Goal Setting Tool for Adolescents and Adults

The development and evaluation of a goal setting tool for adolescents and adults on the spectrum

FINAL REPORT

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The Cooperative Research Centre for Living with Autism (Autism CRC)

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Table of contents

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1. Introduction

1.1. Goal-setting challenges experienced by people on the spectrum

People on the autism spectrum (hereafter referred to as people on the spectrum) have goals and aspirations that are similar to people who are not on the spectrum, including a desire to live independently, participate in tertiary education and employment, engage in successful social relationships, find a life partner, and raise a family (Autism Spectrum Australia, 2013; Giarelli, Ruttenburg, & Segal, 2013). Adolescents and adults on the spectrum are often asked to participate in the person-centred goal setting processes of organisations such as schools (during post-school transition planning), disability services and the National Disability Insurance Scheme (NDIS). Under the Australia's NDIS program, people on the spectrum are asked to meet with NDIS personal planners to discuss their goals and aspirations, with the aim of turning these goals into specific objectives (Australian Department of Human Services, 2019). NDIS participants need to communicate their goals for a 12-month period, and the support requirements needed to achieve these goals.

Person-centred planning processes have been found to be challenging for many people on the spectrum (Hagner, May, Kurtz, & Cloutier, 2014). If adolescents and adults on the spectrum have challenges in articulating their goals and prioritising their support needs, they are likely to experience dissatisfaction with the planning process and the services they receive (Hagner et al., 2014). Barriers to active participation in person-centred planning for people on the spectrum can include a history of low expectations of self-determined behavior, a reduced capacity to communicate preferences and desires due to social and communication challenges, and social anxiety (Bejerot, Eriksson, & Mörtberg, 2014; Maddox & White, 2015). Magiati, Tay, and Howlin, (2014) found that the language challenges of people on the spectrum typically continue into adulthood. In a formal meeting environment with a personal planner, these challenges may impede their capacity to communicate their goals.

1.2. Considerations in developing a goal-setting tool

A review of tools that could potentially meet the goal-setting needs of people on the spectrum included the Autism CRC's *Better OutcOmes & Successful Transitions for Autism* (BOOST-A™) (Hatfield, Falkmer, Falkmer, & Ciccarelli, 2018). Although this is a very valuable tool, it focuses specifically on educational and vocational goals. A tool that encompasses a broader range of life goals including independent living, social participation and community participation was required.

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The *Adolescent and Young Adult Activity Card Sort* (Berg, McColllum, Cho & Jason, 2015) measures participation in age-appropriate activities of young people on the spectrum without intellectual disabilities (McCollum, La Vesser, & Berg, 2016), but does not provide a way for people to prioritise their goals. The language and concepts underpinning the activities are somewhat complex (e.g., "keeping personal health records") and the activities do not address fundamental skills that people with cognitive challenges may wish to work on (e.g., "buying things", "dressing myself appropriately"). It did not, therefore, meet the needs of people on the spectrum with cognitive challenges. PATH: *Planning Alternative Tomorrows with Hope* (Pearpoint, O'Brien, & Forest, 1993) involves a guided conversation recorded visually by an artist. Friends and family discuss the future life options of an individual with a disability (typically used with individuals with cognitive challenges). Although the person with a disability is encouraged to participate, they may find it challenging to participate in the discussion and actively engage in goal-setting. The NDIS planning booklets (Australian Department of Human Services, 2019) include questions such as "*Write what you want to change in your life now*", and instructions such as "*Write two short-term goals for your NDIS plan*". Many people on the spectrum find it challenging to respond to these questions and instructions, as they are open-ended and not clearly defined. Limitations of the reviewed tools therefore included restricted scope (e.g., vocational goals only), use of open-ended questions that were not clearly defined, and lack of capacity to actively engage people on the spectrum (especially those with cognitive and language challenges) in prioritizing their goals. The AAGST was designed to enable a wide range of people on the spectrum to identify, prioritise and communicate a broad range of goals, and actively engage in planning. It can be used with other tools such as BOOST-A™ to provide additional information on goals that may support their vocational and educational goals (e.g., learning about grooming and dressing appropriately for a work environment). It may also be used to enable more active engagement in other planning processes such as the NDIS or PATH planning.

Card-sorting methods have increasingly been found to be effective means of goal setting in the disability sector. Autism Queensland's *Family Goal Setting Tool for Families of Children with Disabilities* (Jones, 2013a) was found to be effective by Rodger, O'Keefe Cook and Jones (2012) for collaborative goal setting with families who have young children, while the *Family Goal Setting Tool: Autism Spectrum Disorder Version* (Jones, 2013b) was found to be effective by Jones, Rodger, Walpole and Bobir (2018). Families reported that these tools simplified the goal setting process. The cards acted as prompts to cue them to consider a wide array of possible areas of need. The user sorts the cards into three piles including "*Yes – now*", "*Maybe*" and "*No – not now*", and then further prioritises their goals within the "*Yes – now*" pile. As they were independent and in control of the process, family members felt empowered and had greater ownership of the outcomes.

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A card-sorting process has attributes that make it inherently suitable for people on the spectrum. For example, they have been found to have relative strengths in processing pictures rather than words (Kamio & Toichi, 2000). The cards can be physically held and sorted through, which is an easier process to manage than listing goals verbally or in writing. Information presented in concrete ways (such as cards with pictures) has been observed to more accessible to people on the spectrum than information presented in more abstract ways (Falk-Ross, Iverson & Gilbert, 2004). Cards with pictures are also accessible to a broad range of young people on the spectrum including those with cognitive, language or literacy challenges and those for whom English is not a first language. Additionally, as adults on the spectrum find that impromptu or unstructured dialogue can contribute to their social anxiety, communication supports such as mediating objects can provide a way to initiate and sustain social interactions (Müller, Schuler, & Yates, 2008).

2. Project aims

This project aimed to develop and evaluate the *Adolescent/Adult Goal Setting Tool* (AAGST). The AAGST utilizes a card-sorting process, to assist adolescents and adults on the spectrum to develop and prioritise their goals in a broad range of areas, including independent living, and social, community, educational and employment participation. Furthermore, this tool aims to facilitate conversations about goal-setting and to give people on the spectrum a voice when planning their futures by ensuring that the goals they express are genuine reflections of self-determination. It also aims to enable people on the spectrum to effectively communicate their goals to their families, teachers and other professionals in health, education and employment support services, and professional planners such as those employed by the NDIS.

Specifically, the project sought to answer the following research questions:

- **Research question 1:** Are the goals relevant, important, and sufficiently comprehensive to accommodate the potential goals of a broad range of people on the spectrum?
- **Research question 2:** Are the wording and images on the cards clear and easily understood by a broad range of people on the spectrum?
- **Research question 3**: Is the AAGST effective in enabling a broad range of people on the spectrum to identify and prioritise goals that are important to them, and to communicate their goals to others?
- **Research question 4:** How does the use of the AAGST compare to the use of other goal setting processes that have been used by the participants?

3. Method

3.1 Ethics

Ethics approval was obtained from the University of Queensland Human Research Ethics Committee (Approval Number: 2017000005) and the Queensland Department of Education and Training (DET) (Approval Number: 550/27/1911). Participants were all provided with two participant information sheets, including a comprehensive version with complex and abstract words, and a plain English version with simple, concrete language with picture cues to cater to participants with low literacy. Participants over the age of 18 completed consent forms, while those under the age of 18 completed assent forms, and a family member completed the consent form. The voluntary nature of the project was emphasised, particularly during Phase four when participants were involved in face to face interviews. Additionally, all participants were provided with "stop" cards to use during interviews. The researchers also took note of nonverbal signals suggesting that the participant no longer wished to continue (Harrington, Foster, Rodger, & Ashburner, 2013). Those participants who came from Queensland Department of Education and Training (DET) settings were not permitted to receive remuneration, but those from settings outside DET were provided with a $20 gift card as a token of appreciation for participating in the project. All participants were also provided with a copy of their results from the AAGST goal setting session. This consisted of a list of four to six individualized, prioritised goals.

3.2 Research Design

Four phases involving cycles of participatory action research (PAR) phases were used to develop refine and evaluate the AAGST. Participatory action research involves a cyclical process of reflecting on practice, action-taking, reflecting and further action-taking, with explicit documentation of each cycle to improve ongoing actions (Riel, 2019). The research designs used within each of the four phases were as follows:

Phase 1: The AAGST was co-designed by people on the autism spectrum, and teachers and allied professionals with relevant experience.

Phase 2: A survey was distributed to adolescents and adults on the spectrum and their families to evaluate the comprehensiveness, relevance and clarity of the goal cards including the clarity of the images and wording.

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Phase 3: The AAGST was refined based on phase 2. A second survey was distributed to a second group of adolescents and adults on the spectrum and their families to evaluate the comprehensiveness, relevance and clarity of the refined set of goal cards.

Phase 4: The AAGST was refined again based on phase 3 and was then used by allied health and educational professionals to facilitate the goal setting of adolescents and adults on the spectrum. A generic qualitative design involving semi-structured interviews for participants on the spectrum and family members, and focus groups with professionals was used to evaluate (a) the comprehensiveness, relevance and clarity of the refined set of goal cards, (b) the effectiveness of the AAGST in enabling people on the spectrum to identify, prioritise and communicate their goals, and (c) the effectiveness of the AAGST as compared to previously used goal-setting methods. Additionally, the researchers recorded their observations of the duration and location of the goal-setting sessions and the fidelity with which the AAGST was used.

Triangulation: Both investigator and methodological triangulation, as described by Patton (2015), were used across the four phases of PAR. Investigator triangulation involves the use of several different researchers to strengthen the rigour of a study. Multiple researchers were involved with the design and completion of each phase of the project, and two coders independently reviewed the qualitative findings. Additionally, methodological triangulation uses multiple methods to study a single program. This project used surveys, semi-structured interviews and focus groups to evaluate the AAGST. Triangulation was also established by gaining the perspectives of multiple participant groups (people on the spectrum, their family members and the professionals who facilitated goal setting through the use of the AAGST).

4. Development of the AAGST (Phase 1)

The development of the AAGST (Phase 1) was funded by Autism Queensland prior to commencing the Autism CRC Project to evaluate the AAGST.

4.1 Phase 1 participants

The participants involved in the initial design of the AAGST included 3 ASAN Committee Members, AQ professional staff members including two occupational therapists with 10 years and 40 years of experience respectively, one probational psychologist with three years of experience, one senior special education teacher with over 20 years of experience and one senior speech pathologist with over 30 years of experience.

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4.2 Phase 1 procedure

The concepts underpinning the AAGST were derived from Autism Queensland's *Family Goal Setting Tool for Families of Children with Disabilities* (Jones, 2013a), and *Family Goal Setting Tool: Autism Spectrum Disorder Version* (Jones, 2013b). The initial goals including the wording were generated by three researchers based on their clinical experience, and a review of the literature and other person-centred planning tools. Factors that were considered when devising pictures for the goal cards included the need to: (a) make the examples concrete, (b) demonstrate positive nonverbal communication and (c) be respectful and inclusive of diversity in terms of ethnicity, gender and sexual orientation.

Developing images to depict goals in a small card was often challenging, particularly for those goals that are abstract in nature. For example, developing an image to depict "*Exploring/meeting spiritual needs*" was not straightforward, as "spirituality" can have important but very different meanings for different people (i.e., different religions and practices such as meditation). Efforts were made to create images that are meaningful to a broad range of people. For example, the "*Volunteering*" goal card included a range of possibilities including tree planting, removing rubbish from the environment, and working in a charity shop, while the *"Doing activities that I enjoy"* goal card included a range of possibilities including reading, music, art and electronic gaming. Goals such as "*Dating and finding a partner*" and "*Being in a long-term relationship"* were designed to be inclusive of people with different sexual orientations as well as ethnicities.

The goals were sent to our illustrator with the wording and sample images sourced from the internet to assist him in developing the illustrated set of cards as shown in Figure 1 below. A coloured bar was added to the cards to represent the category to which the goal belonged (e.g., self-care and home living). This illustrated set of cards was distributed to participants including ASAN Committee Members, teachers, and allied health professionals in order to gain their feedback in regard to the clarity, relevance and comprehensiveness of the goals.

4.3 Phase 1 results

The initial goals and goal categories consisted of 64 goal items in 12 categories. The professional staff and ASAN committee members suggested a number of additions. In particular, the ASAN committee members added goals of importance to autistic people, including disclosure of autistic identity, self-advocacy and networking within the autistic community. The ASAN committee members also highlighted the importance of employment for people on the spectrum. In addition to the existing "*finding a job*" card, two extra employment cards ("*applying for a job*" and "*going for a*

job interview") were therefore created. By the end of extensive discussion and consultation with members of ASAN and professional staff members, there were 72 goal items in 9 categories.

Figure 1. The process of developing goal card prototypes

| Boardmaker® example image | Card illustration prepared | Wording and coloured bar added |
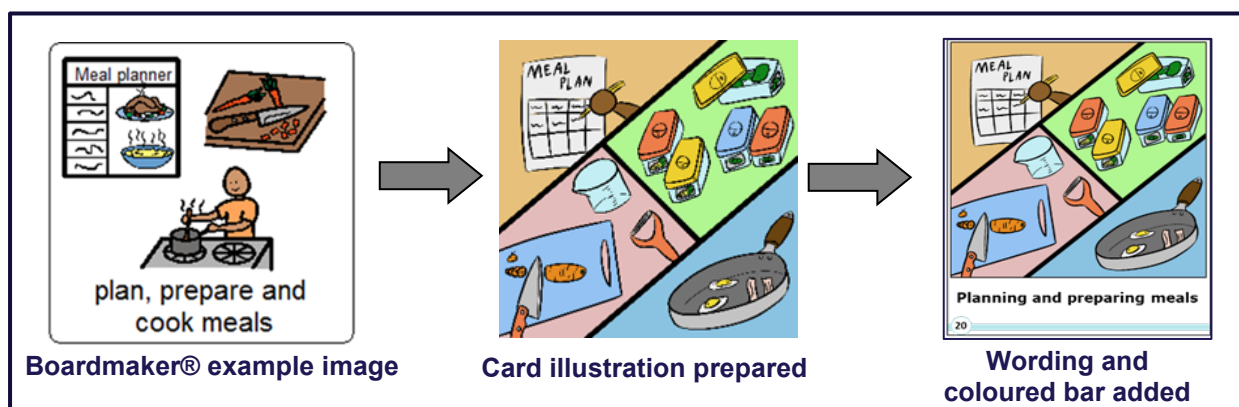
Description of the AAGST

Figure 2: Example completed "*My Priority Goal*" form

The 72 cards were grouped into nine categories including *Social relationships* (13 cards), *Self-care and home living* (10 cards*), Studying and training* (8 cards), *Employment* (6 cards), *Health and fitness* (4 cards), *Community access and participation* (8 cards), Communication (9 cards), *Finances* (4 cards), and *Emotional wellbeing* (10 cards). A draft manual and the base plates on which the cards are sorted, were adapted from the *Family Goal Setting Tool*: *Autism Spectrum Disorder Version* (Jones, 2013) manual and base plates. The person on the spectrum is asked to sort the cards into piles using the baseplates (the *"Yes, now"* baseplate for a goal they want to work on, the *"No"* baseplate for a goal they don't want to work on, or the *"Maybe"* baseplate"). Any additional goals that are not included in the goal cards can be written on a sticky note, which is attached to the

"*Something else*" baseplate. The individual's sorting responses are recorded on the "*Goal Record Sheet*". If the individual has lots of goal cards in the "*Yes*" pile, he or she is encouraged to sort the "*Yes*" pile again, to reduce the number of cards. He or she is then encouraged to place between one and six goals on the "*My Priority Goals*" form in order of priority (from most important to least important), and the goals are written in the individual's own words (see example of a completed

form in Figure 2). The *Planning Sheet* is provided to record the goal, what's happening now, the first steps in achieving the goal and the people who can help them to achieve the goal. The *Planning Sheet* also includes five-point scales to rate how well they feel they are doing with their goal now, and how they feel about it (see example of a completed form in Figure 3). After working on the goal, these five-point scales can be used again as outcome measures to document their progress.

Figure 3: Example completed "*Planning Sheet*"" form

5. Evaluation of comprehensiveness, relevance and clarity of goal cards (Phases 2 and 3)

In order to answer research questions 1 and 2, the comprehensiveness and relevance of the goals, and the clarity of the pictures and words were evaluated through the use of two surveys completed by people on the spectrum and their family members.

5.1 Phase 2 and 3 participants

The surveys were distributed to participants who included adolescents and young adults on the spectrum and their family members. Participants on the spectrum who experienced challenges in understanding the survey, were given the option of seeking help from a family member or having a family member complete it on their behalf. In Phase 2, the first survey was completed by 15 people on the spectrum and 11 family members. Participants in Phase 3 included 23 people on the spectrum, 19 of whom completed the survey independently, and 20 family members, 14 of whom completed the survey independently (see Table 1 and 2). This discrepancy was due to: (a) some family members completing the survey on behalf of the person on the spectrum or (b) the family member and person on the spectrum completing one survey collaboratively (rather than returning both a survey completed by the person on the spectrum and a survey completed by the family member).

5.2 Phase 2 and 3 procedure

Participants (adolescents and adults on the spectrum and their family members) completed an online consent form. The researcher then posted the participants the following materials:

- a demographic information form for the person on the spectrum that gathered information on their age, gender, ethnicity, autism diagnosis, co-occurring conditions, geographical location, and highest level of education. The people on the spectrum either completed the demographics information form or gave permission for a family member to complete it on their behalf.
- a demographic information form for family members that gathered information on their age, gender, relationship to the person on the spectrum, their years of education, highest level of education and their geographic location.
- *Social Responsiveness Scale, Second Edition* (SRS-2) (Constantino & Gruber, 2012) as a measure of the autistic traits of the person on the spectrum. (Individuals on the spectrum aged 19 years and older either completed the SRS-2 Adult Self-Report Form or gave permission for their family member to complete the SRS-2 Adult Form. Family members of individuals on the spectrum aged 18 years or younger completed the SRS-2 School-Age Form.)
- The *Adaptive Behaviour Assessment System, Third Edition* (ABAS-3) (Harrison & Oakland, 2015) as a measure of the adaptive skills of the person on the spectrum. The ABAS-3 was completed by family members
- A link to the online survey described below.

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The aim of collecting the demographic information and the SRS-2 and ABAS-3 assessment data was to: (a) describe the sample, and (b) confirm the inclusion of people on the spectrum with a broad range of abilities and ages. Gathering feedback from a broad range of people on the spectrum was a means of ensuring that the goal cards would accommodate a wide range of needs. The demographic information of the people on the spectrum is shown in Table 1 and the demographic information of the family members is shown in Table 2.

The online survey involved answering the following questions on the 72 illustrated goal setting cards by ticking one of the following check boxes: "yes", *"no"*, or "*not sure*".

- Is this goal likely to be important to some people on the autism spectrum?
- Do the words on this goal card help you to understand what this goal is about?
- Does the picture on this goal card help you to understand what this goal is about?

At the end of each category (social relationships, self-care and home living, studying and training, employment, health and fitness, community access and participation, communication, finances, and emotional wellbeing), the participants were asked the following open-ended questions:

- In this category, are there any goals/pictures that you found confusing or that you think need to be changed or simplified? If yes, please let us know which goal/picture and why.
- In this category, are there any goals you think need to be added? If yes, please let us know what they are.

The cards were refined on the basis of the responses to the Phase 2 survey. The phase 3 survey included this refined set of cards. On the basis of responses to the second survey, the cards were refined a second time.

5.3 Phase 2 and 3 data analysis

The process of refinement involved three researchers carefully considering the feedback on each card, which included the responses to the open-ended question about whether the goals or pictures were confusing or needed to be changed or simplified, in addition to the ratings of the helpfulness of the images and wording. In most instances, there were no clear suggestions about how to refine the images or wording that respondents reported to be confusing. The researchers therefore discussed possible ways to refine the cards at length, and then came to a consensus about any adjustments that could be made in order to convey the meaning of the goal more clearly (see the Appendix which details the results for surveys 2 and 3 and the reasoning behind goal card revisions).

Table 1: *Demographics of individuals on the spectrum*

Demographic information		Phase 2: n (%) (n = 15)	Phase 3: n (%) (n = 23)
Age	Under 20 years	6 (40%)	17 (74%)
	20-29 years	7 (46%)	1 (13%)
	30-39 years	1 (7%)	2 (9%)
	40 years and over	1 (7%)	1 (4%)
Gender	Male	7 (46%)	16 (70%)
	Female	6 (40%)	7 (30%)
	Non-Binary	2 (14%)	0 (0%)
Highest level of education	Currently in high school	5 (33%)	11 (48%)
	Completed year 10	2 (14%)	1 (4%)
	Completed year 11-12	5 (33%)	8 (35%)
	Completed 13+ years	3 (20%)	3 (13%)
Geographic location	In a capital city	5 (33%)	6 (26%)
	In a regional city (population over 20,000)	6 (40%)	8 (35%)
	Within 2 hours of a capital or regional city	4 (27%)	9 (39%)
Type of Autism Spectrum diagnosis	Autistic Disorder	1 (7%)	6 (26%)
	Asperger Disorder	9 (60%)	10 (43%)
	Autism Spectrum Disorder	5 (33%)	7 (30%)
Diagnosed co-occurring conditions	Attention deficit disorder	3 (20%)	10 (43%)
	Epilepsy	1 (7%)	2 (9%)
	Intellectual impairment	2 (14%)	7 (30%)
	Anxiety disorder	8 (53%)	14 (61%)
	Depression	4 (27%)	7 (30%)
	Other[a]	6 (40%)	5 (22%)
SRS-2 level of social impairment	Within normal limits	1 (7%)	1 (4%)
	Mild	2 (13%)	0 (0%)
	Moderate	6 (40%)	6 (26%)
	Severe	6 (40%)	16 (70%)
ABAS-3 adaptive skill level	Above average	1 (7%)	0 (0%)
	Average	6 (40%)	1 (4%)
	Below average	2 (13%)	4 (17%)
	Low	2 (13%)	4 (17%)
	Extremely low	4 (27%)	14 (61%)

[a] Other diagnoses included psychosis, bowel and urinary issues, oppositional defiance disorder, post-traumatic stress disorder, borderline personality disorder, auditory processing disorder, 16p11.2 deletion syndrome, obsessive compulsive disorder, dyspraxia, selective mutism, intermittent explosive disorder, mental health.

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Table 2: *Demographics of family members*

Demographic information		Phase 2: n (%) (n = 11)	Phase 3: n (%) (n = 20)
Age	25-29 years	0 (0%)	1 (5%)
	30-39 years	1 (9%)	0 (0%)
	40-49 years	7 (64%)	9 (45%)
	50-59 years	1 (9%)	8 (40%)
	60 years and over	2 (18%)	1 (5%)
Relationship to person on the spectrum	Mother	9 (82%)	16 (80%)
	Father	1 (9%)	1 (5%)
	Partner/Spouse	1 (9%)	1 (5%)
	Grandparent	0 (0%)	1 (5%)
Years of education	10 years	1 (9%)	4 (20%)
	11 – 12 years	3 (27%)	5 (25%)
	13+ years	7 (64%)	10 (50%)
Geographic location	In a capital city	3 (27%)	6 (30%)
	In a regional city (population over 20,000)	4 (36.5%)	5 (25%)
	Within 2 hours of a city	4 (36.5%)	8 (40%)

Note. Demographic data were missing from one participant in Phase 3, however, they remained in the dataset as they provided survey data.

5.4 Phase 2 and 3 results

Participant characteristics: As shown in Table I, the demographic information and the results of the SRS-2 and ABAS-3 suggested that the sample included a people on the spectrum with a broad range of ages, level of education, co-occurring conditions, degree of autistic traits and adaptive skills. For example, participants had a range of co-occurring conditions including 22 (58%) with anxiety disorders, 13 (34%) with attention deficit disorders, 11 (29%) with depression, 9 (24%) with intellectual disabilities and three (8%) with epilepsy. The SRS-2 results suggested that the participants varied in the degree of autistic traits that they experience with 22 (58%) in the severe range, 12 (32%) in the moderate range, two (5%) in the mild range and two (5%) within normal limits. Their adaptive skills also varied with 18 (47%) in the extremely low range, six (16%) in the low range, six (16%) on the below average range, seven (18%) in the average range and one (3%) in the above average range. The feedback on the cards is therefore from people with a broad

range of characteristics. They are therefore likely to have an extensive range of life goals, and to vary in their capacity to understand the goal cards.

Importance of goals: The AAGST goals were not expected to be relevant to all individuals on the spectrum, due to wide variations in their individual needs, lifestyles and life stages. For example, while males were less likely to rate "*Understanding and managing periods*" as an important goal, this is clearly and important goal for same females. Although one participant indicated that the goal on "*Exploring spiritual needs*" was unnecessary as he does not believe in God, the card was retained as spirituality is very important to some people. At a minimum, the goals needed to be rated as important to some individuals on the spectrum to be retained as part of the AAGST. As each of the 72 goals were rated as important by the majority of respondents in both surveys (between 60 and 100 per cent), all the goals were retained as part of the AAGST (see Appendix).

Helpfulness of the wording on the goal cards: The wording in all the goal cards was rated helpful in aiding comprehension of the goals by the majority of respondents (77 - 100% in Survey 1 and 84 - 100% in Survey 2) (see Appendix Tables 1 and 2). The wording for *"Making purchases"* was changed to "*Buying things*" with the aim of reducing the complexity of the language. As one person commented on a lack of understanding of the word *"Contraceptives",* the wording was changed to *"Birth control/safe sex (e.g., avoiding disease and unwanted pregnancy)".*

Helpfulness of pictures: Ratings of helpfulness of the pictures improved from 50 to 100% in Survey 1 to 63 to 100% in Survey 2 (see Appendix Tables 1 and 2). The development of images to clearly depict abstract concepts was challenging for abstract goals including some of the social-relationships goals such as "*Making a friend/being a friend",* "*Dealing with conflict*" and *"Understanding which behaviours should be kept private",* and emotional wellbeing goals such as "*Getting emotional support*" and "*Staying calm*". Six images were changed, while minor modifications were made to 30 images (see Appendix). As shown in Table 3, the images were changed in the following ways to convey the meaning more clearly:
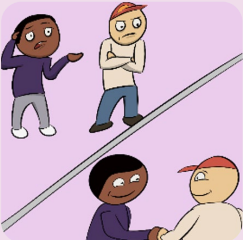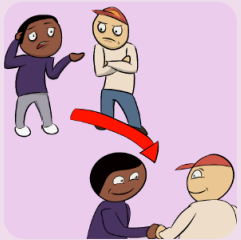
o **Explicit cues were added to accommodate the literal interpretations of images made by some participants on the spectrum**. For example, love hearts were added to the "*Dating/finding a partner*" card, and a happy anniversary card was added to the "*Being in in a long-term relationship"* card.

o **Changes were made to the way that non-verbal behaviours were illustrated to make the meaning more obvious to participants on the spectrum.** For example, the people in the "*Hosting or attending social gatherings/events"* card were shown facing each other and smiling. In response to the feedback, some non-verbal behaviours were altered to

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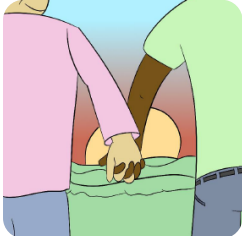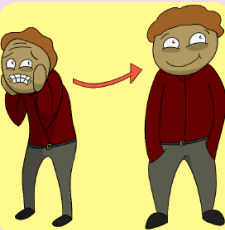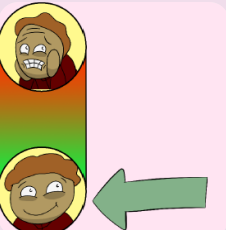
make them more acceptable to people on the spectrum (e.g., the body language for the "*Visiting people/having someone over*" card was altered so that it is not excessively demonstrative).
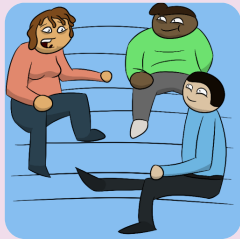
o **Speech bubbles were added to make inter-personal communication clearer**. For example, a speech bubble saying, *"What I need is…"* was added to the card on "*Letting others know my needs/feelings/ what's important to me*". A speech bubble saying, *"How are you?"* speech bubble was added to the card on *"Getting along with others"*.

o **Minor changes were used to clarify the goal.** For example**,** the music was removed, and grass was added to depict a relaxing garden setting in the "*Relaxing*" card. The figures in the "*Being in a long-term relationship"* card, were made more androgynous with the aim of being more inclusive of people with different sexual preferences.

o **Some images were redrawn to clarify the goal**. For example, multiple images on the "*Planning and preparing meals*" card were incorporated into a single kitchen scene. The "*Getting along with others"* card was changed from an image of a group of people chatting to an image of a person greeting a neighbor in a way that was obviously friendly.

Suggested addition of goals: All suggestions for additional cards were reviewed by three researchers, and in most cases, they were able to be accommodated by adding to the examples provided under the existing goals. This was considered preferable to developing new goals, due to a concern that too many goal cards would render the AAGST too time-consuming to use. These is also an option for recording additional goals that are not included in the goal cards on the "*Something else*" baseplate. For example, one respondent suggested an additional goal card for *"washing clothes or not wearing clothes too long so that they get stinky"*. The goal card for "*Dressing myself appropriately (e.g., depending on event or weather)"*, was amended to "*Dressing myself appropriately (e.g., depending on event or weather, wearing clean clothes)"*. Another suggestion was: "*Perhaps additional on cyber etiquette, safety, security and relationship to real world"*. The card on *Using phone/mobile/email* has been changed to *"Using technology to communicate (e.g., via phone, text, email or social media)"*. Another suggestion was "*Knowing when to stop talking because you are talking too much*". The card on "*Participating in conversations*" was amended to read "*Participating in conversations (e.g., turn-taking, and talking about things we are both interested in)".* A further suggestion was: "*Setting a self-checklist for homework or study*". The card on "*Doing exams and assignments*" was amended to "*Doing exams and assignments (e.g., getting study/assignments done on time)"*. The only one suggested goal that was not covered by the other goal cards was "*Sex education - Relationship do's and don'ts*". Consequently, an additional card on *"Learning about sex and relationships"* was added.

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Table 3: *Examples of image changes*

Original image	Comment	Changed image	Type of change	Original image	Comment	Changed image	Type of change
Dating/finding a partner	*"I think the dating/finding a partner one just looks like people in a restaurant in general"*	Dating/finding a partner	**Explicit cues added:** love hearts.	Making friends/being a friend (face-to-face or online)	*"Not sure if friends should be hugging due to ASD tendency to move into other's personal space."*	Making friends/being a friend (face-to-face or online)	**Non-verbal behaviour change:** no hugging. **Explicit cues added:** best friends forever T shirts
Visiting people/having someone over	*"The visitor's body language is extreme. If someone came up to me like that, I would feel startled and scared"*	Visiting people/having someone over	**Non-verbal behaviour change:** visitor's arms down	Hosting or attending social gatherings/events (e.g., birthdays, Christmas, dinner parties)	*"Display relaxed cheerful characters who are modelling the preferred behaviour"* *"Could be about anything"*	Hosting or attending social gatherings/events (e.g., birthdays. Christmas, dinner parties)	**Non-verbal behaviour change** (girl smiling and conversing with guy in the cap" **Explicit cues added:** banner saying "Party"
Dealing with conflict	*"…an arrow from conflict to resolution?"* *"The upper… picture looks like two people looking at something "*	Dealing with conflict	**Non-verbal behaviour change:** second figure looking back over shoulder **Explicit cue added**: Arrow between conflict and resolution	Understanding which behaviours should be kept private	*"Seems negative instead to telling us… that its Ok to be naked and do private things but encouraging that sense of privacy"*	Understanding which behaviours should be kept private	**Explicit cues added:** red cross and green tick on door with private sign

Original image	Comment	Changed image	Type of change	Original image	Comment	Changed image	Type of change
Understanding contracts (e.g., phone providers, insurance, loans, credit cards, lease)	*"Could be redrawn to show one contract …and someone holding a pen to sign it"*	**Understanding contracts** (e.g., phone providers, insurance, loans, credit cards, lease)	**Image redrawn to convey meaning more clearly:** picture of contract being signed	**Relaxing**	*"Relaxing looks very stimulating with loud music."*	**Relaxing**	**Minor changes to enhance meaning:** Removing music and adding grass to depict relaxing garden setting
Getting emotional support	*"Looks like how to deal with overly friendly people"*	**Getting emotional support**	**Non-verbal behaviour change**: no hand on shoulder, people seated facing each other. **Explicit cues added:** cup of tea, box of tissues.	**Being in a long-term relationship**	*"The concept of long-term needs to be concrete i.e. use of numbers, calendar etc."*	**Being in a long-term relationship**	**Explicit cues added:** Happy anniversary card. **Minor changes to enhance meaning:** Figures more androgynous to be inclusive of different sexual preferences
Staying calm	*"Staying calm looks like two people in uniform, one scared of the other."*	**Staying calm**	**Explicit cues added:** Stress scale with arrow pointing to 'calm'	**Letting others know** my needs/feelings/what's important to me (e.g., self-advocacy)	*"Perhaps speech bubbles for people talking."*	**Letting others know** my needs/feelings/what's important to me (e.g., self-advocacy)	**Use of a speech bubble:** "What I need is…"

Original image	Comment	Changed image	Type of change	Original image	Comment	Changed image	Type of change
Planning and preparing meals	*"What are the little boxes? Having the word 'meal plan' and a calendar makes the card look like it is about 'schedules' rather than cooking"*	**Planning and preparing meals**	**Image redrawn to convey meaning more clearly:** Multiple images incorporated into a single kitchen scene to give context, and boxes removed.	**Getting along with others** (e.g., being polite and kind)	*"All I see is people sitting down… talking to friends/people"*	**Getting along with others** (e.g., being polite and kind)	**Image redrawn to convey meaning more clearly:** greeting a neighbour in a friendly way **Use of a speech bubble:** "How are you"

6. Evaluation of AAGST content and process (Phase 4)

Phase 4 was designed to address all four research questions, as it evaluated the relevance and comprehensiveness of the goal cards, the clarity of the words and images, and the effectiveness of the AAGST in enabling a broad range of people on the spectrum to identify, prioritise and communicate their goals and to compare its effectiveness to previously used goal-setting methods.

6.1. Phase 4 participants:

The phase 4 participants included: (a) seven people on the spectrum (aged 14 to 30 years) who used the AAGST to set their goals, (b) three family members of people who used the AAGST to set their goals, and (c) eight professionals who had supported 31 people on the spectrum to use the tool. The demographics of the people on the spectrum, the family members and the professionals are provided in Tables 4, 5 and 6. The participants were recruited from a range of services including an autism-specific school, a government special school (for students with a range of disabilities), a post-school transition service, and a community outreach service that provides occupational therapy, speech pathology and psychology services to individuals on the spectrum.

Table 4: *Demographics of participants on the autism spectrum*

Pseudonym	Gender	Age in Years	Diagnosis	Co-occurring conditions	SRS-2 Total Score and range	K-BIT score and range	Estimated IQ range
Jamie	Male	14	Autism Spectrum Disorder	Attention Deficit Hyperactivity Disorder, Anxiety Disorder	80 (severe)	86	Low average
Brent	Male	14	Autism Spectrum Disorder	Anxiety Disorder	74 (moderate)	110	High average
Jason	Male	15	Autism Spectrum Disorder	Attention Deficit Hyperactivity Disorder	≥90 (severe)	76	Borderline
Anna	Female	16.5	Autism Spectrum Disorder	Epilepsy, Borderline Intellectual Disability, Anxiety Disorder	89 (severe)	N/A[a] but recent Wechsler Intelligence Scale for Children score = 72	Borderline
Matthew	Male	17	Autism Spectrum Disorder	Epilepsy, Intellectual Disability	≥90 (severe)	52	Mild intellectual Disability
Meg	Female	17	Autism Spectrum Disorder	Attention Deficit Hyperactivity Disorder, Intellectual Disability	82 (severe)	80	Low average
Kerry	Female	30	Autism Spectrum Disorder	Attention Deficit Hyperactivity Disorder, Anxiety Disorder, Depression, Dyslexia	72 (moderate)	100	Average

[a] K-BIT was unable to be administered due to participant's time restrictions, but a WISC IQ test was recently administered.

Table 5: *Demographics of family members*

Pseudonym	Age	Education	Relationship to family member on spectrum	Age of family member on spectrum	Diagnosis of family member	Co-occurring conditions of family member
Kylie	35	13 plus years	Sister	31	ASD	Intellectual disability
Karen	47	13 plus years	Mother	16	ASD	Epilepsy, Borderline Intellectual Disability, Anxiety Disorder
Tracy	43	13 plus years	Mother	14	ASD	Nil

Table 6: *Demographics of professionals who supported their clients to use the AAGST*

Pseudonym	Gender	Age	Qualifications	Profession	Workplace	Years of experience	Goal setting experience	No. of clients supported to use the AAGST	Client's ages	Client's cognitive abilities
Katie	F	56	Dip Counselling	Educational paraprofessional	Autism-specific school	16	A little experienced	4	14-15	4 cognitively WNL
Daniella	F	27	B OT	Occupational therapist	Autism-specific school	5	Somewhat experienced	6	14-16	6 cognitively WNL
Jess	F	25	B Psych (Hons)	Psychological Scientist	Autism-specific outreach service	1	A little experienced	2	16-30	1 borderline intellectual disability 1 cognitively WNL
Travis	M	55	Dip Teaching, B Ed	Teacher	Special school (not autism-specific)	30	Somewhat experienced	2	17	2 intellectually disabled
Katherine	F	47	B Science, GDip Ed, M Behav. Sci & Intervention Ed, Gcert Mental Health, Gcert Clinical Mental Health Practices	Autism Consultant	Autism-specific post-school transition service	1.5	Somewhat experienced	3	16-24	3 cognitively WNL
Carly	F	32	B A (Psych), M OT (GEMOT), PhD (OT)	Occupational therapist	Autism-specific outreach service	10+	Quite experienced	5	13-47	4 intellectually disabled 1 cognitively WNL
Gemma	F	31	B Speech Path (Hon)	Speech Pathologist	Autism-specific outreach service	6	Somewhat experienced	5	15-60	5 intellectually disabled
Jane	F	54	B OT	Occupational Therapist	Autism-specific outreach service	33	Very experienced	4	17-40	3 intellectually disabled 1 cognitively WNL

6.2 Phase 4 procedure

Research design: A generic qualitative inquiry which is used when asking questions about real world settings with the aim of improving programs (Patton, 2015) was considered the most

appropriate for this evaluation. As the experience of goal-setting is highly personal and individualised, one person's goal-setting experience cannot be quantitatively compared to another's in a meaningful way. A qualitative methodology is better suited to capturing the lived experience of goal-setting for people on the spectrum, professionals and family members. Additionally, individuals on the spectrum are known to be a highly heterogenous group and this study was deliberately designed to capture the experiences of the wide range of people on the spectrum who are likely to use the AAGST. The unique individual differences in their goal-setting experiences could not have been effectively explored using group designs with aggregated outcomes. With the aim of comparing the AAGST to other goal-setting methods, the participants were asked to compare their experience of using the AAGST to their previous goal-setting experiences. Given the high level of heterogeneity of their goal-setting experiences, these within-participant comparisons were perceived to have greater validity than between-group comparisons.

Semi-structured interviews and focus groups: The data was gathered through semi-structured interviews with the seven participants on the autism spectrum, and the three family members, and through focus groups with the eight professionals who had conducted goal-setting sessions with individuals on the spectrum. Focus groups were considered appropriate for the professionals so that they could discuss the questions from the perspective of their experiences of goal-setting with multiple clients, whereas semi-structed interviews were employed for the individuals on the spectrum and family members who answered from the perspective of their individual goal-setting experience. However, both the semi-structured interview and focus group questions covered the same areas as outlined below:

- Overall impression of the AAGST
- Ease of understanding of the cards (words and pictures) and comprehensiveness of cards
- The effectiveness of the AAGST in enabling people on the spectrum to identify, prioritise and communicate their goals
- Their preference for either a hard-copy AAGST or a digitised (on-screen) version of the AAGST
- The effectiveness of using the AAGST as compared to previously-used goal setting methods.

A number of strategies developed to maximize the engagement of the participants on the spectrum in research interviews (Harrington et al., 2013) were used. This included a Social Story™ to inform the participants of what to expect, a visual schedule to facilitate communication and progress throughout the interview, and a visual 'stop' card to use if they wished to halt the interview.

AutismCRC

Additionally, the researchers altered their vocabulary to match that of the participant, to make the questions more meaningful to them.

Information gathered on the participants: The same demographic information was collected for the participants on the spectrum and their family members as was collected in Phase 2 and 3 (see Table 4). Also as used in Phase 2 and 3, the SRS-2 was used as a measure of the autistic traits of the participants on the spectrum. As we were interested to learn about the capacity of the AAGST to be understood and used by people with a range of cognitive abilities, the Kaufman Brief Intelligence Test - Second Edition (K–BIT-2) (Kaufman & Kaufman, 2004) was administered to the participants on the spectrum. Similar to full-scale IQ tests, the K–BIT- 2 composite score was normed to have a mean of 100 and standard deviation of 15 and correlates with full-scale IQ tests such as the Wechsler Adult Intelligence – Third Edition (Wechsler, 1997). Information gathered on the professionals included their qualifications, their level of experience, their workplace and data on the clients who they had supported to set goals using the AAGST (see table 5).

Observations of the AAGST being used: Members of the research team observed the goal setting sessions of the seven participants on the autism spectrum. They gathered information on the fidelity with which the professionals facilitated the use of the AAGST for goal-setting including:(1) the use of clear concrete language to introduce the AAGST, (2) allowing the participants to lead the card sort, (3) encouraging the participants to ask questions if unsure, (4) offering participants the opportunity to ask questions, (5) reviewing the "yes" goals, (6) selecting between one and six goals, (7) using the numbered templates to place the goals in order of priority, and (8) documenting the goals in the participants' own words. Observations also included the length of the goal-setting sessions, and the location in which they occurred.

6.3 Phase 4 data analysis

The interview and focus group data were audio recorded and transcribed verbatim. The qualitative data from the participants on the spectrum, family members and professionals were analysed together, as the questions were essentially the same for the three groups, although some questions for the people on the spectrum were re-worded to ensure that they were understood. The data was analysed using qualitative content analysis, which is a widely used method of eliciting contextual meaning from text through the development of emergent themes (Bryman, 2001). The rigour of the analysis and trustworthiness of the data was enhanced through the use of two coders. Any discrepancies were resolved through discussion and where necessary, theme

refinements were made (Patton, 2015). A member checking procedure (Creswell,2014) was used to test the accuracy and validity of the findings.

6.4 Phase 4 results

Characteristics of participants on the autism spectrum: As shown in Table 4, the seven participants on the spectrum who used the AAGST varied widely in terms of: (a) age (14 to 30 years), (b) their estimated IQ (ranging from mild intellectual disability to high average range), and (c) co-occurring conditions (attention deficit hyperactivity disorder, anxiety disorder, epilepsy and intellectual disability). Similarly, as shown in Table 5, the professionals reported on their use of the AAGST to support a wide range of individuals on the spectrum including people aged 14 to 60 years with a range of cognitive abilities (16 with cognitive abilities within normal limits, one with borderline intellectual disability and 14 with intellectual disabilities). These finding suggest that the AAGST can be successfully used with people with a range of ages and abilities.

Observations of the AAGST being used: The goal setting sessions of the seven participants ranged from 22 minutes to 2.5 hours in length (M = 54.6 minutes, SD = 44), with six participants completing the goal setting in 60 minutes or less. The goal-setting took place in enclosed rooms, with participants and staff members seated at a table. The essential elements of the AAGST were observed to be completed accurately and consistently by the professional staff on 100% of occasions.

Findings from semi-structured interviews and focus groups: Five themes emerged from the data as being important to the achievement of success in person-centred planning. This included three essential aspects of the planning process: (a) the characteristics of AAGST (b) the effectiveness of the goal-centred process, and (c) effective communication of the goals. Two additional factors, which were observed to impact on the goal-setting process, included: (a) practitioner skill and flexibility and (b) involvement of parents and carers. These five themes and sub-themes within the themes are illustrated in Figure 4. Pseudonyms are used to de-identify participants.

Theme 1: The Characteristics of the AAGST

Clarity of the wording: Most of the participants suggested that the wording was easy to understand, including all seven individuals of the spectrum. For example, Brent stated, "*Actually, I understood them all*". A family member (Tracy) also indicated that her son *"was able to understand what the words meant"*. However, some wording was considered to be potentially challenging for

individuals with co-occurring intellectual disabilities. For example, Kylie described her sister's goal-setting experience, "*I think because of the intellectual disability component of her disability, maybe there were a couple of words that she didn't know or hadn't come across before, because her literacy is quite low*". Three professionals who facilitated goal-setting sessions with individuals with intellectual disabilities further suggested that facilitators may need to provide further explanations. For example, occupational therapist Carly commented, "*I think most of the cards were pretty good, but a lot of the adults that I used the goal-setting tool with had an intellectual disability or some literacy difficulties as well. I think the main thing was just making sure that the therapist clarifies for them what that card means, not just going off what was written on the card*".

Figure 4. Summary of the themes and subthemes that emerged in Phase 4

PRACTITIONER'S SKILLS AND FLEXIBILITY
1. Effective clarifications as required
2. Allowing processing time
3. Use of multiple sessions
4. Sorting by group of cards
5. Use of pre-teaching where necessary

CHARACTERISTICS OF AAGST
1. Clarity of words
2. Clarity of pictures
3. Relevance and comprehensiveness
4. Clarity of baseplates

EFFECTIVENESS OF THE GOAL-SETTING PROCESS
1. Helping to identifying and prioritise goals
2. Engagement and empowerment
3. Hard vs electronic versions
4. Comparison with other goal setting processes

EFFECTIVE COMMUNICATION OF GOALS WITH:
- Parents/carers
- Teachers
- NDIS
- Disability Employment Services

SUCCESSFUL PERSON-CENTRED PLANNING

CONSIDERATIONS RE INVOLVEMENT OF PARENTS/CARERS:
- If possible, allow person to set goals without parents or carers present.
- A pre-goal-setting session with parents or carers can be used to advise on removal of inappropriate or distressing cards.
- Parents or carers can help client to become familiar with cards prior to goal-setting.

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Clarity of the pictures: All participants provided positive feedback about the images used, including family member Karen: "*I think the visuals are excellent.*" The professionals agreed that the images made it easier for individuals with intellectual disabilities to comprehend and develop goals. For example, speech pathologist Gemma remarked that, "*It's good having the pictorial as well as the wording because some adults I was working with find it difficult to read*". Five participants explicitly indicated that the images helped reduce users' processing time. For example, one of the family members, Kylie said, "*I think they processed things quite quickly from looking at the pictures*". Another professional, Jess, agreed: "*The much younger participant required a little more processing time … the images really helped reduce that. Also, when this participant didn't entirely understand what the words meant, they spent some time focusing on the visual and trying to understand it independently before seeking support. I thought it was great for them to work through it a little more independently than they probably would've if it was just words*". However, some of the professionals reported that the long-term relationship card was confusing, including Katherine, "*the card that seems to confuse nearly all the participants is the relationship card and around sexuality. Almost all of them interpret that card as being a homosexual relationship and automatically will either say, 'Oh, yes, that's me because I am homosexual,'' or … look at it and just go, 'No, I like boys' or 'I like girls'.*" Consequently, this image was edited to make the characters appear more androgynous, so that it covered both heterosexual and homosexual relationships.

Relevance and comprehensiveness: Fifteen participants indicated that the AAGST covered a comprehensive range of goals that are relevant for individuals on the spectrum. Family member, Karen commented that the goals "*included everything that we have talked about as a family*". One of the individuals on the spectrum, Kerry, stated that the goals "*had diversity so it doesn't matter where you are on the spectrum or what your lifestyle is like, it can be used for, you know, different people*". When asked if additional goals should be included, seven participants provided explicit recommendations including "*respecting people's privacy*" (Jamie), "*a goal specifically around technology and YouTubing*" (Karen) and "*managing alcohol and illegal drugs*" (Tracy). However, Katherine (professional) suggested that adding cards may overwhelm users: "*I think if you added much more, you run the risk of it being so overwhelming that they're not going to be able to do anything with it*". The AAGST goals were designed to be very broad, with the expectation that the professionals would discuss the goals with the individual with the aim of developing more specific goals to suit their unique needs. In most cases, these suggested additional goals could be accommodated within other broad goals. For example, the suggestion "*respecting people's privacy*" (Jamie) could be accommodated within the "*understanding which behaviours should be kept private*" card or the "*Letting others know my needs/feelings/what's important to me*" goal card,

depending on the individual's specific needs. Similarly, the goal around technology and YouTubing could also be accommodated within the card on *"Using technology to communicate (e.g., via phone, text, email or social media)".* As none of the goal cards accommodated the goal on managing alcohol and illegal drugs, one additional goal card was added on *"Learning about drugs (e.g., cigarettes, alcohol and other drugs)".* The total number of cards was therefore increased from 73 to 74 cards.

Clarity of the baseplates: A number of participants provided feedback on the need to adapt the baseplates (large cards onto which the goal cards were sorted). First, three participants noted that the language used on the baseplates was confusing for some clients. Karen (a family member) said, "*she sorted things onto the "no – not now" pile if they were things, she was not good at*". Jane (professional) agreed that the wording was confusing for some clients and suggested that the wording should be changed: "*I definitely think there needs to be some changes to the baseplates, particularly for people who are fairly literal. They saw "yes" and interpreted it as "yes, I do that now" or "No, I don't do that now".* Jess also described some confusion about the goals that the user had already achieved: *"I had some confusion with one participant who was like "Oh, I can already do that". We explained that if they can do it then it's no longer a goal, so can go onto the "no" pile".* Four professionals supported the addition on an *"I can already do this"* baseplate. They indicated that highlighting the goals that had already achieved would be beneficial for "*students who are more anxious or self-deprecating*" (Daniella), as it would "*emphasise their personal achievements*" (Travis), "*be really good for their self-confidence and support a strength-based approach*" (Katherine). On the basis of this feedback, the "*Yes, now*" base plate was changed to "*Yes, I want to work on this*", and an "*I can already do this*" baseplate was added.

Second, three participants suggested that the colours of the baseplates were confusing for some users. For example, Carly said, "*The colours were a little bit confusing for some of the adults that I used it with… I had some clients with a preference for red, so all of the goal cards went onto the red baseplate*". In order to reduce tendency of some participants to make decisions based on their colour preference, the green "*yes*" and red "*no*" baseplates were changed to a neutral colour.

Finally, two professionals suggested that when a few individuals did not understand a goal card, they assigned the card to the *"maybe"* baseplate. For example, Travis (teacher) said, "I *thought that the maybe pile was good, but I also wonder with some of the kids whether they'd put their card on the maybe pile because they didn't quite understand the card*". The "*Maybe*" baseplate was therefore changed to an "*I am not sure about this*" baseplate, so as to include both the goals that the users did not fully understand and the goals about which they were undecided. These cards are discussed further after the initial sorting process.

Theme 2: Effectiveness of the goal-setting process

Ten participants perceived the process to be engaging due to its simplicity. For example, Kerry (an individual on the spectrum) stated, "*I liked it. It was simple, clear, easy to read and easy to interpret*". One of the professionals, Katherine agreed: "*I really liked it too. I agree that it's the simplicity of the tool. It's the fact that they have something to hold onto and look at*". Daniella appreciated the way that the process allowed individuals to engage in conversations about their goals: "*I thought it was really nice and simple, particularly because of the cards. I think compared to other tools its more user-friendly, not just a checklist. Other tools don't allow as much discussion about goals*". Karen (family member) noted that the style of images appealed to the young people: "*the images are done in such a way that appeals to adolescents and young adults. I know from my daughter's feedback that she thought they were really cool. That's half of the battle. If it's cool and engaging then they're going to want to do it, as opposed to sitting opposite a stranger … and being asked a whole lot of questions verbally*".

Five participants commented on the way that the AAGST empowered the participants. For example, Carly (professional) said, "*it is really empowering. It gives a voice to adults who maybe previously haven't had an opportunity to voice what they want... I think that's been really interesting to see how adults respond to that. A few times adults have said 'this is all about me?'. [I'd say] 'yeah, this is all about you and what you want'… They'd just repeat the same thing – 'is it about me?' …I wonder if maybe they haven't had very good experiences voicing what they want'.*". Another professional, Gemma, also appreciated the way that the AAGST provides an opportunity for people on the spectrum to have a voice: "*talking to them directly and asking them what is important to them - that's actually really nice for them. It sounds strange but for someone who might have very limited speech, for someone to actually pay attention to them directly and ask them 'well, what do you want?' rather than talking to the carer and addressing them*".

Identification and prioritisation of goals: The participants unanimously reported that the AAGST helped identify and prioritise goals. For example, Jamie (an individual on the spectrum) said, "*it helps people choose their goals and think differently about what they want to do*". Kerry indicated that the AAGST helped identify the theme of her goals, "*for me, in my head I seemed to have a lot of goals. I was able to group them together because they had a similar theme … it made it clearer*". Katie suggested that the goal card images supported her client's goal exploration and identification, "*the cards actually gave them a visual to think about. There were a couple of comments that came out when they picked up the card about having a family. It's not something they need to work on right now, but it was still like, pick up the card and go 'Oh yeah, that's something I'm thinking that I might want in my life'.*" Tracy indicated that the AAGST helped her

son to identify and prioritise goals that may not have previously been considered, "*it includes things that you don't even realise are important … For him, when you say, "what do you want to do?" or "what do you want to get better at?" he would say, "I don't know". But the cards allowed him to think of ideas and sort them*".

Hard Copy Vs. Electronic Version: Three individuals on the spectrum indicated a preference for an electronic version of the AAGST. For example, Jamie said that, "*it would be easier to drag and drop*". Three professionals also suggested that an electronic version may appeal to individuals who are interested in using technology: For example, Katherine said "*Yeah they will enjoy that, I think. Certainly, for my older participants who are very interested in anything to do with technology*". Tracy also indicated that an electronic version would enable her son to update his previously saved goals more easily, "*if the application has the ability to store goals, then they can go back and say, 'that's still a goal',' 'no, that's not a goal anymore' or 'I've achieved that goal' and move on*". However, some participants also commented on the benefits of the hard copy AAGST, including Kylie who prefers the tactile experience of handling the cards, "*even though I really struggle with writing, I still prefer things I can touch as opposed to it just being on a screen*". Other individuals on the spectrum preferred the physical copy because "*you can move them around*" (Matthew) and "*we can look at it closely or observe it all*" (Jamie). Seven participants agreed that there would be benefits for access to either a hard copy and electronic version. For example, Anna, an individual on the spectrum indicated that both would be helpful but noted an advantage in an electronic copy: "*with the computer you can make it so the text is read out to you*". Jess (professional) supported an electronic trial but suggested that the hard copy could be used more flexibly and expressed concern about visual overstimulation throughout an electronic version: "*I agree that it's definitely worth trialling. I am concerned about the ability to divide into additional piles in an electronic version, if that's what the individual needs. My other concern is that if it's on a tablet or computer screen, when does the display become too busy or overwhelming for the individual? But I guess that would be something you would pick up in your trial*".

Comparison with Other Goal-Setting Experiences: Most of the participants preferred using the AAGST over previously-used goal-setting methods, including individuals on the spectrum such as Jason who said the AAGST "*is just easier. And when you see the cards, it gives you a different idea or if you've forgotten something, it helps you remember*", and Jamie: "*it makes it easier to put a goal into words and to explain it*". Individuals on the spectrum reported that they had previously been required to develop and write their goals with no supports, including Jamie: "*We just wrote our goals down*" and Anna: "*I had to raise my hand and ask for help because I couldn't think of a lot*". Katherine discussed feedback from her clients, who had expressed a preference for the

AutismCRC

AAGST over their former goal-setting experiences: "*I think [goal-setting] has been particularly difficult for my kids on the spectrum, who were sitting with their typical peers and not able to do the goal-setting like their peers could do it. Anecdotally, for my participants who are older and have gone through these processes at school, they're saying to me, 'oh, this is much better than the goal-setting I did at school'." or 'we didn't have like that at school.' … [their feedback] reinforces the fact that the way this tool has been designed would be so beneficial for them when they're actually coming up to these important parts of their secondary education.*" Three professionals reported that other goal-setting experiences included informal or formal discussions, which may or may not have included the person on the spectrum. For example, Daniella said, "*staff sort of do observations and then report back to parents in a meeting about what the goal are - parents tend to agree or not. The students may or may not be involved. We tend to try to get most of our teams involved in the meetings but in saying that, that can be dominated by the adults, particularly parents*". Three professionals mentioned previous activities for vocational goal-setting, including Katherine in a former role as a teacher: "*This is very much around their subject choices for senior [years] and also around long-term what they want to do after they leave school, so it tends to be fairly occupationally-driven*". There was only one individual on the spectrum (Brent) who preferred his previous goal planning experience because he completed it on a computer: "*I find it easier to use technology*".

Theme 3: Effective communication of goals

Seven of the eleven family members and professionals identified the AAGST as a useful resource for assisting communication with a range of other people as described below.

Communication with parents and carers: Four participants explicitly described the way that the AAGST had facilitated communication between individuals on the spectrum and their families. For example, Carly (professional) said "*I was told that dad was very supportive and involved in his son's life. His son had expressed that he wanted to move out of home, but dad didn't support that. So I asked dad to stay out of the room while his son picked his own goals. When the son selected his top 10 goals, we realised that they actually aligned very closely with his dad's. The dad was worried about negotiating the household chores and things like that, if his son were to move out of home, so that was one of dad's goals …it was kind of nice that dad and his son realised 'huh, we do actually have similar goals'.*" Tracy also commented on the way that the AAGST helped her communicate with her son about his goals: "*Using the cards, we were able to have a discussion about what the goals looked like to him, and what they looked like to me.*" Similarly, five participants reported that the tool assisted communication between individuals and their support workers. For example, Carly (professional) commented, "*There was one client who was going*

through the cards and there was a church symbol on it. She said 'Oh, yeah, I'd like to go to church. I haven't been to church before'. Her carer said something like, 'Oh, you've never told me that' and the client said 'well, you've never asked me. But there had been no way their support worker could have guessed that was something the client wanted to do".

Communication with teachers: Trevor, a teacher of adolescents on the spectrum with intellectual disabilities indicated that, "*we've been able to define or redefine the direction that kids are going in, in terms of programs, as a result of what they'd like to work towards*". He added that the AAGST may be suitable for many individuals, as goal-related discussions contributed to educational outcomes: "*It really is not just for kids on the spectrum. The system could be used with any kid as it creates a lot of conversations and a lot of educational outcomes*".

Communicating with NDIS planners: Four participants suggested that the AAGST can be used to support communication with the NDIS planners. For example, Carly (professional) remarked, "*I feel strongly that structured tools like this are really useful for people with difficulties verbally expressing what they want, and to make sure that what's in their NDIS plan actually reflects what they want - not what their carer or parents want*". All family members agreed that the AAGST helped to communicate the individual's goals to NDIS, and to determine the appropriate steps to achieve their goals. For example, Kylie discussed their sister's goal of finding a partner: "*it gave us a planning template and provided preparation for NDIS… She wants to have a partner, which aligned with what both mum and I wanted her to prioritise for NDIS, but it's also been really good to show what her biggest goal for her is. We're actually going to do some work based on her goals, with NDIS … we're going to do some relationship exploration of safe conversations and personal safety with True Relationships Australia*". Tracy had a similar experience with her son's goal around handwriting: "*we actually used his goals for the NDIS. …it was able to help us understand, with [his] goals, how we would achieve those goals. Like his goal was 'to get better at handwriting'. Okay, well we need an occupational therapist"*.

Communicating with disability employment services: Katherine (professional) described how the AAGST may be useful for those seeking support from disability employment services: "*One of my participants whose communication skills are very well-developed, engaged extremely well with the goal-setting process and had a lot of parental support with the entire process … When they went to meet with disability employment services, it went extremely well. They were able to use the goals and it was very, very good*". The same professional also acknowledged that some individuals may require adaptions in ways to communicate their goals: "*my participant whose communication skills are less well-developed and didn't have as much support with the process at home, found it more difficult when they went to disability employment services to talk about their goals. He said to*

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me, "I didn't have your cards". Even though he had the colour photocopy of the [Priority Goal] Form I had done for him … he wanted the cards. I've actually cut up the photocopy now and made it into little cards for him, so he can take along with him".

Theme 5: Practitioner's skills and flexibility

All family members and professionals discussed the importance of practitioner skills and flexibility. First, this included the effective use of clarifications where required during the goal setting process. For example, Jess (professional) commented: "*I think one of the really important things to remember when you go use the AAGST is to make it really explicit to the person using the tool that you're happy to discuss all of the cards that they go through, if that's what they need*". Second, practitioners need to allow the person on the spectrum to have sufficient processing time. For example, Danielle remarked: "*Sometimes you have to pause and allow clients to process the information. Be patient with it and clarify, "Do you want to keep going or do you want to work on this quite slowly?", depending on the student and the situation*". Third, for some clients, the use of multiple sessions was recommended. Gemma said, "*I definitely needed multiple sessions when using the AAGST with older adults with intellectual disabilities. It was impossible to cover all those goals in one session*". Finally, four participants agreed that individuals should be able to sort by categories of cards (e.g., social relationships, self-care and home living). For example, Daniella said, "*one of the boys actually suggested to me that it might be easier if they're [the cards] in sections… so that if they had areas that they particularly wanted to focus on, they could just kind of look through those cards and not have to worry about the other ones too much at that time*". Three professionals suggested that some of their clients with intellectual disabilities would benefit from pre-teaching about goal-setting. For example, Jane (professional) suggested that individuals with intellectual disabilities should be taught about what goals are, prior to engaging in the goal-setting process to "*make sure they really understand what a goal is*". She discussed ways to explain what goals are: "*you might talk about it with the person, 'you might already do some of these things and you might do it really well, but you might like to do it more*'." As a result, goal explanation card was developed to help explain that a goal may be about: (a) learning how to do something (e.g., prepare a meal), (b) learning to do something better (e.g., getting better at reading), (c) doing something more often (e.g., vising people) or (d) planning for the future (e.g., planning to move out of home).

Theme 6: Considerations re involvement of parents or carers

Six participants expressed concerns about the way that some parents and carers influenced the client's goal selection. For example, Gemma said, "*I found that adults who were supported by

AutismCRC

carers were very much influenced by the carers. Often, it's not an 'I want' but more of an 'I need'. One carer said 'you need to keep fit and do exercise. That's a goal that we put on the yes pile', rather than the person really wanting to do that". Katherine also mentioned: *"the parents jump in and they were talking and choosing the cards for the participant or they were saying to the participant, 'No, no, no, don't worry about that. Remember, we talked about this. You're really interested in this one'."* She added *"if the parents aren't there, it goes much better".* Overall the participants agreed that their clients should have the opportunity to engage in goal-setting without their parents or carers present, although it was considered important to follow up with parents and carers. Jess suggested including piles for "*what I want, what mum and dad wants for me, and then what we both want'.*

However, five participants suggested that it would be helpful to meet with the parents before using the AAGST, in order to remove goal cards where necessary. Gemma suggested that parents or carers can provide information about topics that the individual has not been exposed to: "*It would be helpful even prior to presenting the goal-setting tool, if the carer or the family could just have a quick look through the goal cards and give us an idea of any concepts that they haven't been exposed to. Because if they haven't been exposed…the information's probably inaccurate*". Two other professionals added that a pre-goal-setting process could be used to remove cards that may be upsetting. For example, Carly added "*that might be good to identify any triggers for the person as well, in case there's anything in the cards that's going to be really upsetting …There was one lady who saw someone having a baby on one of the cards, and she said 'Oh, I can't have a baby. I don't have a uterus'.*"

Parental involvement in reviewing the cards prior to the goal-setting was perceived to be helpful to reduce the anxiety of some people on the spectrum. For example, Karen explained that she and her daughter looked through the goal cards prior to the goal-setting session, "*There was anxiety around 'I'm going to have to use this with someone who isn't mum'… after having me familiarise her with the tool at home, she was like 'these aren't a problem because I know because I know what's coming' … Social anxiety would have made the process overwhelming, but because we had prepared her earlier and she had seen the tool, it wasn't a problem*".

7. Discussion

The results are discussed in terms of the four research questions outlined in the project aims. In relation to the first research question, each of the goals were found to be relevant and important to a broad range of people on the spectrum with ages ranging from 14 to 60 years and with cognitive

AutismCRC

abilities ranging from mild intellectual disability to above average IQ. As all the goals were considered important by the majority of participants, they were all retained. Although the original set of goal cards was found to be reasonably comprehensive, some additional goals were suggested. However, in most cases, these suggestions could be accommodated by adding to examples to the existing goals. This was considered preferable to increasing the number of goal cards which would have rendered the AAGST too time-consuming to use. Two additional goal cards were added: (1) *Learning about sex and relationships* (following phase 3), and (2) *Learning about drugs (e.g., cigarettes, alcohol and other drugs*) (following phase 4), as these issues were not covered by the other goal cards. The total number of goal cards therefore increased from 72 to 74 over the course of the project. In response to feedback, a self-affirming "*I can already do this*" baseplate was added to improve the clarity of the sorting process and to celebrate strengths and achievements.

With respect to the second research question, the wording was considered to be clear and easily understood by people on the spectrum with varied cognitive abilities. Nevertheless, the professional staff who facilitated the goal setting suggested that facilitators should provide additional clarifications where required for individuals with intellectual disabilities. Professionals and family members agreed that the images were engaging, and that they aided understanding and reduced processing time. Where necessary, modifications to the images were completed to make the meaning more explicit and less ambiguous. Although there are some individuals on the spectrum who have significant cognitive and communication challenges that preclude their involvement in complex decision-making about their futures, the AAGST was successfully used by individuals with IQs of 52 and above. This suggests that the AAGST is accessible to people with mild intellectual disabilities.

As regards research question 3, participants agreed that the AAGST was highly beneficial in enabling people on the spectrum to identify and prioritise their goals. This process was perceived to empower people who in the past, have had few opportunities to express their needs and determine their own futures. Participants agreed that the AAGST was highly effective in engaging people on the spectrum, due to its simplicity, user-friendliness and appealing images. The AAGST was preferred by most participants over previously used goal-setting methods because of the ease-of use and the inclusion of a broad range of life goals (most previously used goal-setting processes had focused exclusively on vocational goals). As the AAGST also enabled the users to effectively communicate their goals to parents, carers, teachers, NDIS planners and disability employment services, it was perceived to successfully enable person-centred planning and genuine self-determination.

Two factors that were noted to be important to the effective use of the AAGST were practitioner skills and flexibility, and the consideration of ways to involve parents and carers. In terms of practitioner skills and flexibility, the participants highlighted the need for (a) effective clarifications during the goal setting process, (b) allowing processing time, (c) use of multiple sessions where necessary, (d) allowing sorting of categories of cards, and (e) pre-teaching of key concepts where necessary. The feedback suggested that it was preferable to allow the person on the spectrum to engage in goal setting without their parent or carer present, to avoid their goals being unduly influenced by others. It is considered important that people on the spectrum have ownership of their goals, as this substantially impacts on their motivation to work on them. Nonetheless, parents and carers can play key roles in familiarising the person on the spectrum with the cards prior to goal-setting and advising on the removal of goal cards that may be inappropriate or potentially distressing.

Limitations and further research

Although the perspectives reported here are likely to be shared by other adolescents and adults on the spectrum, family members and professionals who facilitate the use of the AAGST, caution must be taken with regard to the transferability of findings to people from other socio-cultural backgrounds (Kuper, Reeves, & Levinson,2008). For example, people from culturally and linguistically diverse backgrounds may have different lifestyles and priorities and may therefore have different perspectives on goals that are important. Further research is therefore required to explore that applicability of the AAGST to people from different cultural backgrounds. The applicability of the AAGST to people in Aboriginal and Torres Strait Islander communities is currently being explored in another project.

AutismCRC

8. Conclusion

The AAGST gives people on the spectrum a voice when planning their futures. It can be used to enable their active engagement in the person-centred planning processes of many organisations such as the National Disability Insurance Scheme, disability services providers and secondary schools (during post-school transition planning, and disability employment services. In so doing, the AAGST enables people on the spectrum to exercise choice and control over their lives, and therefore has the potential to substantially improve their quality of life.

AutismCRC

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Appendix

Appendix Table 1: *Phase 2 Survey Results (n=26) and Research Team Response*

GOAL CARD	Is this goal likely to be important to someone on the spectrum?			Does the picture on this goal card help you to understand what this goal is about?			Do the words on this goal card help you to understand what this goal is about?			FEEDBACK FROM PARTICIPANTS	RESEARCH TEAM RESPONSE
	Yes (%)	No (%)	Not sure (%)	Yes (%)	No (%)	Not sure (%)	Yes (%)	No (%)	Not sure (%)		
SOCIAL RELATIONSHIPS											
1. Getting along with others.	21 (81%)	3 (11%)	2 (8%)	14 (54%)	9 (35%)	3 (11%)	20 (77%)	4 (15%)	2 (8%)	The "getting along with others" one looks more like "helping others" to me; The pictures for getting along with others seemed like the people were angry, which is a bit confusing.	Rated as important by 81% and wording rated as helpful by 77%. As 46% responded no or not sure re image clarity, the image was changed to people sitting on the steps chatting with friendly facial expressions.
2. Making friends/being a friend	23 (88%)	1 (4%)	2 (8%)	13 (50%)	7 (27%)	6 (23%)	23 (92%)	2 (8%)	1 (4%)	The faces did not look friendly, and this was distracting and confusing - a bit confusing.	Rated as important by 88% and wording rated as helpful by 92%. As 50% responded no or not sure re the image clarity, a new image of a group of friends taking a selfie was created.
3. Dealing with conflict	22 (85%)	2 (8%)	2 (8%)	13 (50%)	8 (31%)	5 (19%)	23 (88%)	2 (8%)	1 (4%)	There was no sense of resolution (of the conflict) in picture. It could show the more desired behaviour (such as 2 characters talking animatedly with open upwards palms and smiles).	As 50% responded no or not sure re the image clarity, a second section was added to the image to show resolution of the conflict
4. Physical Affection	19 (73%)	3 (11%)	4 (15%)	19 (73%)	4 (15%)	3 (11%)	21 (81%)	3 (11%)	1 (4%)	"Physical affection" - the top half of this picture is too ambiguous, and off-putting. It might be better to use a picture that is more like the bottom picture on that card, which seems more genuine and positive	As 26% responded no or not sure re the image clarity, the image was changed to show a couple kissing and smiling to make it clear they are both enjoying this; Love hearts were added to indicate love/romance.

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Item										Comment	Change
5. Understanding which behaviours should be kept private	23 (88%)	0 (0%)	3 (11%)	16 (64%)	6 (24%)	3 (12%)	23 (88%)	3 (11%)	0 (0%)	I am worried the private one seems negative, instead of telling us in a positive way that it's ok to be naked and do private things, but just encouraging that sense of privacy;	As 36% responded no or not sure re the image clarity, a red "No" symbol was changed to red cross and a green tick was added to the door with a private sign.
6. Visiting people/having someone over	20 (77%)	4 (15%)	2 (8%)	16 (62%)	6 (23%)	4 (15%)	23 (88%)	3 (11%)	0 (0%)	A person walking through a door indicates walking into a room, not having someone over. The visiting person looks like someone going home.	Although 38% said no or not sure that the image helped them understand, there was no obvious way to make the image clearer.
7. Hosting or attending social gatherings/events	22 (85%)	3 (11%)	1 (4%)	19 (76%)	3 (12%)	3 (12%)	23 (88%)	2 (8%)	1 (4%)	Characters are awkward and uncomfortable looking. Rather than suggesting that this is the correct, it might be better to display some relaxed, cheerful characters modelling the preferred behaviour.	As 24% of respondents responded no or not sure when asked if the picture helped, non-verbal behaviours in image were changed so that people are facing each other and talking.
8. Being part of a social group or club	21 (81%)	4 (15%)	1 (4%)	17 (65%)	4 (15%)	5 (19%)	25 (96%)	1 (4%)	0 (0%)	Not a clear example of a social group. Perhaps band or sports team would be better; Social Group card looks as though they are gambling.	As 34% of respondents responded no or not sure when asked if the picture helped, club T-shirts were added, and figurines/counters on game board were added to look more like board game than gambling.
9. Caring for others	21 (81%)	1 (4%)	4 (15%)	23 (88%)	0 (0%)	3 (12%)	24 (92%)	1 (4%)	1 (4%)	NIL	No changes as 88% of respondents responded yes when asked if the picture helped them understand.
10. Dating/finding a partner	19 (73%)	1 (4%)	6 (23%)	16 (61%)	8 (31%)	2 (8%)	22 (85%)	3 (11%)	1 (4%)	I like that this covers more than just heterosexual relationships; I think the dating/finding a partner one just looks like people in a restaurant in general	As 39% of respondents responded no or not sure that the image helped them understand, love hearts were added to the image.
11. Being in a long-term relationship	21 (81%)	1 (4%)	4 (15%)	18 (69%)	6 (23%)	2 (8%)	22 (85%)	3 (11%)	1 (4%)	What do people holding hand have to do with long term relationships? - looks like a holiday. Suggest cooking, cleaning and taking out the garbage together.......	As 31% said image was not clear or not sure, the non-verbal behaviours were altered to demonstrate more affection.
12. Becoming a parent	17 (65%)	1 (4%)	8 (31%)	22 (85%)	2 (8%)	2 (8%)	21 (81%)	3 (11%)	1 (8%)	Becoming a parent seems to be congratulating. Suggest holding a new born together.	As 85% said the image was clear, no changes were made.
13. Being a good parent	22 (85%)	2 (8%)	2 (8%)	23 (88%)	2 (8%)	1 (4%)	22 (85%)	2 (8%)	2 (8%)	Confusing – Afro-Caribbean parents with Asian children. Pushing a pram does not signify being a good parent.	Although 88% said the image was clear, a number 1 Dad label was put on shirt rather than hat to make it more obvious;

										Children's eyes were changed to open (less Asian) with big smiles.

<table>
<tr><td colspan="11" align="center">SELF-CARE AND HOME LIVING</td></tr>
<tr>
<td>14. Eating and drinking</td>
<td>22 (88%)</td><td>1 (4%)</td><td>2 (8%)</td>
<td>22 (85%)</td><td>1 (4%)</td><td>3 (12%)</td>
<td>22 (85%)</td><td>3 (11%)</td><td>1 (4%)</td>
<td>May apply to everyone - not just autistic people; The girl should have some green vegies on her plate, and not look sick. Is it about obtaining or preparing food/drink? Process of eating/drinking?</td>
<td>85% said the image was clear. 88% said card is important (many people on the spectrum have restricted eating habits). Girl changed to have eyes open, looking at plate, colour in cheeks, vegetables on her plate</td>
</tr>
<tr>
<td>15. Using the toilet</td>
<td>24 (83%)</td><td>2 (7%)</td><td>3 (10%)</td>
<td>24 (92%)</td><td>1 (4%)</td><td>1 (4%)</td>
<td>24 (92%)</td><td>1 (4%)</td><td>1 (4%)</td>
<td>Applies to everyone - not just autistic people</td>
<td>83% indicated that this goal is important and 92% said the image was clear, and so no changes were made.</td>
</tr>
<tr>
<td>16. Sleeping</td>
<td>22 (85%)</td><td>1 (4%)</td><td>3 (11%)</td>
<td>21 (81%)</td><td>3 (12%)</td><td>2 (8%)</td>
<td>23 (88%)</td><td>2 (8%)</td><td>1 (4%)</td>
<td>The sleeping person looks like they have collapsed with exhaustion, which is a common reality of being young and on the spectrum, but not good sleep hygiene. Person should be sleeping comfortably, not collapsed into bed so quickly they dropped their book.</td>
<td>81% said the picture was clear. Face changed to relaxed and peaceful; Items on floor removed (including book) as they were inessential.</td>
</tr>
<tr>
<td>17. Dressing myself appropriately</td>
<td>23 (92%)</td><td>0 (0%)</td><td>2 (8%)</td>
<td>20 (77%)</td><td>3 (12%)</td><td>3 (12%)</td>
<td>24 (92%)</td><td>1 (4%)</td><td>1 (4%)</td>
<td>NIL</td>
<td>92% indicated that the goal is important and 77% indicated that the picture was helpful, so no changes were made</td>
</tr>
<tr>
<td>18. Grooming</td>
<td>21 (84%)</td><td>2 (8%)</td><td>2 (8%)</td>
<td>23 (88%)</td><td>2 (8%)</td><td>1 (4%)</td>
<td>23 (88%)</td><td>2 (8%)</td><td>1 (4%)</td>
<td>Applies to everyone - not just autistic people; female character looks worried, nervous? Wrong facial expression for an activity that we are trying to encourage.</td>
<td>88% said picture was clear and so no changes were made.</td>
</tr>
<tr>
<td>19. Understanding and managing periods</td>
<td>16 (62%)</td><td>2 (8%)</td><td>7 (28%)</td>
<td>19 (73%)</td><td>2 (8%)</td><td>5 (19%)</td>
<td>19 (73%)</td><td>1 (4%)</td><td>6 (23%)</td>
<td>A lot of autistic women and trans people don't like girly stuff and might really hate menstruating. Background other than pink would be good because it would take away from the femininity and just make it another reality of self-care; Young men may not be familiar with particular methods.</td>
<td>17% said image was not clear or not sure, but there was no obvious way to enhance clarity of image. The background was changed from pink to blue.</td>
</tr>
<tr>
<td>20. Planning and preparing meals</td>
<td>24 (92%)</td><td>1 (4%)</td><td>1 (4%)</td>
<td>22 (85%)</td><td>4 (15%)</td><td>0 (0%)</td>
<td>23 (88%)</td><td>2 (8%)</td><td>1 (4%)</td>
<td>What are the little boxes? Having the word 'meal plan' and a calendar makes the card look like it is about 'schedules' rather than cooking.</td>
<td>15% said no or not sure when asked if the picture helped them. The boxes were removed, and the image was made into a</td>
</tr>
</table>

											single kitchen scene with frypan, cutting board with vegetables and knife on bench.
21.	Doing house chores	23 (88%)	2 (8%)	1 (4%)	25 (96%)	0 (0%)	1 (4%)	24 (92%)	1 (4%)	1 (4%)	NIL	96% said image was clear, so no changes were made.
22.	Caring for pets	23 (92%)	0 (0%)	2 (8%)	25 (96%)	1 (4%)	0 (0%)	25 (96%)	0 (0%)	1 (4%)	NIL	96% said image was clear, so no changes were made.
23.	Moving out of home	20 (77%)	3 (11%)	3 (11%)	22 (85%)	3 (12%)	1 (4%)	25 (96%)	1 (4%)	0 (0%)	NIL	85% said image was clear, so no changes were made.
STUDY AND TRAINING												
24.	Getting better at reading	19 (79%)	1 (4%)	4 (16%)	22 (92%)	1 (4%)	1 (4%)	22 (92%)	2 (8%)	0 (0%)	It is not clear that there is a goal for improvement; I really like the "getting better at reading" one, because the lizard looks cool, and it's not obvious what reading level that book would be at. It would still be appealing for my friends who have significant literacy issues and find the idea a bit intimidating; Is "getting better at reading" starting with a level of illiteracy and learning to read, or developing better reading skills to complete study, or some generic improvement of existing skills.	As 92% said that the image was clear, no changes were made. Improvements in reading may be a goal for people with a range of literacy levels.
25.	Getting better at writing	18 (75%)	2 (8%)	4 (16%)	20 (83%)	3 (12%)	1 (4%)	22 (92%)	1 (4%)	1 (4%)	The second goal card could be about getting better at handwriting legibility or conveying a message across through writing	As 83% said that the image was clear, no changes were made. Improvements in writing may be a goal for people with a range of writing challenges.
26.	Getting better at maths	18 (75%)	1 (4%)	5 (21%)	20 (83%)	3 (12%)	1 (4%)	21 (87%)	1 (4%)	2 (8%)	I passed my accounting course at university, and I still have major maths anxiety. I didn't find it appealing or interesting, because I stress about numbers. I am totally interested in being better at my banking, or my grocery budget, or lots of other ways I use maths in the real world. Maybe there is a way you could incorporate real world use of maths?	83% said that the image was clear. To reduce the visual clutter and anxiety, some calculations were removed, and others bolded. Improvements in maths may be a goal for people with a range of mathematical challenges. Adding other images would have increased complexity and confusion.
27.	Developing computer, iPad/tablet and internet skills	21 (88%)	0 (0%)	3 (13%)	22 (92%)	1 (4%)	1 (4%)	22 (92%)	2 (8%)	0 (0%)	it is not clear that there is a goal for improvement.	As 92% said the image was clear and so no changes were made.

#	Item										Comment 1	Comment 2
28.	Planning and completing assignments on time	20 (83%)	2 (8%)	2 (8%)	18 (75%)	1 (4%)	5 (21%)	21 (87%)	1 (4%)	2 (8%)	The locked letterbox is confusing. Most people don't submit assignments this way. Details are important to ASD individuals, and when aspects of the cards/pictures are incongruous or confusing, they will get 'bogged down' working out what is wrong with the picture.	25% said no or not sure re the clarity of the image. The image was changed to a split picture with computer screen in top image with Assignment due date and a submit button. The bottom picture conveyed an "Exam paper.
29.	Choosing and applying for a course to suit my interests/understanding choices	23 (96%)	1 (4%)	0 (0%)	19 (79%)	2 (8%)	3 (12%)	20 (83%)	1 (4%)	3 (13%)	NIL	79% said the image was clear, no changes were made.
30.	Attending classes face to face or virtually	18 (75%)	4 (16%)	2 (8%)	19 (79%)	5 (21%)	0 (0%)	20 (83%)	3 (13%)	1 (4%)	It could have a teacher perspective of marking the roll and ticking off names to show it is good to attend class;	21% said no or not sure re the clarity of the image. In order to improve the clarity of the image inessential details (e.g., window) were removed.
31.	Working/studying in a group	17 (71%)	5 (21%)	2 (8%)	18 (75%)	3 (12%)	3 (12%)	21 (87%)	2 (8%)	1 (4%)	NIL	75% said no or not sure re the clarity of the image.

EMPLOYMENT

#	Item										Comment 1	Comment 2
32.	Finding a job	23 (96%)	1 (4%)	0 (0%)	20 (83%)	2 (8%)	2 (8%)	23 (96%)	1 (4%)	0 (0%)	Gender role stereotyping?	As 83% said the image was clear, no changes were made. As the job descriptions of the employees depicted in the image are open to interpretation (e.g., the person sitting behind a computer could be an administration assistant or a company executive), a decision was made not to change the image.
33.	Applying for a job	22 (92%)	1 (4%)	1 (4%)	18 (75%)	3 (12%)	3 (12%)	21 (87%)	2 (8%)	1 (4%)	Due to us generally being very literal, we may get confused by the meaning of a computer screen with Apply Now featured on it.	As 75% said the image was clear, no changes were made. There were no obvious ways to make to make the image clearer.
34.	Going for a job interview	22 (92%)	1 (4%)	1 (4%)	19 (79%)	3 (12%)	2 (8%)	19 (79%)	3 (13%)	2 (8%)	NIL	As 75% said the image was clear, no changes were made.
35.	Managing time/getting my work done	24 (100%)	0 (0%)	0 (0%)	21 (88%)	2 (8%)	1 (4%)	22 (92%)	1 (4%)	1 (4%)	It looks like being able to remember the date and time; I'd make a close-up of a to do list and what times they needed to be done by.	As 88% said the image was clear, no changes were made. It was suggested that adding details of the to-do list would increase the complexity of the card and be too much text.

#	Item										Comment	Response
36.	Getting along with co-workers	22 (92%)	1 (4%)	1 (4%)	16 (67%)	3 (12%)	3 (12%)	20 (83%)	3 (13%)	1 (4%)	Getting along with co-workers looks like a coffee break; OK but what about a pat on the back on the job with a smile all round.	As 75% said the image was clear, no changes were made. The suggestion of a boss giving a pat on the back overlaps with card 37, in which the boss is giving the worker a thumbs-up sign for doing a good job. Getting along with co-workers was meant to signify positive relationships with others in the workplace. The document on the table in the image is indicative of a workplace meeting.
37.	Meeting requirements of the job	21 (88%)	2 (8%)	1 (4%)	18 (75%)	5 (21%)	1 (4%)	20 (87%)	2 (9%)	1 (4%)	NIL	As 75% said the image was clear, no changes were made

| HEALTH & FITNESS ||||||||||||

#	Item										Comment	Response
38.	Keeping fit and healthy	22 (92%)	1 (4%)	1 (4%)	23 (96%)	0 (0%)	1 (4%)	23 (96%)	1 (4%)	0 (0%)	Diet and exercise and maintaining health are very different things	As 96% said the image was clear, no changes were made.
39.	Managing medication	21 (88%)	1 (4%)	2 (8%)	19 (79%)	2 (8%)	3 (12%)	23 (96%)	1 (4%)	0 (0%)	Image looks like a tin of mushy peas! Not clear. And what is supposed to be in the glass?	75% said the image was clear, but comments suggested that the image wasn't clear. The image was altered so that the pills were made more distinct and the glass with a dissolving pill was removed.
40.	Making and attending medical appointments	21 (88%)	1 (4%)	2 (8%)	18 (75%)	3 (12%)	3 (12%)	21 (87%)	2 (8%)	1 (4%)	monster needle and head band???? How about caring consultation, taking blood pressure or temperature, writing script.	75% said the image was clear, but comments suggested that the picture looked threatening. The image was cropped so that poster of the monster needle was less obvious, and the doctor was drawn with a stethoscope instead of a head band.
41.	Contraception	19 (79%)	1 (4%)	4 (16%)	18 (75%)	3 (12%)	3 (12%)	19 (79%)	2 (8%)	3 (13%)	My mother had to explain contraception	75% said the image was clear. The wording was changed from Contraception (choosing and using) to Birth control/safe sex (e.g., avoiding disease and unwanted pregnancy)

| COMMUNITY ACCESS AND PARTICIPATION ||||||||||||

#	Item										Comment	Response
42.	Using public facilities	23 (96%)	1 (4%)	0 (0%)	18 (75%)	5 (21%)	1 (4%)	21 (87%)	3 (13%)	0 (0%)	Bottom two images are unclear (pool and stadium?); doesn't really show the use of public facilities it just shows that they exist;	75% said the image was clear. Changes were made to make the images clearer (add ladder and diving board to pool and diving board, sports field made greener).

#	Item									Comment	Outcome
43.	**Shopping**	22 (92%)	1 (4%)	1 (4%)	20 (83%)	1 (4%)	3 (12%)	22 (92%)	1 (4%)	1 (4%)	Didn't make sense to me.	As 83% said the image was clear, no changes were made. There were no apparent ways to make the image clearer.
44.	**Using public transport/catching taxis**	22 (92%)	1 (4%)	1 (4%)	21 (88%)	3 (12%)	0 (0%)	21 (87%)	1 (4%)	2 (8%)	Looks like two parts of one.	As 88% said the image was clear, no changes were made. There were no apparent ways to make the image clearer.
45.	**Planning journeys/how to get somewhere**	23 (96%)	0 (0%)	1 (4%)	20 (83%)	3 (12%)	1 (4%)	19 (83%)	3 (13%)	1 (4%)	I use maps on my phone but as a symbol, I think that card is still understandable	As 88% said the image was clear, no changes were made. There were no apparent ways to make the image clearer.
46.	**Getting licence/driving a car**	17 (71%)	3 (13%)	4 (16%)	20 (83%)	2 (8%)	2 (8%)	21 (87%)	1 (4%)	2 (8%)	I thought it was about going through a visa check point.	As 83% said the image was clear, no changes were made. There were no apparent ways to make the image clearer.
47.	**Buying and maintaining a car**	17 (71%)	4 (16%)	3 (13%)	20 (83%)	2 (8%)	2 (8%)	19 (79%)	3 (13%)	2 (8%)	The man in the top part looks naked! He needs a colour on his top. Also, scary stereotype of a car salesman.	83% said the image was clear. The image was changed to give the man with the car a coloured shirt.
48.	**Volunteering**	21 (88%)	2 (8%)	1 (4%)	21 (88%)	3 (12%)	0 (0%)	22 (92%)	1 (4%)	1 (4%)	NIL	As 83% said the image was clear, no changes were made.
49.	**Going on holidays/travelling**	22 (92%)	1 (4%)	1 (4%)	21 (88%)	1 (4%)	2 (8%)	22 (92%)	1 (4%)	1 (4%)	NIL	88% said the image was clear. The image was changed to that the plane's direction was more horizontal (e.g., taking off).
	COMMUNICATION											
50.	**Letting others know my needs/feelings/what's important to me**	23 (96%)	0 (0%)	1 (4%)	16 (67%)	3 (12%)	3 (12%)	20 (83%)	3 (13%)	1 (4%)	NIL	72% said the image was clear, no changes were made.
51.	**Understanding others/follow instructions**	23 (96%)	0 (0%)	1 (4%)	15 (63%)	8 (33%)	1 (4%)	19 (79%)	2 (8%)	3 (13%)	not very clear on what it depicts - seems to be about gossiping or eavesdropping.	37% said no or not sure with regard to the clarity of the image. Changes made to make it clearer included defining the arrow between the people to make it easier to see and making the people same scale and facing each other.
52.	**Asking for/accepting help**	23 (96%)	1 (4%)	0 (0%)	16 (67%)	6 (25%)	2 (8%)	20 (83%)	3 (13%)	1 (4%)	I thought it was about getting touched; Seems to be about conflict or making mistakes	37% said no or not sure with regard to the clarity of the image. The image was changed to one person carrying a large number of books asking for someone to

#	Item										Comments	Action
												help by opening the door. A speech bubble "help please" was added.
53.	**Using non-verbal communication**	21 (88%)	1 (4%)	2 (8%)	19 (79%)	3 (12%)	1 (4%)	19 (83%)	2 (9%)	2 (9%)	It shows the idea of eye contact but 'non-verbal communication' make no sense to me; It looks like it is all about eye contact. Eye contact is really hard, and it's only one part of non-verbal communication. Maybe there is another way this could be communicated?	As 83% said the image was clear, no changes were made. Image shows hand gestures (handshake) and facial expressions, as well as eye contact. There was no apparent way to make the image clearer.
54.	**Starting conversations/greeting people**	21 (88%)	2 (8%)	1 (4%)	13 (54%)	9 (38%)	2 (8%)	20 (83%)	3 (13%)	1 (4%)	The "starting conversations" person should have another person in frame.	As 46% responded no or not sure in regard to the clarity of the picture, a second person waving back and a speech bubble saying "Hi" were added.
55.	**Participating in a conversation**	22 (92%)	1 (4%)	1 (4%)	19 (79%)	3 (12%)	2 (8%)	21 (87%)	1 (4%)	2 (8%)	Persons appear to be arguing?	As 79% said the image was clear, no changes were made There was no apparent way to make the image clearer.
56.	**Knowing what is appropriate to talk about, with who/where**	18 (75%)	3 (13%)	3 (13%)	14 (58%)	9 (38%)	1 (4%)	21 (87%)	1 (4%)	2 (8%)	Knowing what is appropriate to talk about; 56 looks like they are telling secrets and they both look scared; The knowing what is appropriate to talk about could have a speech bubble with ^%$)^%#% and a "no" sign over it. The current one looks like two people being upset;	As 42% said no or not sure with regard to the clarity of the image, the image was adjusted so that the male is smiling (e.g., thinks he is being funny but doesn't realize inappropriate) and the girl's hand closer is over her mouth, blush to cheeks added to indicate embarrassment and speech bubble "#*!?#" added.
57.	**Using phone/mobile/email**	20 (83%)	2 (8%)	2 (8%)	20 (83%)	2 (8%)	2 (8%)	21 (87%)	1 (4%)	2 (8%)	NIL	As 83% said the image was clear, no changes were made.
58.	**Giving instructions to others**	19 (79%)	4 (16%)	1 (4%)	19 (79%)	3 (12%)	1 (4%)	20 (83%)	2 (8%)	2 (8%)	NIL	As 79% said the image was clear, no changes were made.
FINANCES												
59.	**Making purchases**	22 (92%)	1 (4%)	1 (4%)	22 (92%)	1 (4%)	1 (4%)	18 (78%)	4 (17%)	1 (4%)	Maybe Finance goals need to be broken down e.g. Paying & understanding bills; Budgeting; Banking/dealing with banks; Understanding the value of money; Anticipating needs.	As 92% said the image was clear, no changes were made. The wording on the on the card was simplified to *Buying Things*
60.	**Managing money**	23 (96%)	1 (4%)	0 (0%)	20 (83%)	2 (8%)	2 (8%)	22 (92%)	1 (4%)	1 (4%)	Piggy bank is dated.	As 83% said the image was clear, no changes were made, as there was no apparent way to make the image clearer.

#	Item									Comment	Response
61.	Understanding contracts	18 (75%)	2 (8%)	4 (16%)	15 (63%)	6 (25%)	3 (12%)	18 (75%)	5 (21%)	1 (4%)	Could be re drawn to show just one contract and the word 'signature' at the bottom and someone is holding it with a pen and about to sign.	As 37% said no or not sure with regard to the clarity of the image, the image was changed to picture of just a contract with hand signing it.
62.	Doing tax returns	18 (75%)	3 (13%)	3 (13%)	19 (79%)	2 (8%)	3 (12%)	20 (83%)	2 (8%)	2 (8%)	Online tax return with pile of receipts, notes and calculator.	As 79% said the image was clear, no changes were made. There were concerns that adding receipts, calculator etc would make the image overly complex.
EMOTIONAL WELLBEING

EMOTIONAL WELLBEING

#	Item									Comment	Response
63.	Staying calm/Understanding and managing own emotions and behaviours	23 (96%)	1 (4%)	0 (0%)	16 (67%)	8 (33%)	0 (0%)	22 (92%)	2 (8%)	0 (0%)	Staying calm looks like two people in uniform, one scared of the other.	As 37% said no or not sure with regard to the clarity of the image, the faces were inserted into an image of a stress scale with an arrow pointing to 'Calm';
64.	Getting emotional support	23 (96%)	0 (0%)	1 (4%)	21 (88%)	3 (12%)	0 (0%)	20 (83%)	3 (13%)	1 (4%)	Looks like how to deal with overfriendly people.	Although 79% said the image was clear, the image was changed so that instead of person needing support is being touched on the shoulder, both people are seated facing each other. Tissues and cup of tea are added as external cues.
65.	Preparing for change	23 (96%)	1 (4%)	0 (0%)	21 (88%)	2 (8%)	1 (4%)	21 (87%)	1 (4%)	2 (8%)	Maybe more concrete change (house move, relationship break-ups)	As 79% said the image was clear, no changes were made. There were concerns that house move/relationship breakup would make the image overly complex and add to confusion.
66.	Relaxing	23 (96%)	1 (4%)	0 (0%)	22 (92%)	2 (8%)	0 (0%)	23 (96%)	1 (4%)	0 (0%)	Relaxing looks over-stimulating with loud music/ partying/holidays.	Although 79% said the image was clear, image was adjusted by removing music and speakers and changing to a garden-like setting.
67.	Coping with sensory challenges	23 (96%)	0 (0%)	1 (4%)	21 (88%)	1 (4%)	2 (8%)	22 (92%)	0 (0%)	2 (8%)	What about sight? I love the sensory challenges one so much!	As 79% said the image was clear, no changes were made (visual sensitives are difficult to illustrate)
68.	Doing activities I enjoy	23 (96%)	0 (0%)	1 (4%)	22 (92%)	2 (8%)	0 (0%)	22 (92%)	2 (8%)	0 (0%)	Is this about finding things to do? Finding time? Working out what is needed? Learning skills?	As 92% said the image was clear, no changes were made (the goal could be about exploring interests in a range of ways)

69. Staying safe	23 (96%)	1 (4%)	0 (0%)	20 (83%)	3 (12%)	1 (4%)	20 (83%)	2 (8%)	2 (8%)	Didn't understand this picture meant.	Although 83% said the image was clear, image was adjusted to make the meaning more explicit (hand touching girl with breasts)
70. Understanding/ explaining Autism	22 (92%)	2 (8%)	0 (0%)	20 (83%)	3 (12%)	1 (4%)	22 (92%)	2 (8%)	0 (0%)	Maybe you could use the neurodiversity symbol (rainbow infinity) in the understanding autism.	Although 83% said the image was clear, use the neurodiversity symbol was added.
71. Connecting with others in the Autism community	22 (92%)	0 (0%)	2 (8%)	16 (67%)	4 (17%)	4 (17%)	19 (79%)	4 (17%)	1 (4%)	At the moment there's nothing visual on them that shows that they're specifically about autism, and not just reading together and connecting with others;	Although 34% said no or not sure with regard to the clarity of the image, there was no obvious way to make the image more explicitly about autism.
72. Exploring/meeting spiritual needs	17 (71%)	3 (13%)	4 (16%)	19 (79%)	4 (17%)	1 (4%)	21 (87%)	2 (8%)	1 (4%)	The person in green has stubs for hands.	Although 83% said the image was clear, the image was altered with thumbs added to top right praying character.

Appendix Table 2: *Phase 3 Survey Results (n=26) and Research Team Response*

GOAL CARD	Is this goal likely to be important to someone on the spectrum?			Does the picture on this goal card help you to understand what this goal is about?			Do the words on this goal card help you to understand what this goal is about?			FEEDBACK FROM PARTICIPANTS	RESEARCH TEAM REESPONSE
	Yes (%)	No (%)	Not sure (%)	Yes (%)	No (%)	Not sure (%)	Yes (%)	No (%)	Not sure (%)		
SOCIAL RELATIONSHIPS											
73. Getting along with others.	28 (88%)	0 (0%)	4 (13%)	23 (72%)	5 (16%)	4 (13%)	32 (100%)	0 (0%)	0 (0%)	Before reading…I thought the card would have been "talking" to friends/people. Not sure how you could change/simplify though; Yes - different picture; Honestly when I look at that picture all I see is people sitting down...; All people smiling	As 29% said no or not sure about image, team decided to develop new image of neighbours chatting over fence, including a speech bubble with young person saying, "How are you?"
74. Making friends/ being a friend	28 (88%)	3 (9%)	1 (3%)	26 (81%)	3 (9%)	3 (9%)	31 (97%)	0 (0%)	1 (3%)	Same people two scenes, outside then online; Taking a photo relating to being a friend; Not sure if these "friends" should be hugging due to ASD tendency to move into other's personal space; Yes - different picture Most kids on the spectrum play computer or tablet games and aren't interested in what other people do.	Although 81% said the image was clear, team decided to change image to two people taking a selfie. Non-verbal behaviour changed to no hugging, arms down and leaning inwards. Explicit cue added - both people 'friends forever' t-shirts
75. Dealing with conflict	26 (81%)	3 (9%)	3 (9%)	23 (72%)	7 (22%)	2 (6%)	29 (91%)	2 (6%)	1 (3%)	Do you need an arrow from the conflict to the resolution? Yes - different picture; The upper part of the picture just looks like two people looking at something… Maybe a picture of the person turned away more? Conflict has to be explained. conflict needs to be more obvious	As 29% said no or not sure about image, image was altered so that second figure is looking back over shoulder at the other person, so it is clear who he is angry at. Explicit cue added: arrow between 2 halves to show progression of resolution of conflict.
76. Physical Affection	25 (78%)	4 (13%)	3 (9%)	20 (63%)	8 (25%)	4 (13%)	27 (84%)	4 (13%)	1 (3%)	Maybe adding some other types of affection. Both examples seem very physically intimate. Could have another example that is less intimate. Also, may be an example of someone letting another know they don't want	As 29% said no or not sure about image, image was altered by removing love hearts from bottom image and changing so that Grandma is hugging younger person with less of a 'bear hug' with hands on shoulders

										that level of intimacy and that's okay. consider that physical affection doesn't need to be all about hugging- maybe holding hands is option for one picture; Thought the picture was "it's OK to love someone if you are young or old"; different picture; Images are overdone. is the picture androgynous? might be confusing culturally or morally?	and cheek to cheek to show more gentle affection (less intimate).
77.	Understanding which behaviours should be kept private	29 (91%)	0 (0%)	3 (9%)	29 (91%)	3 (9%)	0 (0%)	28 (88%)	3 (9%)	1 (3%)	Very confusing design. I'm not sure relevance of the naked person. Behaviours might need to be explained in terms of appropriateness. Is this just about physical privacy?	As 91% said image was clear, the image was not changed as there was no apparent way to make the image clearer.
78.	Visiting people/having someone over	28 (88%)	2 (6%)	2 (6%)	20 (63%)	7 (22%)	5 (16%)	29 (91%)	2 (6%)	1 (3%)	A comparison scene showing correct enthusiasm; The visitor's body language is extreme. If someone came in like that, I would feel startled and a bit scared. The visitor's body language could be a little overwhelming for someone on the spectrum. Smiling face is good. Looks like an overreaction by the person visiting- needs side on perspective of person opening door to visitor; Simplified words - Friend visits; different picture; The design of the card suggest accomplishment or winning rather than friendship	As 38% said no or not sure about image and there were many comments about non-verbal behaviour, the first figure was altered (leg down, arms at same level as girl's as if waving 'hi').
79.	Hosting or attending social gatherings/events	23 (85%)	2 (7%)	2 (7%)	26 (81%)	3 (9%)	3 (9%)	30 (94%)	0 (0%)	2 (6%)	Thought the picture was about "accepting all different coloured skin"; Cards fine; Design of the card doesn't reflect the goal text. Could be about anything	Although 81% said the image was clear, the team decided to add an explicit cue: change to word on banner to 'Party!' with whole word visible.
80.	Being part of a social group of club	24 (89%)	2 (7%)	1 (4%)	26 (81%)	4 (13%)	2 (6%)	30 (97%)	1 (3%)	0 (0%)	Thought this was about different religions getting together; The card itself is fine but the topic is very broad, and especially the special interest group part could mean anything from Tabletop Wargaming to Haircuts; Card games are so boring. Should be multiple activities	As 81% said image was clear, team decided not to change the image – adding extra games would have increased complexity and confusion.
81.	Caring for others	20 (74%)	3 (11%)	4 (15%)	27 (84%)	3 (9%)	2 (6%)	32 (100%)	0 (0%)	0 (0%)	Not sure how - but she didn't get that the pictures were about "caring"; The card is fine; Without text this card would be confusing	As 84% said image was clear, and no apparent way to make the image clearer, the image was not changed.

No.	Goal									Comment	Action
82.	Dating/finding a partner	25 (93%)	0 (0%)	2 (7%)	26 (81%)	4 (13%)	2 (6%)	29 (94%)	1 (3%)	1 (3%)	Is this about politics?	As 81% said image was clear, and no apparent way to make the image clearer, the image was not changed.
83.	Being in a long-term relationship	24 (89%)	0 (0%)	3 (11%)	23 (72%)	4 (13%)	5 (16%)	30 (94%)	1 (3%)	1 (3%)	I think this card could be a split card with a young couple... then an older couple; think the concept of long term needs to be concrete i.e. use of numbers, calendar etc. Picture does not show long term relationship. Could be just friends holding hands or family members	As 29% said no or not sure about image, team decided to change image to show one person handing other person a "Happy Anniversary" card and sunset removed so focus is on card in centre of image.
84.	Becoming a parent	18 (67%)	4 (15%)	5 (19%)	26 (81%)	3 (9%)	3 (9%)	29 (91%)	1 (3%)	2 (6%)	This card is about diet. I'm not sure our kids and young people can understand that concept; Where are the gender issues now?	As 81% said image was clear, and no apparent way to make the image clearer, the image was not changed. Man included in image as some men may want to become parents.
85.	Being a good parent	23 (85%)	1 (4%)	3 (4%)	26 (81%)	3 (9%)	3 (9%)	31 (97%)	1 (3%)	0 (0%)	What is "good" parenting. need to be more explicit; The cards fine overall but, your previous set of questions was about being a parent, wouldn't it be common sense to assume that means a parent that is actually good?	As 81% said image was clear, and no apparent way to make the image clearer, the image was not changed (being a good parent may be an important goal for people who are parents).
	SELF-CARE AND HOME LIVING											
86.	Eating and drinking	25 (96%)	1 (4%)	0 (0%)	27 (90%)	1 (3%)	2 (7%)	31 (100%)	0 (0%)	0 (0%)	Show Healthy verses unhealthy; This card feels unnecessary. I'm Autistic myself and I know to eat and drink, preferably water and fruit, vegetables and some meat, so I don't see why this card is necessary. Show the person cooking or choosing healthy food; this can be a social thing as well. Being able to eat food at social gatherings while managing sensory and social issues	As 90% said image was clear, and no apparent way to make the image clearer, the image was not changed. This goal is likely to be important as some people on the spectrum are known to have limited diets.
87.	Using the toilet	21 (81%)	2 (8%)	3 (12%)	29 (94%)	1 (3%)	1 (3%)	29 (94%)	1 (3%)	1 (3%)	Have someone on the toilet; Using the bathroom. Perhaps showing a person sitting on the toilet doing their business without it looking rude. Show more specific steps. e.g. toilet paper, flushing and washing hands	As 90% said image was clear, and no apparent way to make the image clearer, the image was not changed – adding additional steps would have made the card too crowded.
88.	Sleeping	23 (88%)	2 (8%)	1 (4%)	31 (100%)	0 (0%)	0 (0%)	31 (100%)	0 (0%)	0 (0%)	NIL	As 100% said image was clear, no change required.

#	Item										Feedback	Response
89.	Dressing myself appropriately	22 (85%)	2 (8%)	2 (8%)	28 (90%)	2 (6%)	1 (3%)	31 (100%)	0 (0%)	0 (0%)	NIL	As 97% said image was clear, no change required.
90.	Grooming	23 (88%)	3 (12%)	0 (0%)	30 (97%)	0 (0%)	1 (3%)	31 (100%)	0 (0%)	0 (0%)	NIL	As 87% said image was clear, no change required.
91.	Understanding and managing periods	22 (85%)	0 (0%)	4 (15%)	27 (87%)	2 (6%)	2 (6%)	31 (100%)	0 (0%)	0 (0%)	NIL	As 90% said image was clear, no change required.
92.	Planning and preparing meals	23 (88%)	1 (4%)	2 (8%)	29 (94%)	2 (6%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	On calendar show days of scribble	As 94% said image was clear, no change required.
93.	Doing house chores	21 (81%)	2 (8%)	3 (12%)	29 (94%)	1 (3%)	1 (3%)	31 (100%)	0 (0%)	0 (0%)	NIL	As 94% said image was clear, no change required.
94.	Caring for pets	22 (85%)	2 (8%)	2 (8%)	29 (94%)	2 (6%)	0 (0%)	31 (100%)	0 (0%)	0 (0%)	Maybe also show a character giving the pet water and food also; While I see why this card exists it does suggest caring for a pet is something all Autistics do, I'm sure most do, but not all, just worth mentioning.	As 94% said image was clear, no change required. Having a pet is likely to be an important goal for some people on the spectrum
95.	Moving out of home	21 (81%)	3 (12%)	2 (8%)	28 (90%)	1 (3%)	2 (6%)	29 (97%)	1 (3%)	0 (0%)	Could be packing for holiday, would show empty room and then full car	As 90% said image was clear, no change was made – adding an empty room would have increased complexity of card.
STUDY AND TRAINING												
96.	Getting better at reading	19 (76%)	2 (8%)	4 (16%)	23 (77%)	6 (20%)	1 (3%)	29 (97%)	1 (3%)	0 (0%)	This card is really good, in fact this card is valid for even non-Autistics. Show two pics, book on outside with a few words, another scene showing more advance book	Feedback was conflicting but 77% said image was clear. Adding extra detail would have increased complexity of card.
97.	Getting better at writing	18 (72%)	2 (8%)	5 (20%)	24 (80%)	5 (17%)	1 (3%)	28 (97%)	1 (3%)	0 (0%)	Show comparison	As 80% said image was clear, no change was made. Adding extra detail would have increased complexity of card.
98.	Getting better at maths	19 (76%)	2 (8%)	4 (16%)	27 (90%)	3 (10%)	0 (0%)	29 (97%)	1 (3%)	0 (0%)	I'm sure the above goals can come under school work. Perfect card!	As 94% said image was clear, no change required.
99.	Developing computer, iPad/tablet and internet skills	22 (85%)	0 (0%)	3 (12%)	26 (90%)	3 (10%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	NIL	As 90% said image was clear, no change required.

Item										Comments	Action
100. Planning and completing assignments on time	19 (76%)	3 (12%)	3 (12%)	27 (90%)	3 (10%)	0 (0%)	29 (97%)	1 (3%)	0 (0%)	School work	As 90% said image was clear, no change required.
101. Choosing and applying for a course to suit my interests/understanding choices	22 (85%)	1 (4%)	2 (8%)	25 (83%)	4 (13%)	1 (3%)	29 (97%)	1 (3%)	0 (0%)	The goal looks a little overwhelming and scary. Used together with the words they are easily explained - not necessarily that the card needs changing/simplifying; It's too busy	As 83% said image was clear, no change was made.
102. Attending classes face to face or virtually	20 (80%)	2 (8%)	3 (12%)	24 (80%)	5 (17%)	1 (3%)	28 (93%)	1 (3%)	1 (3%)	I think it's good to see that people have choices - good to include online as an option. Thought it as "going to school"	As 80% said image was clear, no change was made.
103. Working/studying in a group	19 (76%)	3 (12%)	3 (12%)	24 (80%)	2 (7%)	4 (13%)	29 (97%)	0 (0%)	1 (3%)	While some Autistics may prefer, or … be unable to work on their own due to lack of understanding, I myself (who is on the spectrum) finds it far easier to study in my own time, so this card isn't entirely necessary as its asking you to do something that might not actually work for you; Thought this was playing games on the computer	As 83% said image was clear, no change was made. Studying in a group is a requirement of some courses and therefore may be an important goal for some people.
EMPLOYMENT											
104. Finding a job	24 (96%)	0 (0%)	1 (4%)	28 (93%)	1 (3%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	NIL	As 93% said image was clear, no change was made.
105. Applying for a job	22 (85%)	1 (4%)	2 (8%)	29 (97%)	0 (0%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	Once explained what it means to apply for a job etc it made sense to her	As 97% said image was clear, no change was made.
106. Going for a job interview	23 (92%)	1 (4%)	1 (4%)	25 (83%)	2 (7%)	3 (10%)	30 (100%)	0 (0%)	0 (0%)	A lack of experience may cause some confusion without the words. The prospective employee looks as though he is sitting on the side rather than on the other side of the desk. The status is not clear.	As 83% said image was clear, no change was made.
107. Managing time/getting my work done	19 (76%)	2 (8%)	4 (16%)	28 (93%)	1 (3%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	NIL	As 93% said image was clear, no change was made.
108. Getting along with co-workers	22 (85%)	0 (0%)	3 (12%)	25 (83%)	4 (13%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	Some confusion because the age of the older man suggests this may be an issue regarding ageism	As 83% said image was clear, no change was made.

109. Meeting requirements of the job	22 (85%)	1 (4%)	2 (8%)	27 (90%)	3 (10%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	Again, once explained it was better understood.	As 90% said image was clear, no change was made.
HEALTH & FITNESS											
110. Keeping fit and healthy	21 (84%)	3 (9%)	1 (4%)	28 (93%)	2 (7%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	This card is well set out and includes all the relevant information	As 93% said image was clear, no change was made.
111. Managing medication	21 (84%)	1 (4%)	3 (12%)	27 (90%)	1 (3%)	2 (7%)	30 (100%)	0 (0%)	0 (0%)	Add a pharmacist with medication. Picture could have a pharmacist connected in some way with the medication. They are part of the process of managing this area of life.	Wording of example changed to include involvement of pharmacist.
112. Making and attending medical appointments	19 (76%)	2 (8%)	4 (16%)	26 (87%)	3 (10%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	Doctor image needs to be more obvious	As 87% said image was clear, no change was made.
113. Contraception	19 (76%)	2 (8%)	4 (16%)	27 (90%)	2 (7%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	Safe sex; inexperience and lack of exposure to these images may mean confusion	The wording "Contraceptives" was changed to "Birth control/safe sex (e.g., avoiding disease and unwanted pregnancy)".
COMMUNITY ACCESS AND PARTICIPATION											
114. Using public facilities	21 (84%)	3 (12%)	1 (4%)	27 (90%)	3 (10%)	0 (0%)	29 (97%)	1 (3%)	0 (0%)	No because most people know these places; Perfect ??	As 25% said no or not sure about image, the image was changed to include a streetscape with public facilities
115. Shopping	22 (85%)	1 (4%)	2 (8%)	30 (100%)	0 (0%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	Perfect ??	As 83% said image was clear, no change was made.
116. Using public transport/catching taxis	17 (68%)	1 (4%)	7 (28%)	26 (87%)	3 (10%)	1 (3%)	29 (97%)	0 (0%)	1 (3%)	NIL	As 88% said image was clear, no change was made.
117. Planning journeys/how to get somewhere	18 (72%)	3 (12%)	4 (16%)	25 (83%)	5 (17%)	0 (0%)	29 (97%)	1 (3%)	0 (0%)	Not sure the picture looks like a map; It would be too stressful for a person with autism	Although 83% said image was clear, the image was adjusted to appear more like a Google™ map.
118. Getting licence/driving a car	20 (80%)	3 (12%)	2 (8%)	25 (83%)	2 (7%)	3 (10%)	29 (97%)	0 (0%)	1 (3%)	Perfect ??	
119. Buying and maintaining a car	15 (60%)	2 (8%)	8 (32%)	23 (77%)	4 (13%)	3 (10%)	28 (93%)	0 (0%)	2 (6%)	Would put proper price on car as is confusing or is that the message, make them aware? They're easy targets to get ripped off? Bit confusing but good card	Although 83% said image was clear, image altered to make dollar symbol clearer ($$$).

										Comments	Response
120. Volunteering	17 (68%)	3 (12%)	5 (20%)	22 (69%)	4 (14%)	3 (10%)	29 (97%)	0 (0%)	1 (3%)	NIL	As 88% said image was clear, no change was made.
121. Going on holidays/travelling	22 (85%)	3 (12%)	0 (0%)	27 (90%)	3 (10%)	0 (0%)	28 (93%)	2 (6%)	0 (0%)	NIL	
COMMUNICATION											
122. Letting others know my needs/feelings/what's important to me	23 (92%)	0 (0%)	2 (8%)	22 (73%)	5 (17%)	3 (10%)	29 (97%)	0 (0%)	1 (3%)	I don't know what self-advocacy means. It's a good goal though. perhaps using speech bubbles for people talking; Put things in image of what are important he could be talking about	As 27% said no or not sure about image, a speech bubble saying" What I need is..." was added, to provide clarity.
123. Understanding others/follow instructions	21 (84%)	1 (4%)	3 (12%)	22 (73%)	5 (17%)	3 (10%)	28 (93%)	1 (3%)	1 (3%)	Two scenes, her listening, her doing the actions; the arrow is confusing, need bigger thumb	As 24% said no or not sure about image, a speech bubble saying "Got it" was added, to provide clarity.
124. Asking for/accepting help	22 (85%)	2 (8%)	1 (4%)	26 (87%)	3 (10%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	Perfect ??	Although 27% said no or not sure, the image was not changed as there was no apparent way to make the image clearer.
125. Using non-verbal communication	19 (76%)	3 (12%)	3 (12%)	27 (90%)	2 (7%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	I didn't understand what the hands were doing. Is it meant to be a handshake?	As 90% said image was clear and as there was no apparent way to make the image clearer, the image was not changed.
126. Starting conversations/greeting people	20 (80%)	2 (8%)	3 (12%)	26 (87%)	2 (7%)	2 (7%)	30 (100%)	0 (0%)	0 (0%)	The lady looks a bit confused. Looks like she's screaming; That's a really extroverted "Hi!"	Although 87% said image was clear, the non-verbal behaviours were changed, with eyes/pupils looking directly at person she is waving at and softened/friendly expression.
127. Participating in a conversation	22 (85%)	2 (8%)	1 (4%)	25 (83%)	2 (7%)	3 (10%)	29 (97%)	0 (0%)	1 (3%)	Could have some words in talk bubbles. I'd have them face each other, their faces look more scary then happy and relaxed, especially the boys. maybe the arrows are showing a give and take, exchange of things. Perhaps they are both talking at the same time instead of taking turns. Perhaps the arrows are good as they bring up these situations to discuss.	As 83% said image was clear, the non-verbal behaviours were changed with the left figure giving more direct eye contact and orientated more to face girl.
128. Knowing what is appropriate to talk about, with who/where	19 (76%)	1 (4%)	5 (20%)	25 (83%)	4 (13%)	1 (3%)	29 (97%)	0 (0%)	1 (3%)	Again, change the faces!	As 83% said image was clear, and facial expressions have been previously changed, no further changes were made.

129. Using phone/mobile/email	23 (92%)	0 (0%)	1 (4%)	30 (100%)	0 (0%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	To be honest I only know one Autistic that isn't on top of their emails, so this card mightn't be that necessary; Online safety	As 100% said image was clear, image was not changed. Wording has been changed to "Using technology to communicate (e.g., via phone, text, email or social media)" to accommodate use of social media and online safety. .
130. Giving instructions to others	20 (80%)	2 (8%)	3 (12%)	23 (77%)	4 (13%)	3 (10%)	30 (100%)	0 (0%)	0 (0%)	Is the person writing the instructions down, just writing	As 23% said no or not sure about image, a speech bubble was added around dot points with the text "Could you please…"
FINANCES											
131. Making purchases	21 (84%)	1 (4%)	3 (12%)	27 (90%)	2 (7%)	1 (3%)	29 (100%)	0 (0%)	0 (0%)	NIL	As 90% said image was clear, no change was made.
132. Managing money	20 (80%)	3 (12%)	2 (8%)	26 (87%)	2 (7%)	2 (7%)	29 (97%)	0 (0%)	1 (3%)	NIL	As 90% said image was clear, no change was made.
133. Understanding contracts	17 (71%)	5 (21%)	2 (8%)	23 (77%)	4 (13%)	3 (10%)	27 (90%)	1 (3%)	2 (6%)	Show what a contract gets, like a car, house etc; inexperience may mean some confusion; Card alone didn't make sense, card and words together did.	Although 23% said no or not sure about image, the image had already been changed and there is no apparent way to make it clearer. People using the AAGST who don't understand this concept are unlikely to choose this goal.
134. Doing tax returns	18 (72%)	4 (16%)	3 (12%)	23 (79%)	4 (14%)	2 (7%)	27 (93%)	2 (6%)	0 (0%)	Doesn't even understand what this is all about; inexperience may mean some confusion	Although 23% said no or not sure about image, there was no apparent way to make it clearer. People using the AAGST who don't understand this concept are unlikely to choose this goal.
EMOTIONAL WELLBEING											
135. Staying calm/Understanding and managing own emotions and behaviours	21 (84%)	1 (4%)	3 (12%)	28 (93%)	2 (7%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	• Perfect??	As 93% said image was clear, no change was made.
136. Getting emotional support	21 (84%)	1 (4%)	3 (12%)	27 (90%)	3 (10%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	• Perfect??	As 90% said image was clear, no change was made
137. Preparing for change	23 (92%)	2 (8%)	0 (0%)	26 (87%)	4 (13%)	0 (0%)	29 (97%)	0 (0%)	1 (3%)	• I don't understand what's going on. I find the picture confusing, I'm not sure which is	Although 87% said image was clear, the order of images was changed to add clarity.

									Comments	Action
									plan A or plan B? A great goal to have though. Perfect ??	
138. Relaxing	22 (85%)	1 (4%)	2 (8%)	28 (93%)	2 (7%)	0 (0%)	29 (100%)	0 (0%)	0 (0%)	• Perfect ?? although some people may have other ideas about what relaxation is. This is relaxation to NT's.	As 93% said image was clear, no change was made.
139. Coping with sensory challenges	23 (92%)	1 (4%)	1 (4%)	28 (93%)	1 (3%)	1 (3%)	30 (100%)	0 (0%)	0 (0%)	• Perfect??	As 93% said image was clear, no change was made.
140. Doing activities I enjoy	25 (100%)	0 (0%)	0 (0%)	28 (97%)	1 (3%)	0 (0%)	30 (100%)	0 (0%)	0 (0%)	• Perfect??	As 93% said image was clear, no change was made.
141. Staying safe	22 (85%)	0 (0%)	3 (12%)	25 (83%)	2 (7%)	3 (10%)	30 (100%)	0 (0%)	0 (0%)	• This isn't really something to include in the card but in my experience once people know you dislike being touched, they tend to just do it more…; perhaps the person could be androgynous	As 83% said image was clear and there was no apparent way to make it clearer, no change was made.
142. Understanding/explaining Autism	22 (85%)	0 (0%)	3 (12%)	26 (87%)	0 (0%)	4 (13%)	28 (93%)	1 (3%)	1 (3%)	• Yes, this card is very important; The rainbow may be confusing lately.	As 87% said image was clear, no change was made.
143. Connecting with others in the Autism community	20 (80%)	2 (8%)	3 (12%)	25 (83%)	3 (10%)	2 (7%)	28 (97%)	1 (3%)	0 (0%)	• People are connecting but of course there is no way to ascertain just from a picture that they are autistic	As 83% said image was clear and there was no apparent way to make it clearer, no change was made.
144. Exploring/meeting spiritual needs	17 (68%)	2 (8%)	6 (24%)	23 (77%)	5 (17%)	2 (7%)	27 (90%)	2 (6%)	1 (3%)	• I may be biased as I don't believe in any religions or higher powers or gods but, this card is actually kind of offensive to Atheists like me, and I'm pretty hard to offend, this card says spiritual NEEDS, suggesting going to worship some imaginary man in the sky is a requirement to survive as a biological entity, this is factually false, and kind of offensive, this card should be changed so that it makes it clear this only applies if you actually believe in religion;	Although 23% said no or not sure about image, there was no apparent way to make it clearer. The wording was changed to include these examples: "e.g., religious activities or meditation" to make it clear that spirituality is not only about religion.

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