



## Child-Friendly Online Data Collection

# INTRODUCTION

## *The Challenge*

Data collection is an integral part of clinical, social, and behavioral research. Online surveys offer significant advantages over paper and pencil, including higher response rates and substantial time and cost savings. Unfortunately, none of the current online data collection systems are designed for use with children.

**Developmental challenges in attention, engagement, and literacy make it difficult to collect data with children.** "One size fits all" surveys that confuse and frustrate children can affect their ability to answer questions, undermining data quality or excluding them from data collection entirely.

To collect high-quality data from children and give them a voice in research, researchers need an online data collection system that's tailored to the developmental needs of children.

## CHALLENGES OF DATA COLLECTION WITH CHILDREN

- Limited attention spans and low engagement with surveys.
- Inability to accurately read and respond to questions.
- Survey layouts that distract and overwhelm children.



## The Solution

With funding from the U.S. Department of Education and the National Center for Advancing Translational Sciences, 3C Institute developed Quest,\* the only research-based, child-friendly online data collection system.

Designed for use with children aged 6–12, Quest's game-like interface and built-in accommodations **maximize engagement and minimize the impact of developmental and learning challenges on data quality.**

Multiple research studies have demonstrated Quest's usability, garnering strong endorsements from researchers, educators, and children. This novel solution offers a valuable, affordable tool for supporting clinical, social, and behavioral research with children on a broad scale.

## SECURE DATA COLLECTION

QUEST COMPLIES WITH:

- HIPAA (HEALTH INSURANCE PORTABILITY AND ACCOUNTABILITY ACT)
- FERPA (FAMILY EDUCATIONAL RIGHTS AND PRIVACY ACT)
- COPPA (CHILDREN'S ONLINE PRIVACY PROTECTION ACT)

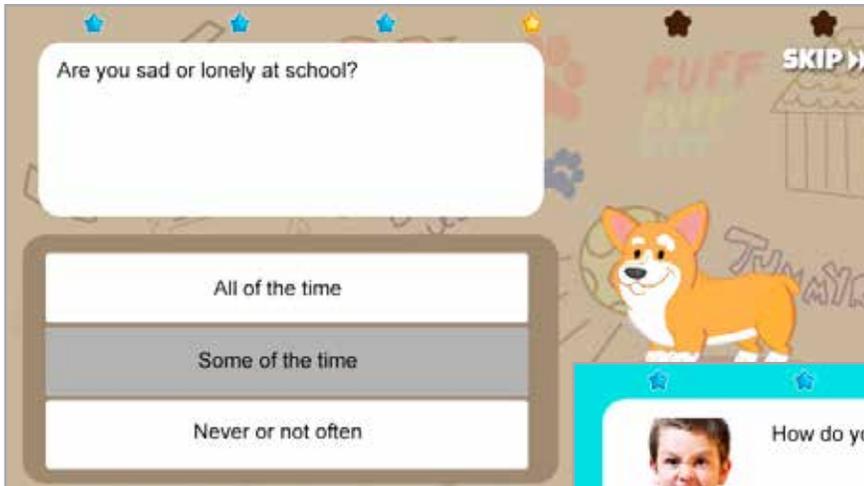


\*formerly known as Assess2Progress

# ABOUT THE PRODUCT

## Child-friendly survey layouts

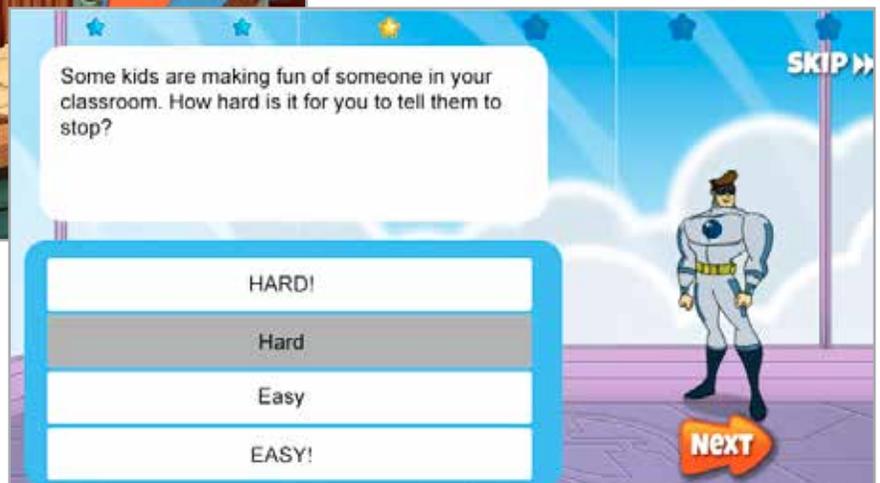
Quest offers a selection of game-like "Quiz Show" survey layouts with themes that appeal to younger (6–9 years) and older (10–12 years) children. Each supports a variety of response formats with the option to embed audio and graphics.



Layout examples for ages 6–9



Layout examples for ages 10–12





Quest map with Ollie, the helpful guide

### ***A unique game-like experience***

Each Quest generates a map of activities to complete. At each step, friendly characters voice directions, questions, and response choices. Optional mini-games help maintain engagement and reward children for participation.



Highlighting and text-to-speech accommodations

### ***Developmental accommodations***

Quest's audio and visual accommodations make it easier for children to understand and respond to questions. Options include text-to-speech, synchronized highlighting, and response masking.



Integrated social and emotional learning assessment scenes from Zoo U

### ***Social and emotional learning assessment***

Quest integrates performance-based social and emotional learning assessment scenes from Zoo U, an evidence-based online game that measures children's skills in six areas: impulse control, empathy, initiation, communication, cooperation, and emotion regulation. Geared toward children in grades 2-5, players navigate common social scenarios in a school for future zookeepers. Learn more at [www.PersonalizedLearningGames.com](http://www.PersonalizedLearningGames.com).

## **DATA COLLECTION AND EXPORT**

Quest tracks participant progress in real time and collects a wealth of usage metrics on how children interact with surveys, including time spent per item, amount of audio listened to, and number of questions skipped. Datasets are easily exportable for analysis in standard statistical software packages.

# RESEARCH BEHIND QUEST

# 90%

OF RESEARCHERS SAY QUEST WOULD HELP THEM COLLECT HIGHER QUALITY DATA IN LESS TIME.



## ENDORSEMENTS FROM RESEARCHERS:

*There's often a literacy issue when administering surveys, so the read-aloud is great.*

*It's highly unique to take into account differences in development as well as visual and attention abilities.*

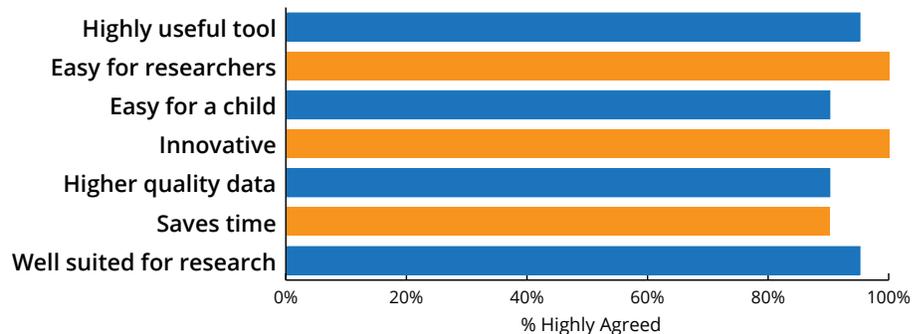
*Impressive compared to other online survey platforms!*

## What Researchers Say

3C Institute tested Quest with clinical, social, and behavioral researchers. As Figure 1 shows, researchers reported that Quest is a highly innovative and useful tool for collecting data with children. They found the software easy to use and said the platform would help them collect **higher quality data in less time**.

Researchers noted several advantages of Quest, including the likelihood that greater engagement and accessibility could improve data quality. (See Table 1 in "Summary Statistics" section.)

Figure 1. Researcher ratings of Quest



# 94%

OF CHILDREN PREFER QUEST TO PAPER AND PENCIL.



## CHILDREN'S COMMENTS:

*Since I'm not that good of a reader, I liked how it read the question to you.*

*Quest felt less stressful—there was less pressure.*

*The quiz show was fun!*

## What Children Say

3C Institute tested the usability of Quest for collecting data with 5- to 12-year-old children, including children receiving special education services. Researchers observed that children were highly engaged and intuitively knew how to navigate the software with few, if any, difficulties or requests for help.

**Children consistently reported they would much rather use Quest** than paper and pencil. Children of all ages found the software easy to use and understand; importantly, this rating was significantly higher for children with an Individualized Education Program (IEP), indicating Quest is particularly valuable for children receiving special education services. (See Table 3 in "Summary Statistics" section.)

Figure 2. Child ratings of Quest

	Younger (6-9)	Older (10-12)
Liked using Quest	★★★★	★★★★
Liked the graphics	★★★★	★★★★
Was engaging/fun to use	★★★★	★★★★
Easy to understand/use	★★★★	★★★★
Helped me answer questions	★★★★	★★★★

A second usability study with children aged 6–12 confirmed these results, with 94% saying they would rather use Quest than paper and pencil. Notably, **100% of children receiving special education services preferred Quest.**

As shown in Figure 2, a number of reasons were cited for why children preferred Quest, including it was easier and faster to answer questions and more fun and engaging. (See Table 3 in "Summary Statistics" section.)

## Quest's Accommodations

A third usability study tested Quest's accommodations of synchronized highlighting and response masking, in addition to text-to-speech, with children aged 5–11, including children receiving special education services. More than 90% of children found the accommodations intuitive. And, more than half of all children reported the accommodations were helpful, with younger children and children with ADHD saying that masking was particularly beneficial for focusing their attention.



Response masking example

Researchers observed that children were highly engaged, with 94% staying on task. Again, children thought Quest was fun and easy to use, strongly preferring the software to paper and pencil. (See Tables 4 and 5 in "Summary Statistics" section.)

**100%**  
**OF CHILDREN RECEIVING  
SPECIAL EDUCATION  
SERVICES PREFER QUEST.**

### QUEST'S DEVELOPMENTAL ACCOMMODATIONS

- TEXT-TO-SPEECH
- SYNCHRONIZED HIGHLIGHTING
- RESPONSE MASKING

## CHILDREN'S COMMENTS ON QUEST'S ACCOMMODATIONS:

*Makes answering questions seem easier, and makes you feel more comfortable."*

*It's helpful to have a character that reads the questions when you don't know how to pronounce a word.*

*Doesn't seem as boring, and I can focus better.*

# 100% OF EDUCATORS AGREE QUEST IS ...

EASY FOR BOTH EDUCATORS AND CHILDREN TO USE AND UNDERSTAND.

A VALUABLE TOOL FOR HELPING CHILDREN WITH LEARNING CHALLENGES.

A HIGHLY NEEDED PRODUCT FOR TEACHERS AND SCHOOLS.

## PRAISE FROM EDUCATORS:

No other systems have accommodations built in like this.

The teachers at my school would have no problem doing this.

There's nothing like it.

As a 504 coordinator, I loved the accommodations!

Makes differentiated assessment so much easier.

## What Educators Say

3C Institute tested Quest with K-5 educators who regularly administer assessments with accommodations to children with learning challenges. They overwhelmingly rated the software as highly appealing and easy for both educators and children to use in the classroom.

Quest was viewed as innovative, highly needed—particularly the embedded accommodations—and a significantly better alternative to current paper-and-pencil assessments. Remarkably, **100% of educators agreed** Quest would minimize the impact of learning challenges on child assessments. (See Table 6 in "Summary Statistics" section.)

NOTE: See "Summary Statistics" section for detailed study data.

# SUMMARY

As the only online data collection system of its kind, Quest offers an easy, effective, and secure method for collecting high-quality data with children aged 6–12 years. Highly rated by researchers, educators, and children alike with demonstrated usability through multiple research studies, Quest offers a unique solution to the developmental challenges of data collection with children, providing an unprecedented opportunity to give children a voice in clinical, social, and behavioral research.

CONTACT US AT  
**888.598.0103**  
OR  
**SERVICES@3CISD.COM**  
TO DISCUSS HOW WE  
CAN HELP YOU COLLECT  
DATA FROM CHILDREN  
WITH QUEST.



## ***Future Directions***

### ***Product Development:***

Plans to expand and improve the Quest experience for both participants and researchers include additional survey layouts and reports of summary statistics. These enhancements will result in a comprehensive system where researchers can execute all aspects of data collection from survey creation to descriptive analysis and data export.

### ***Research:***

3C Institute recently completed an equivalency study to ensure that data collected through Quest results in data that are as psychometrically sound as data collected through more traditional methods (e.g., paper and pencil, online survey). Results are expected to support Quest as a more efficient and effective way of collecting data with children.

# ABOUT THE SOFTWARE DEVELOPERS



3C Institute, an award-winning research and development company ([www.3cisd.com](http://www.3cisd.com)), is the leading provider of custom online solutions to improve social, emotional, and behavioral health through assessment, training, and treatment. Quest was developed by a diverse team of developmental, behavioral, and clinical researchers; software, game, and website developers; technical editors, graphic artists, and media specialists; and information technologists.

3C Institute has expertise in evidence-based programs for behavioral health, adaptive online assessment and game technology, and implementation science. Web-based services for researchers include e-learning for professional development and behavior change, child-friendly data collection, real-time analytic reporting tools, and implementation support.

The development of Quest was funded by the U.S. Department of Education and the National Center for Translational Sciences through the following grants:

- DoE: H133S130059 (\$74,995)
- NCATS: 1R43TR000982 (\$149,993) and 2R44TR000982-02A1 (\$1,052,530)
- ACL/NIDILRR: H133S140102 (\$574,996)

## PUBLICATIONS & PRESENTATIONS

DeRosier, M. E., McMillen, J. S. (2016, May). *Increasing Motivation, Engagement, and Data Quality Through a Child-Friendly Online Platform for Survey Data Collection With Children*. AAPOR Annual Conference, Austin, TX.

Craig, A. B., Brown, E., Upright, J. J., & DeRosier, M.E. (2015). Enhancing children's social emotional functioning through virtual game-based delivery of social skills training. *Journal of Child and Family Studies*, 25, 959–968. doi: 10.1007/s10826-015-0274-8

# SUMMARY STATISTICS

3C Institute researchers tested Quest's feasibility with 21 clinical, social, and behavioral health researchers, who provided feedback through a product evaluation survey. Participants were doctoral-level (62%) and masters-level (28%) researchers with an average of 8.5 years (SD = 6.7 years, range = 2–25 years) experience in their field. Primary work settings were universities (48%) and healthcare (28%). Table 1 shows researcher ratings of Quest using a 7-point scale from 1 = Not at all to 5 = Extremely.

**Table 1. Researcher ratings of Quest**

Area Assessed	Mean (SD)	% Highly Agreed
Highly useful tool for researchers	6.48 (.81)	95%
Easy for researchers to use/understand	6.57 (.75)	100%
Easy for a child to use/complete	6.43 (.68)	90%
Innovative product	6.57 (.68)	100%
Result in higher quality data from children	6.19 (.98)	90%
Save me time over using other methods	6.24 (.99)	90%
Well suited to a research environment	6.43 (.81)	95%

3C Institute researchers tested Quest's usability with 56 children evenly distributed across grades K–5. Twenty-two percent had a current IEP to receive special education services. After completing assessments using both Quest and paper-and pencil formats, children provided feedback through a product evaluation survey. Table 2 shows child ratings of Quest separated by grade level. Grades K–1 used a 3-point scale from 1 = 😞 to 3 = 😊 and grades 2–5 used a 5-point scale from 1 = Strongly disagree to 5 = Strongly agree.

**Table 2. Child ratings of Quest, separated by grade level**

Area Assessed	3-point Scale		5-point Scale	
	Grades K–1		Grades 2–3	Grades 4–5
	Mean (SD)		Mean (SD)	Mean (SD)
Liked it	2.80 (.41)		3.86 (1.09)	3.75 (.76)
Easy to use & understand	2.70 (.57)		4.43 (.78)	4.48 (.64)
Liked the graphics	2.80 (.52)		4.29 (1.11)	3.74 (.81)
Would want to use	2.65 (.59)		3.71 (1.49)	4.02 (.90)
Fun to do	2.50 (.83)		3.49 (1.38)	3.59 (1.08)
Prefer software	2.93 (.83)		4.15 (1.46)	4.12 (1.01)

Note. Grades K–1 ratings made on 3-point scale; grades 2–5 ratings made on 5-point scale.

3C Institute researchers tested Quest's usability with 27 families with 48% of children in the 6–9 age range (younger) and 51% in the 10–12 age range (older). One quarter of the children received special education services. After completing a series of questions using both Quest and paper-and pencil formats, children provided feedback through a product evaluation survey. Table 3 shows child ratings of Quest separated by age group using a 3-point scale of 1 = NO!, 2 = Sort of, and 3 = YES!.

**Table 3. Child ratings of Quest, separated by age group**

Area Assessed	Younger (6-9)	Older (10-12)
	Mean (SD)	Mean (SD)
Liked using Quest	2.92 (.29)	2.71 (.47)
Liked the graphics	2.67 (.65)	2.64 (.63)
Was engaging/fun to use	2.75 (.45)	2.57 (.51)
Easy to understand/use	2.92 (.29)	2.93 (.27)
Helped me answer questions	2.83 (.39)	2.57 (.65)

3C Institute researchers tested the usability of Quest's accommodations with 34 children aged 5–11. Twenty-four percent had a current IEP or suspected to have an eligible disability to receive special education services. After completing assessments with and without accommodations, children provided verbal feedback by answering a series of yes/no questions. Table 4 shows child ratings of Quest's accommodations separated by age group with the percentage of children answering "yes."

**Table 4. Child ratings of Quest's accommodations with percent of children answering "yes," separated by age group.**

Area Assessed	Younger (5-8)	Older (9-11)
	Mean (SD)	Mean (SD)
<b>Synchronized highlighting</b>		
Intuitive	90%	96%
Helpful	60%	54%
Easier	40%	38%
<b>Response Masking</b>		
Intuitive	100%	96%
Helpful	90%	54%
Easier	80%	46%
<b>Magnification</b>		
Intuitive	85%	95%
Helpful	67%	53%
Easier	33%	42%

Children also completed a product evaluation survey. Table 5 shows child ratings of Quest using a 5-point scale from 1 = Strongly disagree to 5 = Strongly agree.

**Table 5. Child ratings of Quest, separated by age group**

Area Assessed	Younger (6-9)	Older (10-12)
	Mean (SD)	Mean (SD)
Liked using Quest	4.40 (.52)	4.25 (.74)
Was fun to use	4.30 (.67)	4.42 (.93)
Easy to understand/use	4.10 (1.2)	4.54 (.59)

3C Institute researchers tested Quest's feasibility with 28 regular and special education educators equally distributed across grades K-5, who provided feedback through a product evaluation survey. Table 6 shows educator ratings of Quest using a 7-point scale from 1 = Strongly disagree to 5 = Strongly agree.

**Table 6. Educator ratings of Quest**

Area Assessed	Mean (SD)	% Highly Agreed
Easy for educators to use/understand	6.89 (.42)	100%
Easy for children to use/understand	6.82 (.48)	100%
Feasible for educators to use in schools	6.68 (.55)	100%
Appealing/high quality graphic design (logo, layout)	6.75 (.84)	97%
Valuable tool for helping children w/learning challenges	6.68 (.67)	100%
Would result in lower frustration	6.61 (.69)	100%
Result in higher confidence & academic self-esteem	6.48 (.64)	100%
Minimize impact of disability on assessment	6.50 (.75)	100%
Result in more accurate data on student knowledge	6.44 (.80)	93%
Highly innovative & better than current methods	6.54 (.89)	97%
Highly needed/valuable product for educators/schools	6.61 (.79)	100%



Quest was developed by 3C Institute

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