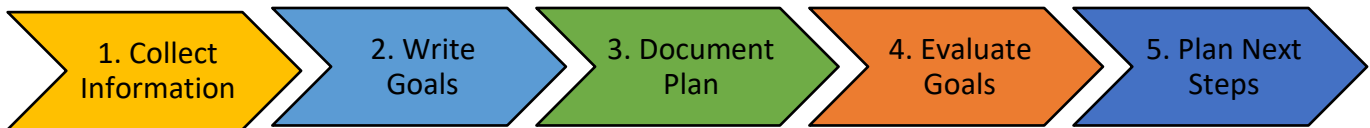


Engaging in Eye Gaze: Access All Learning Areas Factors for Success



An eye gaze system (a combination of eye gaze hardware, software and mount) can be complex technology to setup and integrate into the school setting. There are a number of factors which can lead to more successful implementation and therefore better student outcomes. Such factors include thorough assessment of the student’s needs and skills, setting clear and measurable goals, developing a plan for the achievement of these goals and continuous review and evaluation of the student’s progress. These factors can be broken into five key steps:



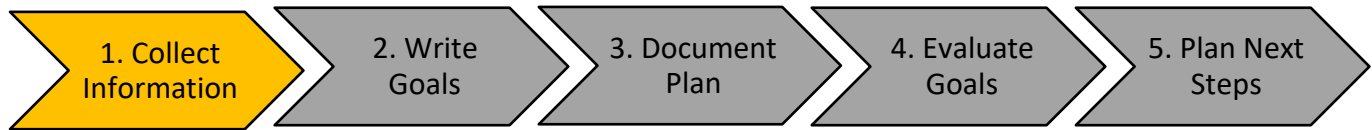
This document is designed as a tool to support you to successfully integrate an eye gaze system with your student to achieve better learning outcomes.

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1. Collect Information



To make decisions and plans around a student’s use of an eye gaze system it is important to have a clear picture of their needs and abilities, the environments they work in and the educational tasks the student needs to complete (The QIAT Community, 2012a). An awareness of the student’s needs is important so that accommodations to the task and environment can be made as required. For example, information about a student’s visual abilities is required to determine a student’s suitability for eye gaze and any possible accommodations that may be needed to improve their performance. In addition, knowledge of the student’s current eye gaze skills can be used to determine suitable activities. For example, if a student is still at the experimental learning key level it will be difficult for them to participate in a task that requires them to target and dwell such as a multiple-choice activity.

A student’s Individual Education Plan (IEP) should be reviewed to identify if an eye gaze system could be used as a tool to help them to achieve their learning goals. For example, if a student has an IEP goal to use an alternative pencil daily to write their name, an eye gaze system with an alphabet page could be suitable if the student had the necessary skills to dwell and target.

Information on a student’s needs and abilities can be gathered from a range of sources such as student performance records, results of experimental trials, direct observation, interviews with students or significant others, and anecdotal records (The QIAT Community, 2012a). It is important to gather data from the team around the student (e.g. family, therapists, educational staff) as various team members bring different information and strengths to the assessment process.

The **Eye Gaze: Access All Learning Areas Student Workbook** has been developed to guide you through the information collection process. It includes sections:

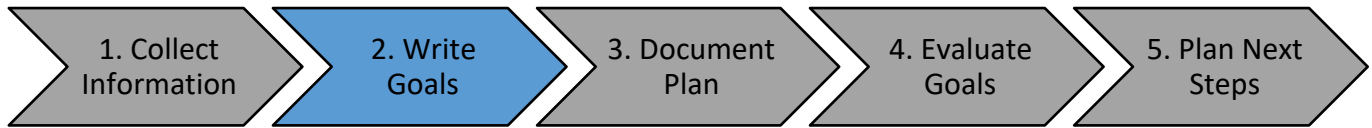
- About Me
- My Team
- My Eye Gaze

For further resources on eye gaze assessment, please refer to:

- Engaging in Eye Gaze: <https://indigosolutions.org.au>
- ACETS Eye Gaze Technology Screening Checklist (Alberta Health Services, 2012) (available online)



2. Write Goals



Once a clear picture of the student’s needs and skills has been established, this information can be used to set goals for use of an eye gaze system. Goal Attainment Scaling (GAS) is a method of scoring the extent to which a student’s goals are achieved using a five-point scale.

Some of the benefits of using a GAS framework include:

- Useful to evaluate individual or group goals by providing a numeric score for measuring change
- Allows an evaluation of functional goals with a range of outcomes
- Promotes input from the whole team to ensure goals are meaningful and relevant
- Encourages goals to be documented from a client-centred perspective

(McDougall & King, 2007)

Writing goals into a GAS framework can be broken into five steps:

- | | |
|--|--------------------|
| 1. Determine the expected outcome for the student | score as 0 |
| 2. Determine the outcome less than expected (student’s baseline skills) | score as -1 |
| 3. Determine the outcome much less than expected | score as -2 |
| 4. Determine the outcome more than expected | score as +1 |
| 5. Determine the outcome much more than expected | score as +2 |

The difference between each outcome level should only be one variable of change, with other variables remaining constant (e.g. level of independence, speed or accuracy of performance or student satisfaction) (McDougall & King, 2007). When writing goals, they should be specific and measurable. The SMART goal framework should be used to develop these goals.

GAS Example 1

The following GAS framework was completed for an 8-year-old boy with Cerebral Palsy who uses a Tobii Dynavox i12+ device for communication, education and recreation throughout the day. He uses a PODD 15+ School pageset for communication and an attendant propelled manual wheelchair with tilt and recline for mobility. He has mastered eye gaze skill ‘Key 4: Choosing Independently’ in the Unlocking Abilities framework and is developing his skills in ‘Key 5: Independently accessing a range of functional activities’.



Following assessment, discussion with the team and review of the student’s IEP, the **expected outcome** for the student is:

*At the end of semester 1 2019, STUDENT can **independently** use eye gaze technology to correctly order **3 words** from a sentence written earlier in the week during Predictable Chart Writing (PCW).*

This is scored as **0** and placed in the centre of the GAS framework.

| Goal | -2 Much less than expected | -1 Less than expected | 0 Expected | +1 More than expected | +2 Much more than expected |
|------|-------------------------------|--------------------------|---|--------------------------|-------------------------------|
| 1 | | | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 3 words from a sentence written earlier in the week during PCW. | | |

The student’s current performance (baseline) is recorded and scored as **-1**, as remaining at the same level is considered **less than expected**:

| Goal | -2 Much less than expected | -1 Less than expected | 0 Expected | +1 More than expected | +2 Much more than expected |
|------|-------------------------------|---|---|--------------------------|-------------------------------|
| 1 | | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 2 words from a sentence written earlier in the week during PCW. | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 3 words from a sentence written earlier in the week during PCW. | | |



Engaging in Eye Gaze: Access All Learning Areas

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In this example the variable that is changing is the number of correct words. All other variables remain the same. It is then easier to complete the remaining outcome levels:

| Goal | -2 Much less than expected | -1 Less than expected | 0 Expected | +1 More than expected | +2 Much more than expected |
|------|--|---|---|---|---|
| 1 | At the end of semester 1 2019, STUDENT cannot independently order any words correctly from a sentence written earlier in the week during PCW. | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 2 words from a sentence written earlier in the week during PCW. | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 3 words from a sentence written earlier in the week during PCW. | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 4-5 words from a sentence written earlier in the week during PCW. | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order all words from a sentence written earlier in the week during PCW. |

GAS Example 2

The following GAS framework was completed for a 16-year-old girl with Rett Syndrome. She uses a combination of informal low tech eye gaze choice boards and eye pointing, and a high low chair with a seating system for mobility and positioning during the school day. She has mastered the eye gaze skills ‘Key 1: Experimental Learning’ in the Unlocking Abilities framework and is developing her skills in ‘Key 2: Making Something Happen.’

Following assessment, discussion with the team and review of the student’s IEP, the expected outcome for the student is:

*At the end of semester 1 2019, given weekly opportunities, STUDENT can use eye gaze technology to **read a book** aloud (by activating either the ‘turn the page’ or ‘read’ button on each page) with visual and auditory prompts.*

This is scored as **0** and placed in the centre of the GAS framework.



| Goal | -2 Much less than expected | -1 Less than expected | 0 Expected | +1 More than expected | +2 Much more than expected |
|------|-------------------------------|--------------------------|---|--------------------------|-------------------------------|
| 1 | | | At the end of semester 1 2019, given weekly opportunities, STUDENT can use eye gaze technology to read a book aloud (by activating either the 'turn the page' or 'read' button on each page) with visual and auditory prompts. | | |

The student's current performance (baseline) is recorded and scored as -1:

| Goal | -2 Much less than expected | -1 Less than expected | 0 Expected | +1 More than expected | +2 Much more than expected |
|------|-------------------------------|--|--|--------------------------|-------------------------------|
| 1 | | At the end of semester 1 2019, given weekly opportunities, STUDENT can engage (e.g. look at book or pictures, smile/laugh) in a book share activity with staff using eye gaze technology. | At the end of semester 1 2019, given weekly opportunities, STUDENT will use eye gaze technology to read a book aloud (by activating either turn the page or read button on each page) with visual and auditory prompts. | | |



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| | | | | | |
|--|--|--|--|--|--|
| | | | | | |
|--|--|--|--|--|--|

In this example the variable that is changing is the level of engagement. All other variables remain the same.

| Goal | -2 Much less than expected | -1 Less than expected | 0 Expected | +1 More than expected | +2 Much more than expected |
|------|---|--|---|--|--|
| 1 | At the end of semester 1 2019, given weekly opportunities, STUDENT cannot engage with books using eye gaze technology. | At the end of semester 1 2019, given weekly opportunities, STUDENT can engage (e.g. look at book or pictures, smile/laugh) in a book share activity with staff using eye gaze technology. | At the end of semester 1 2019, given weekly opportunities, STUDENT can use eye gaze technology to read a book aloud (by activating either the 'turn the page' or 'read' button on each page) with visual and auditory prompts. | At the end of semester 1 2019, given weekly opportunities, STUDENT can use eye gaze technology to read two books aloud (by activating either the 'turn the page' or 'read' button on each page) with visual and auditory prompts. | At the end of semester 1 2019, given weekly opportunities, STUDENT can use eye gaze technology to read 3 or more books aloud (by activating either the 'turn the page' or 'read' button on each page) with visual and auditory prompts. |

The **Eye Gaze: Access All Learning Areas Student Workbook** has a **My Goals** section to support you to complete goals using the GAS framework for your student.





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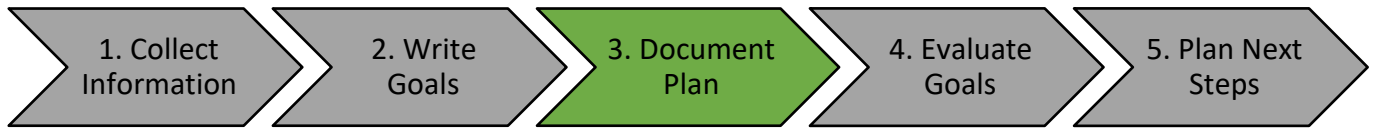
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3. Document Plan



Once goals have been established and agreed on by the team the next step is to develop a written plan with detailed information on:

- What needs to be done to give student access to the learning activities
- How the eye gaze technology will be used across the school day
- Who will be responsible for each task (e.g. sourcing activities, setting up student, equipment management)
- Timeframe for achievement of each strategy

The best outcomes are achieved when everyone who works with the student knows their roles and responsibilities to support the student using an eye gaze system and are held accountable for its success (The QIAT Community, 2012b).

It is important to document what eye gaze software will be used to work towards the set goals and whether pre-made activities are available for that software or the activities need to be customised. Staff may require training to be able to customise software to the student’s needs and this should be documented and scheduled within the implementation plan.

Equipment management tasks should be clearly described, assigned within the team and planned as an ongoing process to ensure the eye gaze system is in good working order (The QIAT Community, 2012b). Eye gaze devices are made up of technical hardware and software which require regular updates to remain operational.

If the student has several goals around using an eye gaze system, it is useful to document how and when it will be integrated into regular curricular activities by using a timetable. Consider factors such as the student’s endurance, general health and fatigue throughout the day, and other physical activities the student participates in such as swimming or use of a standing frame.

The **Eye Gaze: Access All Learning Areas Student Workbook** includes the following sections to support you to document your student’s plan:

- The Plan to Achieve My Goals
- Timetable



Implementation Plan Example

The following implementation plan was completed for an 8-year-old boy with Cerebral Palsy.

| Goal | My expected outcomes | Plan and strategies to achieve my goal | Who | Timeframe |
|------|---|---|--|--------------------|
| 1 | At the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 3 words from a sentence written earlier in the week during Predictable Chart Writing. | Device Management | Education Assistant | Ongoing daily |
| | | <ul style="list-style-type: none"> Eye gaze device placed on charge at the end of each school day | | |
| | | <ul style="list-style-type: none"> Check and run software and hardware updates | IT officer | Ongoing 3 monthly |
| | | <ul style="list-style-type: none"> Contact supplier for technical advice/repairs/replacement | IT officer | As required |
| | | Use of Grid 3 software | Therapist, Teacher and Education Assistant | Week 1-2 |
| | | <ul style="list-style-type: none"> Access online training in how to operate and customise a grid set | | |
| | | <ul style="list-style-type: none"> Creation of a Predictable Chart Writing (PCW) grid set that enables the programmed sentence to be ordered alphabetically, words to be greyed out once selected and has consistent placement of a pause/rest button (so the student can pause eye gaze when needing more time to look around the screen and enable eye gaze when ready to make a selection). | Therapist | Week 3 |
| | | <ul style="list-style-type: none"> Weekly programming of student's PCW sentence into the grid set. | Education Assistant | Weekly on Tuesdays |
| | Timetable | Education Assistant | Weekly on Wednesdays, Thursdays and Fridays for 20 minutes | |
| | <ul style="list-style-type: none"> STUDENT set up with PCW activity on eye gaze device. | | | |
| | Support/Prompts | Teacher and/or Education Assistant | Ongoing | |
| | <ul style="list-style-type: none"> Staff to provide feedback and model correct order of words as per STUDENT's IEP. | | | |
| | <ul style="list-style-type: none"> Use of a pipe cleaner and mouse to model word selection. | | | |



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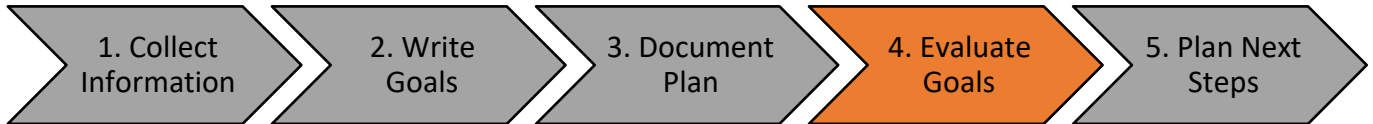
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4. Evaluate Goals

Regular data collection is important to monitor student progress towards the set goals and determine if changes are needed to continue facilitating positive outcomes prior to the end of the set timeframe (The QIAT Community, 2012c). The student's progress should also be evaluated at the end of the stated timeframe. Each team member plays an important role in documenting observable and measurable information to ensure the data collected is as objective as possible.

When reviewing a student's progress, consider the different factors that may impact on the student's level of success (The QIAT Community, 2012c). Such factors may include:

- The student's comprehension of tasks
- The student's eye gaze skills
- The student's preferences for tasks and activities (e.g. level of motivation and interest)
- Strategies implemented to support the student (e.g. prompts and cues provided)
- Training and support received by staff supporting the student
- Frequency of opportunities for the student to practice and gain proficiency

During the process of evaluation, the team decides whether changes or modifications need to be made to the eye gaze system, tasks provided or factors within the environment to continue facilitating student outcomes.

The **Eye Gaze: Access All Learning Areas Student Workbook** includes a **Goal Tracking** section.





Goal Tracking Example

The following goal tracking example was completed for a 9-year-old girl with Rett Syndrome.

Expected outcome:

By the end of semester 1 2019, given weekly opportunities, STUDENT can use eye gaze technology to **independently read** a book aloud (by turning the page).

| Week | -2 | -1 | 0 | +1 | +2 | Comments |
|------|----|----|---|----|----|--|
| 1 | | ✓ | | | | Read 3x pages of Where is the Green Sheep with verbal prompts (e.g. 'I wonder what will happen next?') |
| 2 | | ✓ | | | | Didn't want to participate today. Maybe tired today. |
| 3 | | | ✓ | | | Read the book One to a peer. |
| 4 | | ✓ | | | | Only made it half way through one book. Appears tired today. |
| 5 | | | ✓ | | | Read Pig the Grub. Kept navigating back to certain pages (perhaps her favourite pages). |



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| | | | | | |
|----|--|--|---|---|---|
| 6 | | | ✓ | | Read one book. Presented as happy and alert. Went from page to page without prompting. |
| 7 | | | | | Absent from school 2x days. Tired on other days and lots of things happening at school. |
| 8 | | | | ✓ | Pig the Grub read front to back with peer. |
| 9 | | | | ✓ | Chose a book to read. Read about 75% of it to a peer. |
| 10 | | | | ✓ | Read Bill's New Dress chapter 5 and 6. Opened her own choice of book and read to peers. |

Goal Review Example

| Expected Outcome | Attained performance | Comments | Next steps |
|---|----------------------|--|------------|
| By the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 3 words from a sentence he wrote earlier in the week during PCW. | 0 | Achieved expected outcome. | |
| By the end of semester 1 2019, given daily opportunities, STUDENT can use eye gaze technology to select two correct letters from his name (in any order) from an alphabet page with all 26 letters (and the letters of his name highlighted). | -1 | Achieved less than expected. Was not given many opportunities to practice this task in different ways. | |



| | | | |
|--|----|---|--|
| By the end of semester 1 2019, STUDENT can use eye gaze technology to correctly match a 2D shape shown from a selection of 3 shapes . | +2 | Achieved much more than expected. Eye gaze technology enabled him to show how much he knew about 2D shapes. | |
| By the end of semester 1 2019, STUDENT can use eye gaze technology to select and open an activity he wants to complete 2-3 times a week with visual and auditory prompting from staff. | +1 | Achieved more than expected. | |

The following goal review example was completed for an 8-year-old boy with Cerebral Palsy.



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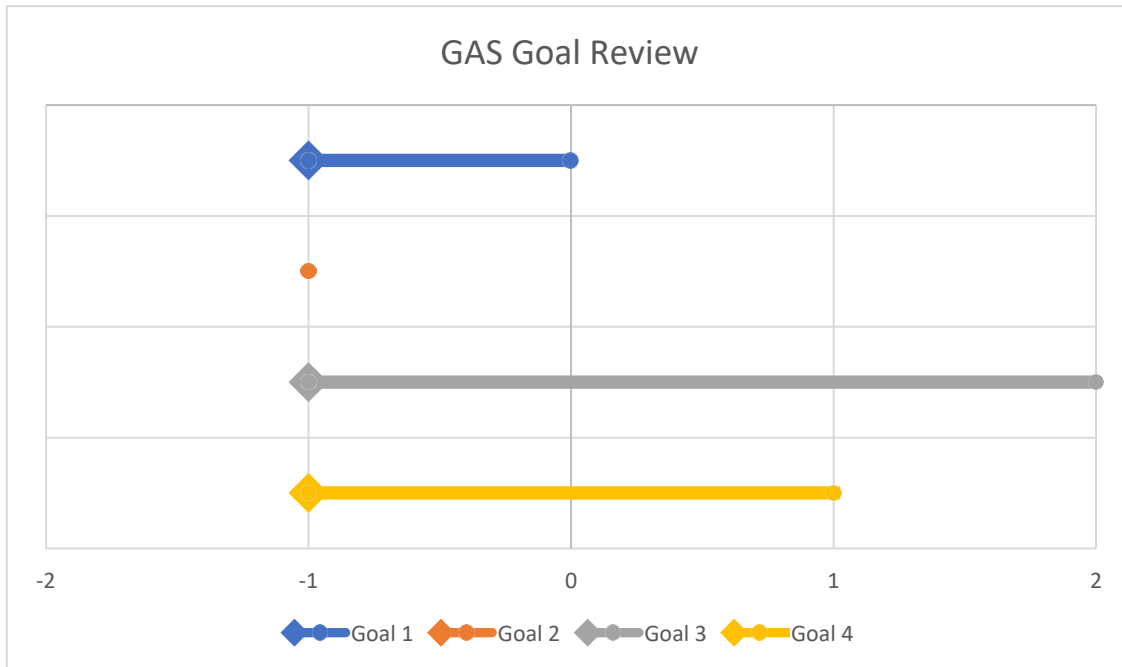
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GAS Goal Review Graph Example

Graphing the outcome levels achieved for each goal can be a useful way to visually represent the student's progress. The graph below contains the results achieved by an 8-year-old boy with Cerebral Palsy.



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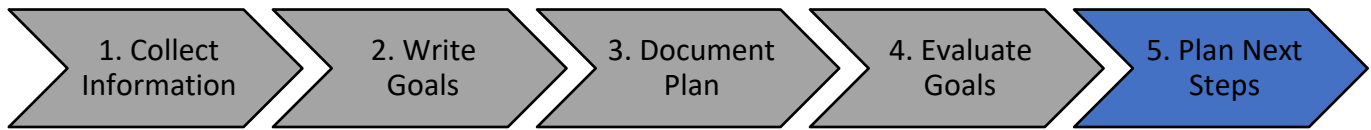
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5. Plan Next Steps



At the end of the agreed timeframe (e.g. term, semester or school year), and once the student's goals have been evaluated, it's important to determine a plan to ensure the student can continue making progress towards their learning outcomes. Some things to consider when documenting the plan include:

- What has the student accomplished and what progress did they make towards their set goals?
- How has the eye gaze system been helping?
- Does the student enjoy using the eye gaze system?
- What else could an eye gaze system help the student to learn or achieve?
- Were any goals achieved more (+1) or much more (+2) than expected? Will this goal be extended or will a different skill or learning area be targeted next?
- Were any expected outcomes not met? If so, what are some of the potential reasons for this? Things to consider may be:
 - Was a SMART goal set and therefore was it realistic?
 - Was the student provided adequate opportunities to practice?
 - Was the student interested in the activities and tasks?
 - Were there other factors in the student's life impacting their success (such as time off school sick)?
 - Were staff given enough training to be able to support the student?



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Plan Next Steps Example

The following goal review and plan next steps example was completed for an 8-year-old boy with Cerebral Palsy.

| Expected Outcome | Attained performance | Comments | Next steps |
|---|----------------------|---|---|
| By the end of semester 1 2019, STUDENT can independently use eye gaze technology to correctly order 3 words from a sentence he wrote earlier in the week during PCW. | 0 | Achieved expected outcome. | Moving on to self-selected writing next term. |
| By the end of semester 1 2019, given daily opportunities, STUDENT can use eye gaze technology to select two correct letters from his name (in any order) from an alphabet page with all 26 letters (and the letters of his name highlighted). | -1 | Achieved less than expected. Was not given many opportunities to practice this task in different ways. | Goal to be continued. More opportunities for practice to be provided e.g. signing name on pieces of different pieces of work, more games and activities to learn letter-sounds. |
| By the end of semester 1 2019, STUDENT can use eye gaze technology to correctly match a 2D shape shown from a selection of 3 shapes . | +2 | Achieved much more than expected. Eye gaze technology enabled him to show how much he knew about 2D shapes. | Will be targeting matching numbers from 1-5 and sequencing numbers from 1-5 next semester. |
| By the end of semester 1 2019, STUDENT can use eye gaze technology to select and open an activity he wants to complete 2-3 times a week with visual and auditory prompting from staff. | +1 | Achieved more than expected. | Speech Pathologist will program activity choices within his PODD page set so he can communicate his preferences. |



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6. References

- McDougall, J., & King, G. (2007). *Goal Attainment Scaling: Description, Utility, and Applications in Pediatric Therapy Services*. Retrieved from CanChild:
http://elearning.canchild.ca/dcd_pt_workshop/assets/planning-interventions-goals/goal-attainment-scaling.pdf
- The QIAT Community. (2012a). *Quality Indicators for Assessment of Assistive Technology Needs*. Retrieved from Quality Indicators for Assistive Technologies - Guiding the Provision of Quality AT Services: <https://qiat.org/docs/2%20QIs%20for%20Assessment.pdf>
- The QIAT Community. (2012b). *Quality Indicators for Assistive Technology Implementation*. Retrieved from Quality Indicators for Assistive Technology: Guiding the Provision of Quality AT Services: <https://qiat.org/docs/4%20QIs%20for%20Implementation.pdf>
- The QIAT Community. (2012c). *Quality Indicators for Evaluation of the Effectiveness of Assistive Technology*. Retrieved from Quality Indicators for Assistive Technology: Guiding the Provision of Quality AT Services:
<https://qiat.org/docs/5%20QIs%20for%20Evaluation%20of%20Effectiveness.pdf>

