support tools that help adults with autism to plan, organise and structure everyday activities, so helping them independently participate in everyday living.

Asdan: Kingwood Short Stories

An Asdan project for 12 individuals supported by Kingwood was launched in 2011. The project is a natural progression of the Trust's active support approach and involves the recording and evidencing of skills learned and achieved, and enables the skills and achievements of each individual to be formally recognised.



The charity Asdan is a development organisation that offers educational programmes and qualifications to enable people with learning disabilities to acquire skills for employment as well as skills for life.

Some of the people that Kingwood support are currently working towards Asdan qualifications and have been awarded certificates of achievement. Asdan has six stages of learning to be used by support staff:

- **Stage 1: ER–Experience Recorded**
You are provided with an experience of the activity without taking part
- **Stage 2: SE–Sensory Experience**
You are given the opportunity of being involved through a sensory experience i.e. hearing, touch, sight or taste
- **Stage 3: PH–Physical Help**
You are helped by someone holding you and/or helping you to move
- **Stage 4: GH–Gestural Help**
You are helped by someone using hand signals or other gestural prompts
- **Stage 5: SH: Spoken/Signed Help**
You are helped by someone speaking or signing suggestions to you
- **Stage 6: NH–No Help**

Key Approaches

Active Support

Kingwood recognises that the role of the support staff is essential to participation in everyday activities. In response to this, an Active Support programme has been implemented across the Trust. It is designed to help staff to encourage the people they support to become involved with the activities and relationships that comprise day-to-day living. Active Support promotes teamwork that is focused on individual needs.

The Active Support programme, Jones et al (2009) has three components, which help keep track of progress, providing feedback to the staff team and informing regular reviews:

1. Interacting to Promote

Participation. Personal abilities vary and so those who support an individual learn how to give him or her the appropriate level of assistance to undertake typical daily activities.

2. Activity Support Plans. These provide a way to organise household tasks, personal self-care, hobbies, social arrangements and other activities in response to individual needs while managing and maximising support resources.

3. Keeping Track. Simply by recording the daily opportunities people encounter, it is possible to monitor progress and implement improvements on the basis of observed evidence.

The Picture Exchange Communication System (PECS)

The Picture Exchange Communication System (PECS) was developed in 1985 (Frost & Bondy) and is a unique augmentative alternative training package that enables people who have limited verbal communication to develop expressive communication skills through the exchange of pictures. It is widely practiced amongst people with autism spectrum disorder.

Below are the six phases of PECS training:

• Phase 1: How to Communicate.

The person learns to exchange single pictures for items or activities they really want.

• Phase 2: Distance and Persistence

.Still using single pictures, the person learns to generalise this new skill by using it in different places, with different people and across distances. They are also taught to be more persistent communicators.

• Phase 3: Picture Discrimination.

The person learns to select from two or more pictures to ask for their favourite things. These are placed in a communication book, a ring binder with velcro strips where pictures are stored and easily removed for communication.

• Phase 4: Sentence Structure.

The person learns to construct simple sentences on a detachable sentence strip using an 'I want' picture followed by a picture of the item being requested.

• Phase 5: Answering Questions .

The person learns to use PECS to answer the question, 'What do you want?'

• Phase 6: Commenting

The person is taught to comment in response to questions such as, What do you see?, What do you hear? and What is it? They learn to make up sentences starting with I see, I hear, I feel, It is a, etc.

Try Another Way

Try Another Way is a systematic teaching approach for people with learning disabilities designed by Dr Marc Gold (1939-1982) and is based on

'If you could only know me for who I am, instead of who I am not, there would be so much more to see, because there's so much more that I've got'.

Dr Marc Gold

the following observations and opinions: his students with severe disabilities had much more potential than anyone realised; all people with disabilities should have the opportunity to live their lives much like anyone else; and everyone can learn if we can figure out how to teach them.

Dr Gold's technique involved many of the same tools used by behavioural psychologists including task analysis (breaking a task down into its smallest components) and physical prompting (hand-over-hand guidance) coupled with the single verbal prompt, 'Try Another Way.' Gold's landmark research, involved enabling people with profound disabilities to master the complex task of assembling a bicycle brake.



Overview of Methods

When designing for people with autism, it is important to have an understanding of their individual sensory preferences and special interests.

Participatory observation on this study helped to reveal essential insights into the preferences of those with communication difficulties. People can be motivated to participate in activities they like but they may not be able to communicate their likes and dislikes verbally.

Consequently participatory observation – where a person's observed behaviours may provide valuable clues – formed an important part of the research.

Research methods helped to understand how a person with autism perceives and conceptualises everyday activities around the home. Observing how people with autism participate in and perform these activities, as well as physically relating to objects provided to assist them, supported this understanding.

Having identified those domestic activities that individuals like or dislike, patterns and correlations between those likes and dislikes were then

assessed. This in turn led to identifying under-lying reasons for those preferences.

Collaboration with Kingwood staff and observation of how they currently engage with those they support helped to better understand how to structure, participate and communicate in activity sessions.

Co-design workshops with Kingwood staff generated dialogue and ideas on how to adapt everyday activities to individual interests and sensory preferences. An extensive literature review and interviews with experts in the field informed an audit of existing interventions for the development of life skills among adults with autism.

Analysis, trialling and assessment of existing Activities of Daily Living questionnaires determined to what degree they are appropriate for people with autism. Observation and analysis of the three-way interaction between support staff, those they support and a given activity were considered

an important research factor. This process involved an in-depth exploration of specific activities:

- Task analysis of the steps involved
- How the activity is carried out and structured for each person
- How the staff demonstrate activities and encourage task performance from the people they support.

The research explored how to enhance communication among support staff, encouraging an exchange of skills and promoting consistency in documenting individuals' strengths and incremental achievements. It also investigated the potential of everyday objects as common points of communication, reference and understanding between support staff and the people they support.

Support staff were encouraged in the study to take photographs of the people they support performing different activities in the home. Through analysis, the images helped to inform design ideas in relation to individual needs, abilities and strengths.

Prototyping and piloting of design concepts were intended to investigate how design alterations to everyday



objects and the home environment could stimulate participation in everyday activities.

This research study built on the design methods developed during two earlier related projects. These methods include: the visual sensory profiling cards that were developed during the project 'Exploring Sensory Preferences: living environments for adults with autism' (Brand et al 2011) and the 'Tree of Opportunity' special interests visual questionnaire developed during the project 'Green

Spaces: outdoor environments for adults with autism' (Gaudion et al 2012).

Through understanding an individual's sensory profile, we can begin to map out what everyday activities (or parts thereof) he or she might enjoy and how best to structure the environment to encourage participation.

Someone who is hyposensitive to sound, for example, might enjoy activities that involve noisy objects – vacuum cleaning, mowing the lawn and washing clothes. Conversely

someone hypersensitive is likely to prefer quieter activities such as pegging clothes on a line, polishing objects or compiling a shopping list. Tailoring everyday activities to individual sensory preferences and special interests is likely to encourage participation.

In summary, the research aims to evaluate and understand a person's ability, level of independence and limitations when performing certain activities combined with their sensory preferences and special interests. It will then help to develop guidelines and prototypes for the future, both in terms of planned interventions and the monitoring of individual progress.

Participatory observation, interviewing support staff and encouraging them to record their own observations were priorities in the study. Our design methods took into account the fact that the research team will not necessarily be in attendance and indeed might distract from the established relationship between experienced support staff and those they support.

Research

Objects of Everyday Use

As a visual aid to help adults with autism identify the everyday activities that might appeal to them, the research team designed a set of 43 cards called **Objects of Everyday Use**. Each card depicts a different type of activity, which is described in simple words and images.

Many daily tasks involve the use of an object. Designed objects usually have characteristics that either imply how a given object might be used, or that prompt an inference about its usage that may or may not be correct.

Even if a person understands the implied affordance accurately, using an object still demands some or all of a range of human skills: motivation, physical dexterity, motor skills, planning and organisational and social communication skills.

Most of us have acquired these skills and use them unthinkingly in our daily lives. However, we all have different needs, abilities, cultural values, interests and sensory preferences which influence our decisions about what objects we choose to use and which activities we prefer. We might decide to use a mechanical lawn mower rather than an electrical one because we prefer the sound.

We might decide to purchase a red Henry vacuum cleaner with a smiley face rather than a visually more sophisticated model simply because we like the colour and smiley face. We might eat with chopsticks rather than western cutlery if we come from a country where that is the norm. We might like to use a vacuum cleaner because we like the sound it makes. We might prefer to dry dishes rather than wash them because we prefer not to get wet hands. We might enjoy mowing the lawn because we like the smell of freshly cut grass.

A simple activity like boiling an egg requires the support of objects or 'mediating artefacts' (Hutchins 1996). Taking the egg from its protective box, pouring water into a saucepan, turning on the hob, waiting for the water to boil and finally peeling a hard-boiled egg, are all actions that stimulate sight, sound, touch, smell and eventually taste. Every designed object in that



domestic process engages a sensory response. In other words, designed objects stimulate our reaction to them.

A key aspect of the research was the use of self-reported questionnaires and performance-based assessment commonly used by healthcare practitioners to help determine a person's ability and level of independence in performing everyday activities. These include Katz's Index of Independence in Activities of Daily Living (1970) and The Lawton Instrumental Activities of Daily Living (IADL) scale (Lawton & Brody 1969). These questionnaires help to create an understanding of the limitations involved with an everyday activity and help to develop guidelines for interventions in planning for someone's future and monitoring their progress.

This leaves the question of the usefulness of such questionnaires to a person with autism. The questionnaires immediately exclude anyone who finds it difficult to read and write. The use of tick boxes also leaves no room for more shaded responses.

Such questionnaires further fail to take into account the diverse nature of autism and the variable effect of the

physical environment upon an autistic person's ability to perform everyday activities. For example, a person with autism may score low on their performance when using a telephone, not because of the task itself but because a particular instrument's design may inhibit its use in their case.

Someone who is hypersensitive to sound may be able to cook a meal only if the kitchen is quiet. If the kitchen is noisy and full of people, this may prevent them from cooking altogether, so resulting in a negative answer in a questionnaire that does not allow for such shades of response.

In response, the research team used the activities featured in these daily living questionnaires as a basis for designing a set of 43 visual cards, called Objects of Everyday Use. Each card featured a photographic image, which acted as a visual prompt that explicitly represented each everyday activity. The cards were held together with a pivotal screw that made it easy to concentrate on one card/activity at a time while the pivoting design created a playful and tactile object in itself.

The images helped the participant conceptualise what the activity might



be and express preferences. The name of the everyday object's inventor was also added (quite incidentally revealing that many of the objects were invented long before any contemporary awareness of the nature of autism).

On the reverse side of each card there were three simple questions about each activity. There was also space for responders to expand their answers and convey a little more about why they enjoyed certain activities.

Objects of Everyday Use

Boiling an egg



Pruning weeds



Washing a car



Ironing clothes



Cleaning the bath



Peeling vegetables



Using a dishwasher



Taking out the rubbish



Folding clothes and putting them away



Washing up in the kitchen sink



Polishing and cleaning surfaces



Unpacking and organising groceries



Setting and clearing a table



Putting dishes and cutlery away



Sweeping the floor



Preparing a hot drink



Baking a cake



Using an oven



Following a food recipe



Using a television



Watering plants



Vacuuming



Changing a light bulb



Washing fruit and vegetables



Objects of Everyday Use

Results

The research team invited 18 people that Kingwood support to take part in the Objects of Everyday Use exercise. Some of the participants' responses were expressed through drawing. The insights gained encouraged Kingwood staff and those they support to work together and prompted a reassessment of everyday activities seen in terms of personal likes or dislikes.

The cards enabled the research team to explore patterns and correlations between the most popular and least popular activities, the amount of support required to perform an activity and the reasons, when possible, why the participants liked or disliked various activities. The diagram opposite illustrates this.

'The cards made me think about if someone really likes the sound of the cutlery when setting the table. The first thing I'm going to do, to be more person centred, is to talk about cutlery or pick the cutlery up.'

Kingwood support worker

Using a microwave

1. Do you use a microwave at home?
YES ☐ SOMETIMES ☒ NO ☐

2. Do you need support?
YES ☒ SOMETIMES ☐ NO ☐

3. Describe below what part of this activity you like/dislike?

I like hearing the 'ding' noise

Putting dishes and cutlery away

1. Do you put the dishes and cutlery away at home?
YES ☒ SOMETIMES ☐ NO ☐

2. Do you need support?
YES ☐ SOMETIMES ☒ NO ☐

3. Describe below what part of this activity you like/dislike?

Like: to put the cutlery in the long and hear the clinking sound of forks and knives. Also like to dry up the cutlery.

Dislike: mix up of knives, forks and spoons.

Boiling an egg

1. Can you boil an egg?
YES ☐ SOMETIMES ☐ NO ☒

2. Do you need support?
YES ☐ SOMETIMES ☐ NO ☐

3. Describe below what part of this activity you like/dislike?

LISTENING TO THE EGGS BUMPING AGAINST THE PAN WHEN BOILING

Preparing a cereal

1. What is your favourite cereal?
Sugar frosties

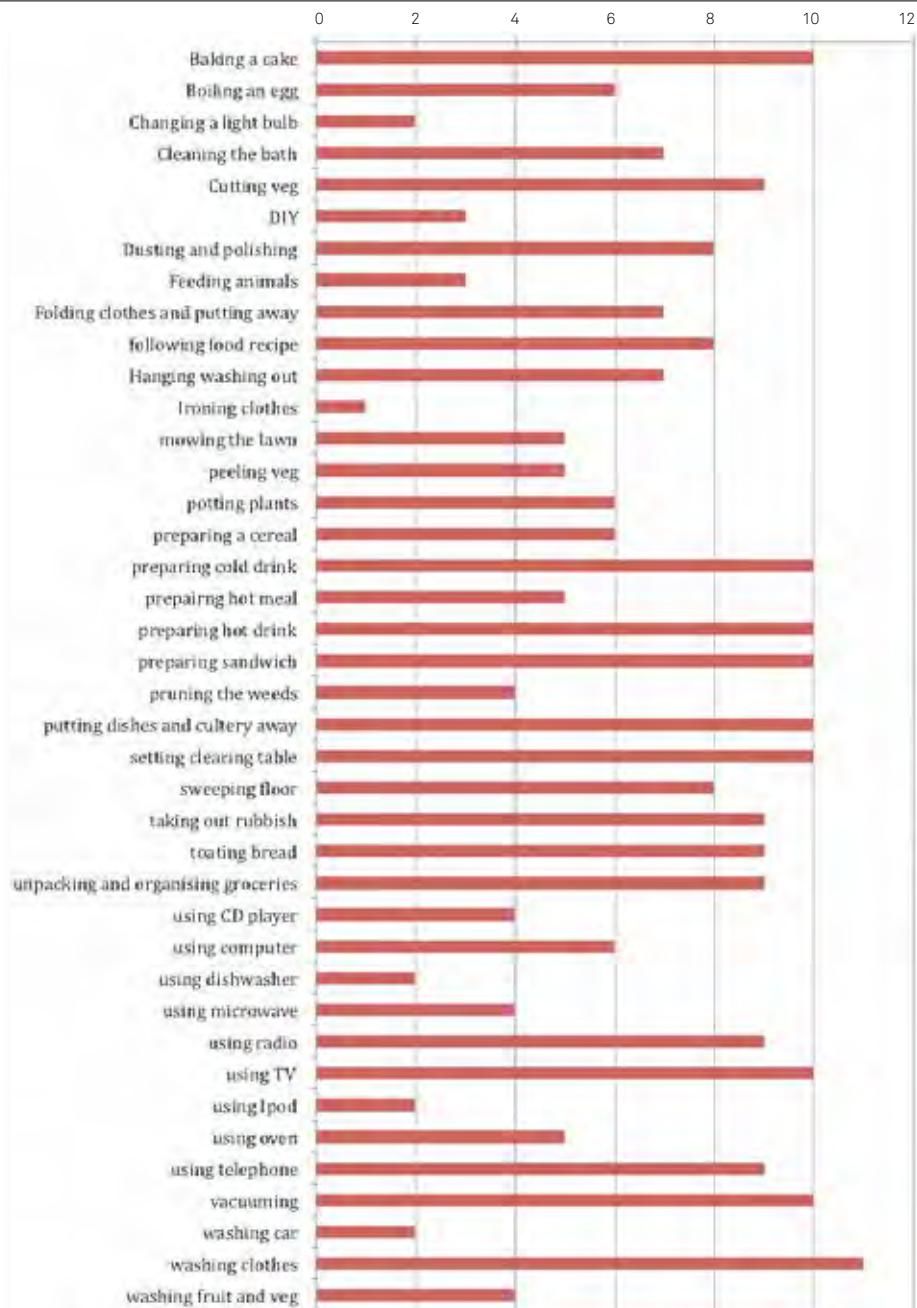
2. Do you prepare your own bowl of cereal?
YES ☒ SOMETIMES ☐ NO ☐

3. Do you need support?
YES ☐ SOMETIMES ☐ NO ☒

4. Describe below what part of this activity you like/dislike?

** I do need prompting but like to pour into the bowl because I like the noise the frosties make when they fall in.*

Support staff observations



The diagram illustrates what everyday activities the participants like to do

Doing Things with Things

To help explain how people participate in everyday activities and perform tasks, the research team designed a series of booklets called Doing Things With Things. Each booklet breaks an activity down into manageable steps to help identify those parts people enjoy most.

Most people learn how to perform each step within a given activity by reading instructions, listening or watching other people. For those with autism who have learning disabilities, understanding and remembering how to do everyday activities can be a particular challenge.

Someone with autism may simultaneously encounter difficulties with 'executive function' (which is traditionally used as an umbrella term for functions such as planning, working memory, impulse control, inhibition, and shifting) and the initiation and monitoring of action (Rabbitt 1997; Roberts et al 1998). Difficulty with executive function can make organising and remembering the steps involved in carrying out an everyday activity very challenging. Therefore those steps need to be given close consideration.

Difficult as it may be, mastering steps

may also represent an educational process in itself. Looked at in this light, everyday activities can offer opportunities to learn new skills that will not only enable their own completion but also offer lessons to be applied elsewhere – for example, developing language awareness by looking at clothes tags, washing powder directions or cake recipes; or grasping the rudiments of maths when measuring detergent and reading dials.

The simple act of laying a table engages skills in matching, counting and problem solving. Watering plants and caring for pets may help people to understand science concepts. Washing clothes involves decision-making about whether the items are to be dry-cleaned or hand washed. Washing machine settings encourage further decision-making.

People perform activities in different ways and may enjoy different parts

of one activity depending on their abilities and preferences. For example, some may iron the collar of a shirt before the sleeves, some will wash dishes starting with drinking glasses and leaving cutlery to the end. Some will rinse plates before putting them into a dishwasher, and others may enjoy vacuum cleaning but not empty the container when it is full.

Physical and mental ability also influences how a person does things and chooses what to do. Everyday activities are composed of a sequence of steps that require different levels of motivation, coordination, physical dexterity, motor skills, planning and organisation. For example when boiling an egg, concentration is needed to monitor the length of time it takes for the water to boil, then strength for lifting the heavy saucepan to drain the water and lastly good fine motor skills will help to peel a hardboiled egg.

The steps within an activity can therefore have varied levels of complexity, some of which may be prohibitive. In the previous example a person may decide not to hard boil an egg because they do not like the final step of peeling it. An individual may



decide not to mow the lawn because they find emptying the cuttings difficult, or they may avoid ironing shirts because they find the sleeves too awkward. By understanding these little preferences such as this in ourselves, insights into what people with autism encounter can be identified and addressed, thereby turning activities into valuable educational experiences.

Actions in a chain

Kingwood staff chart the activities of each person they support on a weekly basis. This current method does not reveal whether the whole task was completed or only part of it. This study proposed breaking the activity down into steps to create more achievable and manageable goals. This approach



also enabled the participant to see how different parts of the activity are connected to create the whole activity and how actions in a chain are related to a process.

With this in mind, the research team designed *Doing Things With Things*, booklets that focus on the whole activity process, not just the final outcome. Based on the data gained from the *Objects of Everyday Use* cards, the activities of vacuum cleaning, washing clothes and toasting bread were selected for closer investigation. These were the activities that most participants liked to do as well as the ones that required the most support.

Three people with autism and their Kingwood support staff were invited



to participate over a two-week period. Using a highlight pen, the participants were invited to mark and gesture the steps they were able to complete within a task. Then on the facing page they expressed what they liked/disliked or found easy/hard about each step.

The stages for each activity in terms of sequence and content were not prescriptive, and the booklets were simply intended to identify preferences. This self-evaluation identified progress through various activity steps and in so doing suggested opportunities for further support.

Doing Things With Things

Highlight below the numbers you were able to complete



Observations and feedback made by support staff

Describe below what you like and dislike about each step

sorting coloured clothes No hair fluff weighing water out. 1	collect clothes YES laes to collect and put in machine 2	carry to washing machine YES 3	open door YES 4
add washing powder Very independently complex putting correct amount 5	get washing powder YES laes the shelf 6	close door YES 7	put clothes into machine Sitting on the floor making constant noises. 8
select correct setting Always Same Setting 9	push start button YES 10	wait for end wash knows when coming to the end of a wash 11	open door YES makes happy noises 12
		hang to dry No likes stuff to be over washing machine 13	take washing out YES dislikes on top of washing machine of machine 14

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

Doing Things With Things

Results

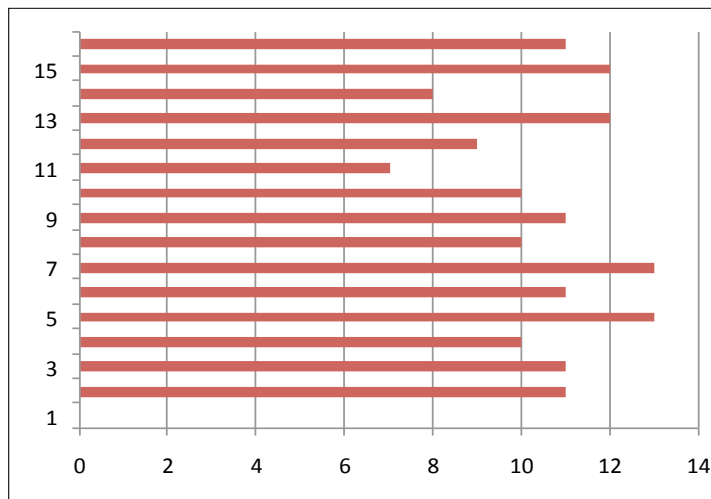


Altogether 36 activities were observed and recorded, including 13 vacuum cleaning, 14 clothes washing and eight bread-toasting activities. The Doing Things With Things booklets provided a valuable source of qualitative data that informed the methods the support staff might use in future to prompt and motivate those they support in performing activities.

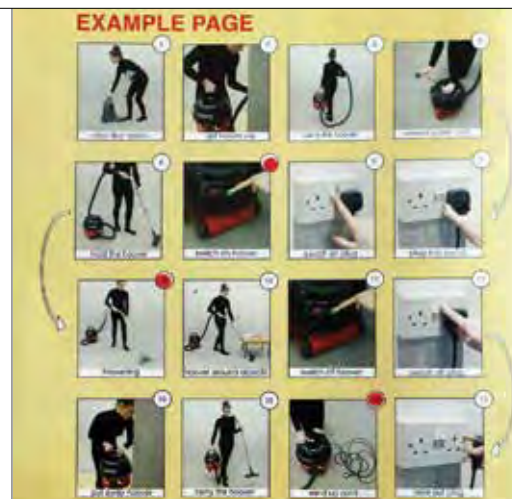
Generally, the booklets encouraged support staff to observe and record how someone they support chooses to engage with different activities. This data can inform future support techniques, encourage a transfer of experiences, knowledge and support techniques among support staff, with individual insights being shared and patterns of use identified. This can be of particular value to new members of staff who then benefit from a growing data bank of expertise.



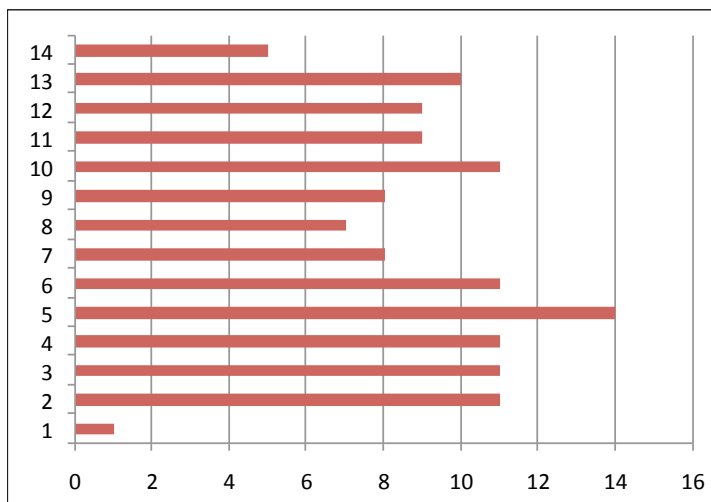
Support staff observations and feedback



■ Series1



Vacuum cleaning: the graph above shows how many of the 16 steps involved in vacuum cleaning the participants were able to complete



■ Series1



Washing clothes: the graph above shows how many of the 14 steps involved in washing clothes the participants were able to complete

Key Findings

Sensory preferences

The research identified four key findings from the Objects of Everyday Use cards and the Doing Things With Things booklets, which support an initial hypothesis as described below.

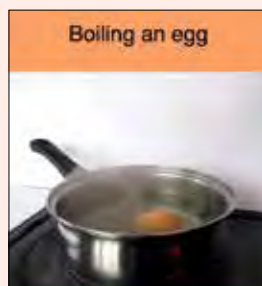
Everyday environments are furnished with myriad items that stimulate an assortment of sensations. For people who find it difficult to filter, adjust and process stimuli, these can trigger either enjoyment or anxiety. For example some people with autism are affected by details and aspects of the environment that many people may never register or consider: walking on a shiny floor or listening to the extractor fans and things in C minor pitch.

The design methods revealed that a person's choice of everyday activity can be influenced by such sensory preferences. Understanding an individual's particular sensitivities can help support staff to anticipate how they may respond to new activities. On the right are some examples of the activities that Kingwood residents enjoyed doing and the reasons why.



Washing clothes

- I like putting my clothes in the washing machine
- I like watching clothes spin around
- I like switching the machine on and see it filling up with water



Boiling an egg

- I like listening to the eggs bumping against the pan when boiling
- I like the way the egg moves around
- I put the egg in water and watch it boil



Vacuuming

- I like the noise
- I like Henry because he is blue and I like him on low speed
- I like to turn the vacuum cleaner on and off



Hanging washing out to dry

- I like to see my clothes lining up nicely
- I like how the wind blows the clothes
- I like to touch and smell the clothes when I pass



Putting dishes and cutlery away

- I like the noise
- I like to put the cutlery in the tray and hear the clinging sound of forks and knives
- I don't like it when the knives and forks mix up



Toasting bread

- I like hearing the toaster click
- I like it when the toast pops up
- I like to smell and feel the heat during toasting

Observations made by support staff

Key Findings

Special interests

The design methods revealed that special interests can influence someone's choice of everyday activities.

Understanding an individual's interests may help support staff to anticipate or introduce new related activities that motivate them and may also be extended out into the community. For example, if someone enjoys helping around the kitchen, they might be interested in taking a cooking class. If they like watering plants, they might enjoy a trip to a park or garden centre. If they enjoy feeding their pets, they might enjoy a trip to the zoo.

The examples on the right illustrate how some of the people Kingwood support chose everyday objects based on their special interests.

Special Interest: Thomas the Tank Engine



This person is interested in Thomas the Tank Engine and the reason she lives in Didcot is because that is where Thomas is from. As Thomas is blue, blue is her favourite colour. The external and internal walls in her house are painted blue as well as her furniture, lighting and objects i.e. her Henry vacuum cleaner and washing equipment.

Her home is also furnished and accessorised with lots of images of Thomas the Tank Engine including DVDs, drawings, posters, cushions and fridge magnets.

Special Interest: Bubbles



'He would spend all day washing up because he likes the bubbles.'

Support staff

'He takes part in every decision in his flat, the Argos catalogue is great for this and very visual etc... he is very particular about what things look like- he wanted a pink iron, red, yellow and blue pots, purple kettle, toaster and cleaning products.'

Support staff

Key Findings

Affordances

The physical environment generates opportunities for action (Gibson, 1979) that create shared dialogues, meanings and understanding in which to interact and connect with other people. Playing football, cooking and reading all facilitate social interaction and communication. But how inclusive are these activities for someone who avoids social interaction and who may perceive these things very differently? A football as an object to bite, for example, or a book as an object to flick and tear? If a person has little understanding of the shared values, norms and accepted behaviours of 'our' society, will they have difficulty learning the socially constructed preferred affordances of the environment?

The research revealed how some of the people that Kingwood support were interested in the unintended affordance of everyday objects. On the right is a selection of everyday objects and how some adults with autism perceived and interacted with them.

'We see things not as they are, but as we are ourselves'

Tomlinson (1919)



'He likes to talk to the fridge and often personalises inanimate objects'
Support staff



'She collects fans and extractor fans, but it has to be a specific make: The Vent-Axia T series. She loves the C minor tone, which this fan gives and has a collection of YouTube clips where she captures the sound and motion of her fans'
Support staff



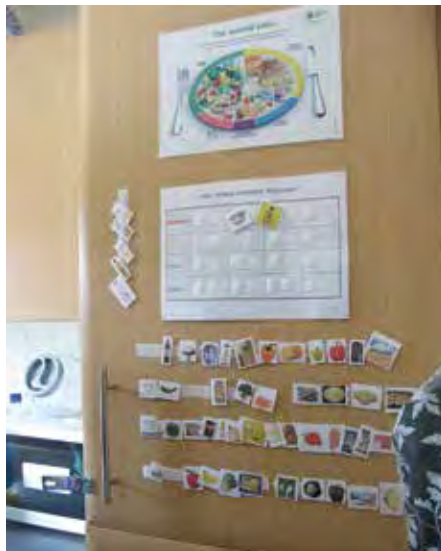
'He loves listening to the sound and watching the window of the washing machine. He will put it on all day in his flat even when it's empty'
Support staff



'He enjoys flushing the toilet and will also flush all sorts of household objects down the toilet. Is it the sound, the spiral motion of the water that he likes or the reaction of pressing the flush?'
Support staff

Key Findings

Support staff



Above: a support worker designed a visual communication food system to enable the person she supports to make independent decisions about his choice of food at meal times while simultaneously learning more about food

At Kingwood Trust the support staff encourage adults with autism to learn new skills and take part in different everyday activities. Planning, time-tabling structuring the environment, and smoothing transitions from one activity to the next are key factors in facilitating an activity and helping

the person to anticipate what is about to happen. Support staff are already independently taking a people-centred approach and adapting things to accommodate the needs and preferences of those they support.

Design Guide

Introduction

Learning and understanding what a person likes to do is an important key to making their everyday activities more motivating, meaningful and enjoyable.

This project shows how the sensory feedback of an everyday activity and object can affect a person's level of motivation for doing an activity. It also suggests that tailoring everyday activities to someone's sensory preferences and special interests can make those activities more meaningful and enjoyable. For example, if a person dislikes vacuuming but likes to do the washing up because of the bubbles, then what if we designed a vacuum cleaner that blew bubbles, would they then like to do the vacuuming?

If a person does not wash their clothes because they dislike the sound of the washing machine, then what if we designed a washing machine with volume control? Would this then encourage the individual to use the washing machine?

The following design guide is divided into four sections. Each section offers simple ideas for how people with autism, their families and support staff can extend, tailor, embrace and create new everyday activities that relate to the sensory preferences and special interests of the person they support.

The four principles involved can be defined as follows:

Extend: this refers to taking a sensation that is enjoyed in one context (for example, the 'spinning' of a washing machine) and extending it to a new context or activity (for example, a salad spinner or rotating shoe rack).

Tailor: this is about tailoring activities to avoid those things that a person dislikes (for example, choosing a quieter manual lawn mower over a loud electrical one, if a person is hyper-sensitive to sound) or choosing and tailoring the colour of everyday objects to a person's preference.

Embrace: this refers to embracing the way people with autism like to do things, rather than conforming to social norms (for example, support staff sitting down to watch the spinning washing machine with the person's they are supporting).

Create: this is about creating new activities to enhance particular sensory preferences and interests (for example, if a person likes listening to the sound of a washing machine, place a bell into a pair of socks to create new interesting sounds).

The simple ideas described in each section are based on the responses and insights gathered from the people that Kingwood support. All illustrate how:

- Being aware of someone's sensory preferences and interests can influence the design and choice of everyday objects
- Spatial arrangements can provide clues and reminders that influence how someone experiences, perceives and performs an activity
- It is important to note that due to the diverse nature of autism, the design guide is not prescriptive, rather it aims to stimulate thought about how people with autism might perceive and experience everyday activities and objects.

Design Guide

Principle 1: Extend

If a person likes a sensation, then extend its application to a new context.

Below are some examples of how you might think about extending what a person likes about an activity and applying it to other everyday activities:

- If a person enjoys the experience of lining up clothes on a washing line, then extend the application of lining things up to other contexts, e.g. lining up shoes on a rack, food tins in a cupboard or books on a shelf.
 - If a person enjoys washing up because they like the sensation of the bubbles, extend the application of bubbles e.g. make a hot drink using a transparent kettle, wash a car, boil an egg or try using a milk frother.
 - If a person enjoys putting away the cutlery because they like the particular noise it makes, then extend the application of the chiming sound, e.g. sorting a toolbox or creating a wind chime out of cutlery.
 - If putting away the cutlery is enjoyable because of the reflective metal, then extend the application of reflective materials, e.g. polishing mirrors, car hubcaps, bicycle spokes or sorting DVDs.
- If a person enjoys vacuum cleaning because they like the sensation of winding up the cord then extend the application of winding; for example, winding a garden hose, winding a mechanical coffee grinder and winding and sorting wires for machinery.
 - If a person enjoys using their vacuum cleaner because they like the sensation of the colour blue then extend the application of blue; for example, choose a blue ironing mat, a blue hairdryer and a blue watering can.
 - If a person enjoys stacking a dishwasher because they like the sensation of repetition then extend the application of repetition - there are lots of everyday activities that involve repetition, for example planting seeds in rows and putting cutlery away.
 - If a person enjoys washing their clothes because they like the sensation of watching them spin in the washing machine, then extend the application of spinning; for example, make a smoothie in a blender, dry salad leaves using a salad spinner, hang clothes on a rotary washing line, attach 'spokeys dokeys' to a bicycle wheel, or acquire a rotating shoe rack.

- If a person enjoys vacuuming the floor because they like the sensation listening to the loud sound then extend the application of the loud sound; for example, there are lots of other everyday activities that involve objects that make loud sounds i.e. a lawn mower, a dust buster and a drill to do DIY.



Design Guide

Principle 2: Tailor

If a person doesn't like a sensation, then tailor the application to avoid it.

Below are some examples of how you might begin to think about tailoring everyday activities to avoid the things a person dislikes, in order to anticipate the introduction of new everyday activities. Although we all dislike doing certain things, small environmental adjustments can make a difference.

- If a person does not enjoy vacuum cleaning because they dislike the sensation of being confused about which part of the floor they have vacuumed, then tailor the application of vacuum cleaning. For example, use Shake and Vac, that way you can visually see which part of the floor you have vacuumed and what's left to go. You could also create your own game and place small paper shapes around the floor to help visually guide and orientate a person.
- If a person does not enjoy vacuum cleaning because they dislike the sensation of the loud sound the vacuum cleaner makes, then tailor the application. Different vacuum cleaners can make different pitched sounds and at different volumes so think about the sound when choosing a vacuum cleaner (Malcolm Arnold composed

a piece of music called Grand, Grand Overture which was part performed at the last night of the Proms 2006. A collection of vacuum cleaners were part of the orchestra which all produced different sounds.)

- If a person does not enjoy using a microwave or oven because they dislike the sensation of waiting for the food to cook, then tailor the application of the microwave and oven; for example, use egg timers, sand timers, alarm clocks and purchase microwaves and ovens with transparent window front to provide some visual distraction whilst a person waits.
- If a person does not enjoy putting the cutlery away because they dislike the sensation of seeing the knife, forks and spoons all mixed up, then tailor the application of putting the cutlery away. For example use different colours for the forks, knives and spoons so help a person visually see where they need to go and colour code the compartments of the cutlery tray so that they relate to the colour of the knife, forks and spoons or try a freestanding hanging cutlery organiser to prevent them from getting mixed up.
- If a person does not enjoy hanging clothes on the washing line because

they find using pegs too difficult and fiddly, then tailor the application of hanging clothes; for example, try pegs of different shapes and sizes, there are also lots of clothes line systems that do not require clothes pegs i.e. Ezyline Pegless Clothes Line.

- If a person does not like washing their clothes because they find it difficult to understand and make decisions about which wash settings to apply to which clothes, then tailor the application; for example, colour code the clothes labels and have them correspond with the colour of the laundry basket, which also show the symbols of the washing machine dial on them.
- If a person does not like to boil eggs because they find it difficult to know when the water has boiled, tailor the application of boiling water. For example accentuate the sound by placing a special device in the pan that rattles when boiling.

Design Guide

Principle 3: Embrace

If a person wants to do something differently, then embrace that activity.

The research study encouraged Kingwood support staff to observe and develop more understanding of how the people they support experience and perceive everyday activities. Many filled out the cards and booklets on behalf of the person they support, which gave them lots of insights and ideas about how they like to do things. Below are some examples (inspired by support staff themselves) that illustrate how a person might be encouraged to embrace the activity:

- If a person enjoys the smell of washing powder as the first step to washing clothes, then encourage them in that activity by engaging them through the sense of smell.
- If a person has difficulty remembering how to do something, then try to associate activities with a particular piece of music or smell.
- When verbally demonstrating an activity, make clear and relatively unambiguous instructions, avoiding descriptions such as 'a pinch of salt' and 'beat until fluffy'.
- Weekly visual timetables are a good

way to help a person to structure and see what is happening throughout the day and week, involve the person as much as possible in creating the timetable and choosing what to do each week.

- If a person finds it difficult to transition from one activity to another, try different ways of providing clear markers between activities. For example perform activities in different spaces, or put on an apron to signify a transition into cleaning.
- To encourage a person to be more actively engaged in their own homes it might be fun to introduce a heart rate monitor, that way you can see how many steps you have walked whilst doing different activities.

'From the booklets and discovering what elements of the activities they enjoyed, I will now write in his communication passport that the person I support likes the smell of washing powder. A new member of staff will come in, read this and see that he likes the smell of washing powder. They may think, I'm going to go to the cupboard and go – oh that smells nice – as a way to encourage him. It's about the way you approach things with the people we support.'

'The booklets have made me think about things like, if someone really likes the sound of the cutlery when setting the table. The first thing I'm going to do, to be more person centred, is to talk about cutlery or go and pick the cutlery up. Working with what works more for them.'

Kingwood Support staff



Design Guide

Principle 4: Create

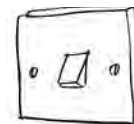
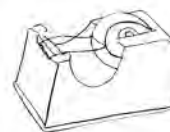
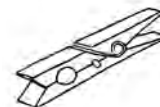
If a person likes a sensation, create new ways to experience and enjoy it.

The research project revealed how some people with autism may enjoy the unintended affordance of everyday objects. Below are some examples that show how perceiving everyday objects differently can create new applications:

- If a person likes bubbles when washing up, think about what other activities or objects could create bubbles - a bubble-making vacuum cleaner, for example?
- If a person chose a vacuum cleaner because they like the smiley face, there are lots of smiley face stickers you could purchase and stick onto different everyday objects.
- If a person likes listening to the sound of a washing machine, place a bell into a pair of socks to create new interesting sounds inside the machine.
- If a person likes to look through the window of a washing machine, then this could be a fun place to put stickers or create a custom-made spinning disc that attaches to the window of the washing machine.

- If a person likes to rip magazines and newspapers, this activity can be used for many things, for example, making papier-mâché or tearing old clothes to make rags to clean mirrors and windows. A person might also enjoy shredding documents.

The following pages show two prototypes that have been developed in collaboration with Kingwood support staff to show how the 'create' principle might work.





Everyday Activities

Vacuum cleaning

Vacuum cleaners are used to clean floors by removing dust and dirt particles. But what if we did not understand the concept of dust and dirt and the importance of keeping our floors clean? What if we did not understand the intended affordance of a vacuum cleaner?

This can be the case for people with autism whose individual experiences and perceptions of vacuum cleaning can be unique. The Objects of Everyday Use cards revealed that many of those registering an opinion disliked vacuum cleaning and found it difficult to do. They did not understand what a vacuum cleaner was for in the first place, nor how to engage and interact with it; they were hyper-sensitive to the sound. Therefore the design team began to explore ways in which vacuum cleaning can become a more meaningful and enjoyable experience whilst simultaneously learning important life skills.

We began this research by reflecting back onto the Objects of Everyday Use cards to look for patterns and correlations around the everyday activities the participants liked to do and the reasons given. The cards revealed that washing up was a particularly popular activity largely

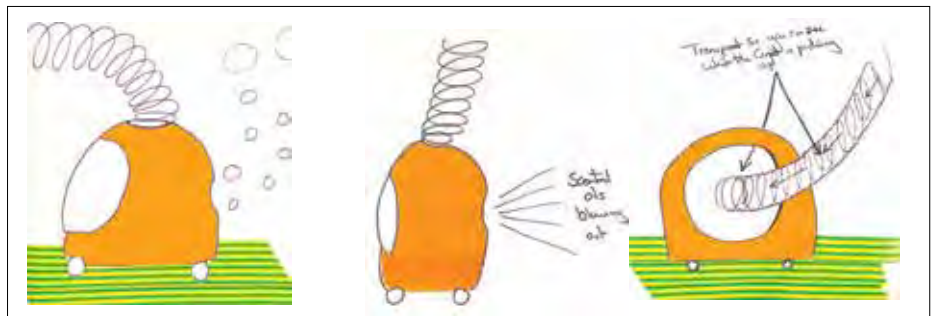
due to the bubbles. In response the design team began to explore ways of extending bubbles into other activities such as vacuum cleaning, so making the pleasurable element – the bubbles – intrinsic to more than one activity.

Below are some initial design concepts which were presented to Kingwood's support staff and designer Richard Seymour. They explore ways in which a vacuum cleaner can blow bubbles whilst a person is vacuum cleaning. It was also proposed that the bubble liquid might also act as a carpet conditioner.

Concept: Hubble Bubble Vacuum Cleaner

A Henry vacuum cleaner was selected for the first Hubble Bubble prototype. Due to the simple design, wind-up cord, expressive face and range of colours available, a Henry vacuum cleaner was the most popular choice for the Kingwood community.

The Hubble Bubble vacuum cleaner is being piloted at Kingwood to evaluate how, by changing its affordance to incorporate an individual's specific focus of interest, this may in itself motivate them to use it. Observation will also reveal whether the visual appeal of the bubbles offsets the negative effect of the noise for those hyper-sensitive to the sound.





Everyday Activities

Washing clothes

Washing machines are designed to wash clothes, but for a person with autism the experience of a washing machine in action can stimulate unique responses.

Research revealed that some people may particularly enjoy the by-products of operating a washing machine.

For example:

- Listening to the sound of it so much and wanting it to be on all the time.
- Enjoying listening to the washing machine, particularly when the pitch changes during the last spin.
- Using the washing machine because of getting pleasure from putting in the washing powder, because of liking the smell.

The Objects of Everyday Use cards also revealed that many people also

enjoy looking at the washing machine as it spins around.

The research team found these insights inspirational and began to explore whether the unintended affordance of everyday objects, once identified, can inspire new design ideas that are meaningful and enjoyable to someone with autism.

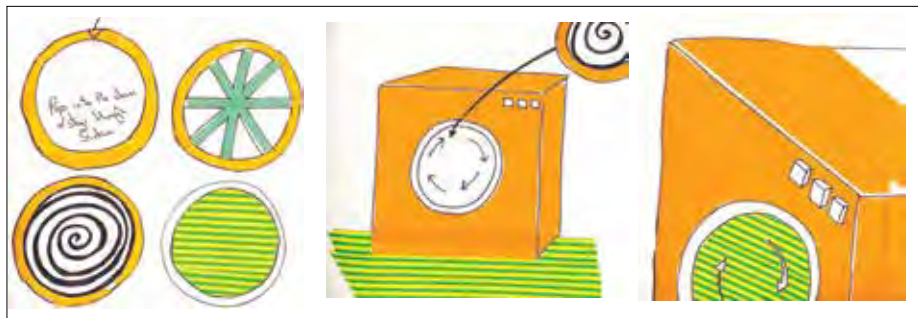
This prompted the idea that it might be possible to enrich the experience of washing clothes for everyone, inviting people to perceive, experience and appreciate activities in the same way a person with autism might.

Concept: Spinny Disc

Many people who Kingwood support enjoy watching their clothes being spun inside the washing machine. The design team wanted to celebrate and accentuate this feature. Spinny Disc adds an extra fun step within the process of washing clothes. Once washing has been put into the machine, a person can then choose a spinny disc. Attach, switch it on and watch the different patterns on the disc spin around – individuals can even make their own patterns.

The Spinny Disc prototype is being trialled at Kingwood. The task analysis for washing clothes within the Doings Things With Things workbooks revealed that step 1 (sorting coloured clothes), step 14 (hang to dry) and step 8 (add washing powder) proved the most difficult for the participants to do.

It is hoped that creating a new step based on something identified as enjoyable may encourage those with autism to try to master more steps within this particular activity.





Ready-Steady Make Workshop



The workshops invited 12 of Kingwood's support staff to design and make decorations that reflect the sensory preferences and special interests of the person they support.

To begin with, participating staff were asked to write down the sensory preferences and special interests of the person they support into a Guess Who game frame (right).

Using the Guess Who frame as a reference point, each participant was then given a tree and asked to make decorations for the tree.

Once the trees had been decorated, each participant described their tree and why certain design decisions were made, while everyone else had to try and guess who the tree was decorated for.

During the creative process, participants began to exchange ideas and share experiences and draw connections between the interests and sensory preferences of the people they support.

The exercise was a creative process that encouraged support staff to explore and understand the sensory preferences and special interests of the person they support.

Illustrated opposite: trees decorated by individual support staff, to reflect the interests of the people they support.





'He likes things that roll, things that are round, bright colours that he can look at. He likes spinning things so on the top of the tree there's something that resembles that, its round and it spins so I thought that would be good to put at the top of the tree.'



'She likes crunching things, and she likes horses so there is a picture of a horse. She likes colour blue, red and squishy things, she likes music so there are bells and there are lots of scents at the top of the tree because she likes perfumes.'



'He likes soft touchy things, he likes to smell staff's hair so I've put scents in the cotton wool. He likes colour and expressions and twiddling things. I've some soft textures in the tree and its quite visual and bouncy. I think the person I support would enjoy it!'



'I've put little steering wheels and cars on his tree. The person I support likes to flick things, so I've made some flicky twirls and a cracker so when it bursts, cars come out. There is also thunder bolts coming out because he likes loud sounds.'



'This tree was created for someone who likes red, he likes red cars. He loves traffic lights so there are some red stars.'



'He absolutely loves plastic and also likes to walk no matter what the weather, so I have put some snow on the tree and lots of plastic things. He is also into horror films and anything to do with zombies and space hence the plastic space ships.'

Conclusion

This research project set out to expand our understanding of the important role played by everyday activities for adults with autism. It also sought to explore ways in which design might be used to help make those activities – and the domestic objects associated with them – more enjoyable and educational in terms of personal development.

By focusing on the special interests and sensory preferences of people with autism, the study suggests that design-based initiatives can avert or minimise negative reactions to particular activities whilst beneficially exploiting the more positive ones, on an individual basis.

The research built upon three major assets: the day-to-day experiences of the Kingwood support staff; a comprehensive review of past research that relates to the subject and to which the research team was able to bring a new and more specific focus; and three previous research publications in the present Kingwood series that address other aspects of how people with autism experience their environment.

A central focus of the research was the role of designed objects – kettles, washing machines, vacuum cleaners

and so on – in daily activities and the way they are perceived by people with autism. Accordingly a key part of the study was to observe and document individuals' relationships with everyday objects. Simple design probes were devised to tease out personal responses to designed objects and their related activities in order to gain insights that might encourage support staff, family members and designers to consider ways of extending, tailoring or otherwise modifying the appeal, function and experience of everyday objects.

The majority of the participants in this study are not typical of most people with autism – they have limited verbal communication and learning difficulties, so their support staff played an important role in mediating the contact between the researchers and the participants. Much of the data

gathered during the project did not derive first hand from the people that Kingwood support, but was largely interpreted by the support staff through direct observation.

The diverse nature of autism as a spectrum disorder makes it impossible to create a generic set of guidelines and design outputs. This is not, therefore, a 'how to' publication; instead it seeks to share experiences and approaches in the interests of reaching out to support staff, service professionals, family members and adults with autism themselves, aiming to make everyday activities become more meaningful and enjoyable.



And finally...

Dr Sandy Toogood, Active Support Programme, explains: "Researchers to date have paid scant attention to the effect of equipment, such as washing machines and vacuum cleaners, may have upon people when performing activities. This is surprising since it seems obvious that the design of equipment may enhance or diminish a person's motivation to use the equipment, and that this may especially be the case where a person has a diagnosis of autism and his or her sensory perception is thought to have been altered in some way. Affordances may, of course, enhance

or diminish a person's motivation to engage in activity. Thoughtful, sensitive and personalised attention to the design of equipment may increase a person's motivation to engage in activity. An activity may become intrinsically more fun or less arduous as a consequence of attending to the critical features of equipment design. In this regard design may become a natural bedfellow of active support, working hand-in-hand with the arrangement of the physical and social environment to create conditions that correspond optimally with what it is that a person wants or needs."



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About the Author

Katie Gaudion holds a Master of Philosophy in Textile Design from the Royal College of Art (RCA). She received the Helen Hamlyn Design Award for Creativity in 2010. She has presented her design research at a number of international conferences including China and the USA. Katie's specialist interest lies in co-designing with adults and children with learning disabilities and neurological conditions. She is interested in learning and discovering the latent needs of people whose perspective and experience of the world is individual and unique. Katie is the founding member of Angles between Curves, a design research practice that focuses on materials development and people-centred design to create tactile, interactive and performance textiles for product and environment.

In 2012 Katie began a PhD by Practice at the RCA entitled: 'An exploration of empathic design approaches to improve everyday life for adults with autism'. The PhD is supported by the Kingwood Trust, and brings together three distinctive and relevant forms of expertise: the people-centric design ethos of the Helen Hamlyn Centre for Design, the innovation and making orientation of RCA's Innovation Design Engineering programme and the autism expertise at the Centre for Research in Autism and Education (CRAE).

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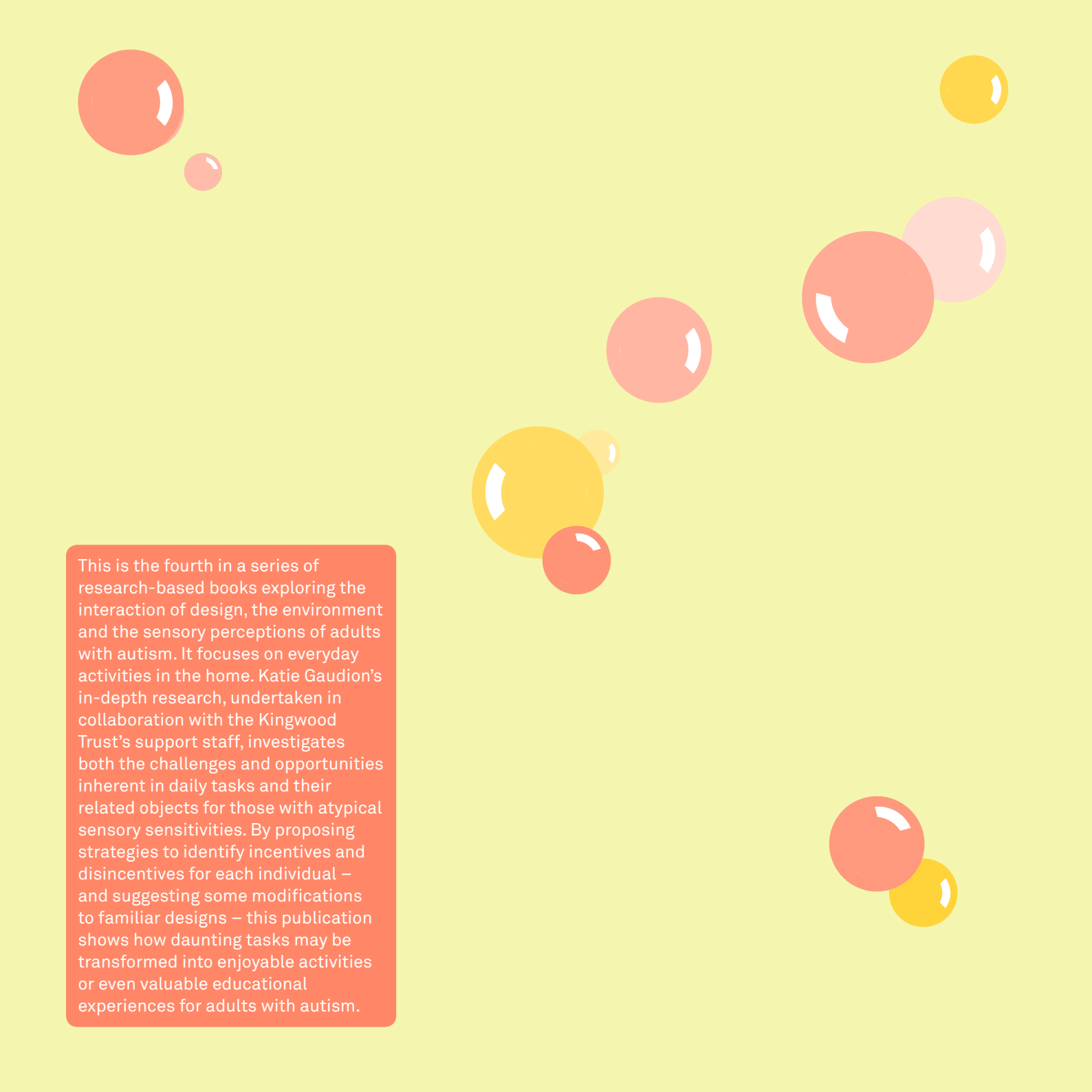
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**THE HELEN HAMLYN
CENTRE FOR DESIGN**

The background is a solid light yellow color. Scattered across the page are several circles of different sizes and colors, including shades of red, pink, and yellow. Each circle has a small white crescent-shaped highlight on its upper right side, giving them a three-dimensional, bubble-like appearance. The circles are positioned in the top left, top right, center, and bottom right areas of the page.

This is the fourth in a series of research-based books exploring the interaction of design, the environment and the sensory perceptions of adults with autism. It focuses on everyday activities in the home. Katie Gaudion's in-depth research, undertaken in collaboration with the Kingwood Trust's support staff, investigates both the challenges and opportunities inherent in daily tasks and their related objects for those with atypical sensory sensitivities. By proposing strategies to identify incentives and disincentives for each individual – and suggesting some modifications to familiar designs – this publication shows how daunting tasks may be transformed into enjoyable activities or even valuable educational experiences for adults with autism.