

Teaching Conversation Skills to Young Adults in Community Settings

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Background/ Rationale

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Postschool Outcome Areas



Competitive,
integrated
employment



Postsecondary
education/
Training



Independent Living
or Community
Participation

Community Participation and Communication Skills

- **Community participation** is an important aspect of the transition to adulthood for young adults with autism spectrum disorder (ASD). Community participation may involve **meeting peers** and **developing friendships**.
- However, many individuals with ASD have **difficulties with communication skills** that continue into adulthood (Magiati et al., 2014).



Targeted Communication Outcomes for Verbal Young Adults with ASD

Many young adults with mild forms of ASD use verbal language/speech to communicate

- Show interest in topics that **others** want to talk about
- Initiating conversation, **staying on topic**, and ending a conversation
- Providing **new information**
- Appropriate **body language**
- Asking **relevant questions**
- Inviting others to participate in **social activities**



Interventions to Support Social Communication Skills

A variety of **evidence-based practices (EBPs)** have been used to teach **social communication skills** to individuals with ASD, including:

- Augmentative and alternative communication
- Antecedent-based interventions
- Social narratives
- Behavioral skills training
- Technology-aided instruction
- Packages that include combinations of interventions



Interventions to Support Social Communication Skills

- Most research regarding EBPs for individuals with ASD has occurred with children aged **six to 12** and within **educational settings** (Steinbrenner et al., 2020)
- Additionally, most research regarding social skills interventions for individuals with ASD **does not include participant feedback or inclusion of autistic voices and perspectives** (Monahan et al., 2021)

Self-Monitoring and I-Connect

- Self-monitoring has been documented as an **effective intervention** to teach a variety of skills to individuals with ASD (Beckman et al., 2019; Huffman et al., 2019; Wills & Mason, 2014)
- **Goal setting** and **self-monitoring** are frequently combined interventions (Carr et al., 2014)
- In particular, the technology-based self-monitoring application **I-Connect** (Wills & Mason, 2014) has demonstrated promising support to **increase on-task behavior** (Beckman et al., 2019; Huffman et al., 2019) and other skills.





Previous Studies to Teach Conversation Skills to Young Adults with ASD

- Behavior skills training and covert audio coaching to increase **self-initiated interactions** with co-workers (Chezan et al., 2020)
- Instructional modules and covert audio coaching to **increase questions asked** to same-aged peers during lunch (Mason et al., 2020)
- Instructional modules and telecoaching to increase **initiations, responses, and answering questions** (Gregori et al., 2022)





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Purpose Statement

The purpose of this study was to **evaluate the generality** of two established practices for learners with ASD, **technology-based self-monitoring** (i.e., I-Connect) and **visual supports**, to teach question asking skills in community settings.





Research Questions

1. What are the effects of an **I-Connect intervention alone** versus **I-Connect and visual supports** to teach question asking skills to young adults with ASD in community settings?
2. What is the **social validity** of an I-Connect intervention and visual supports to teach question asking skills as reported by the young adults with ASD who used the interventions?

Method

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Locating Potential Participants

In order to recruit potential participants, the research team:

- Contacted **organizations** that provide services to adults with ASD
 - Non-profit organizations
 - Adult agencies
 - Community colleges
- Asked organizations to **disseminate flyers** via email

Potential participants or their parents/guardians **contacted the first author** to express interest in participating.

Participant Inclusion Criteria

1. Age **18** or older
2. Diagnosis of **ASD or related developmental disability**, confirmed by parent report
3. Used **verbal speech** as primary form of communication
4. Expressed a desire to improve their **conversational skills**
5. Willing to use the **I-Connect app** to self-monitor their behavior

Participant Overview

	Anthony	Oscar	William
Demographic Information	26-year-old White male	21-year-old White male	26-year-old Biracial (Black and White) male
Disability Category	ASD, attention deficit hyperactivity disorder (ADHD)	ASD, ID, specific learning disability, speech/language impairment	Pervasive Developmental Disorder, ID, ADHD, sensory integration disorder
Conversation skill characteristics	Difficulty initiating, inflexible topics	Difficulty initiating, difficulty changing topics	Difficulty switching topics, inflexible topics
Participant-selected conversation location	Frozen yogurt shop	Market and deli	Mexican food restaurant

Community-Based Locations Selected by Young Adults



Yogurt Shop



Market & Deli



Mexican Fast Food
Restaurant

Conversational Partners

- Four **special education graduate students**
- **Experienced** working with individuals with disabilities, including **young adults with ASD**
- Matched with young adults according to **schedules** and **driving distances** between locations
- Each young adult had **one primary conversational partner** but interacted with at least **two**
- Conversational partners did not provide any **prompting** or **coaching**
- Trained by first author to collect **procedural fidelity data** for interobserver agreement (IOA) purposes

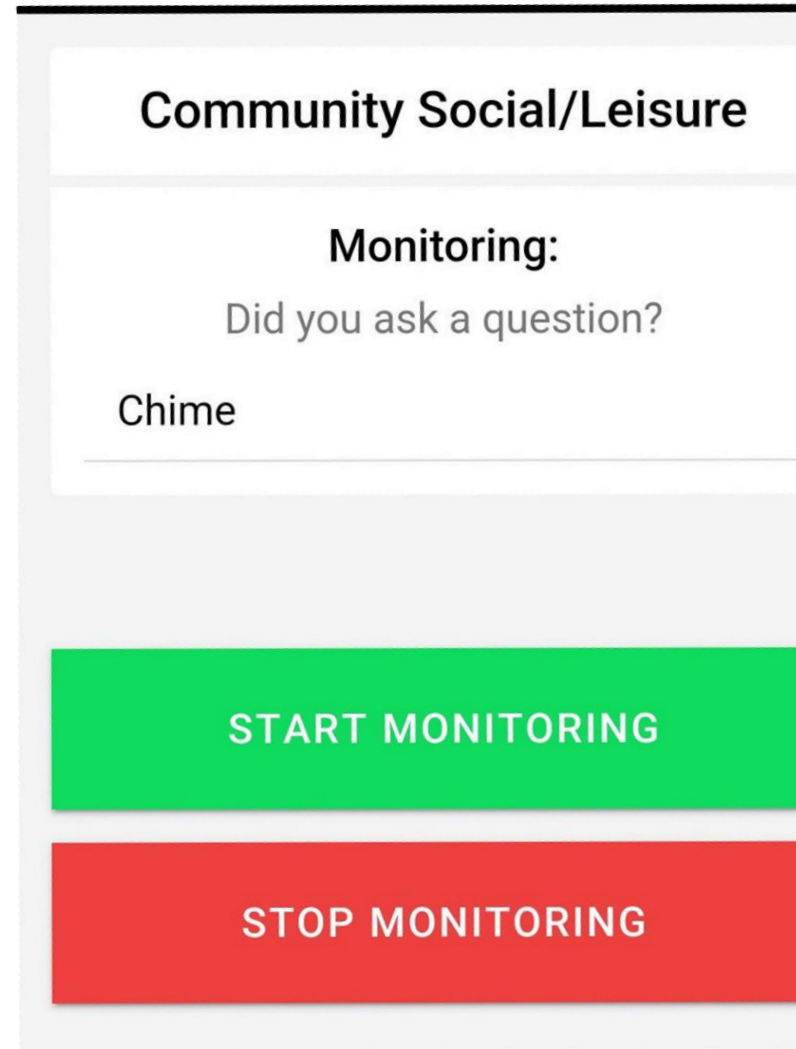
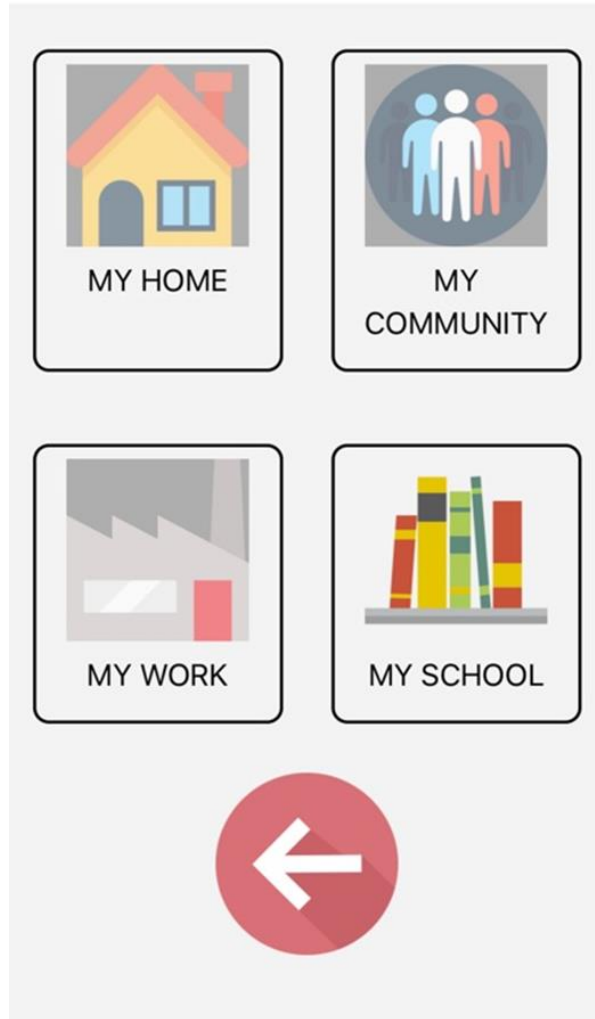


Materials

- I-Connect app (downloaded on Apple iPhone 8 Plus)
 - Timer set to one-minute intervals
 - Prompt: “Did you ask a question?”
 - Vibrate or chime
 - Young adult selects “yes” or “no”
- Visual support tool
 - Paper graphic organizer with list of potential conversational topics
- MacBook Pro laptop with Zoom software for audio recording



I-Connect App Interface



Visual Support Graphic Organizer

Question Topics

- Animals
- Food
- Hobbies
- Sports
- Movies/TV
- Games
- Likes and dislikes
- Family
- Friends
- Favorite things to do
- Places

Did I ask a question?
?

Question Starters

- Do you.....
- Have you.....
- Can you.....
- What is your favorite.....
- Can you tell me about.....

About My Conversational Partner:

Name: _____

Likes: _____

Favorite things/activities:

Facts about my partner:

Write your own questions here:

1. _____

2. _____

3. _____

Independent and Dependent Variables

- The **independent variable** was the **I-Connect application** alone and I-Connect **plus a visual support** (graphic organizer).
- The **dependent variable** was the number of questions asked during the conversational session.



Experimental Design

- We used a **multiple baseline across participants design** (Gast et al., 2018) with I-Connect alone and I-Connect + visual supports conditions.
- Participants exhibited similar behaviors and characteristics (i.e., no or few questions asked during baseline condition).
- Each data point represents a 10-minute conversational session.
- A potential **functional relation** was determined if a minimum of three participants demonstrated an effect.



Procedures: Baseline

- Young adults and conversational partners conversed with one another during baseline with **no access** to the I-Connect app or visual supports
- Young adults spoke on **any topic** of their choice
- Intervention agents or conversational partners gave **no instruction, coaching, or praise** to the young adults
- Conversational partners **did not guide the conversation** and participated as **naturally** as possible.

Procedures: I-Connect Training

- I-Connect training occurred one time, **prior** to the first intervention session, for approximately 15 minutes
- Led by the **first author**
- Author **demonstrated** I-Connect on the iPhone and young adults **practiced** using the app
- First author shared that the focus of the study was to enhance conversational skills by increasing the number of questions asked
- First author asked young adult to select a goal for the number of questions to ask per session

Procedures: I-Connect Alone

1. First author asked young adult to **select a goal** for the number of questions to ask
2. Young adult **opened I-Connect app** and selected “My Monitor” and “My Community” to **begin self-monitoring**
3. Young adult and conversational partner **talk for 10 minutes**
4. I-Connect app **delivered prompt** of “Did you ask a question?” at one-minute intervals
5. Young adult **selected “yes” or “no”**
6. Young adult **paused self-monitoring** at conclusion of 10-minute session

Procedures: I-Connect + Visual Supports

1. First author asked young adult to **select a goal** for the number of questions to ask
2. Young adult completed **graphic organizer** to generate topics and questions to ask conversational partner
3. Young adult **opened I-Connect app** and selected “My Monitor” and “My Community” to **begin self-monitoring**
4. Young adult and conversational partner **talk for 10 minutes**
5. Young adult could reference graphic organizer for specific questions to ask
6. I-Connect app **delivered prompt** of “Did you ask a question?” at one-minute intervals
7. Young adult **selected “yes” or “no”**
8. Young adult **paused self-monitoring** at conclusion of 10-minute session

Procedures: Maintenance

- We conducted maintenance sessions **six weeks** after the I-Connect + Visual Supports intervention phase was complete.
- **Two maintenance probes** were conducted for each participant.
- Young adults **did not** use I-Connect or graphic organizer during maintenance.
- Following maintenance, all young adults received a **copy of the graphic organizer** and were supported in **downloading I-Connect** on their personal devices if desired.

Procedural Fidelity

- Conducted for all sessions
- Two checklists used, depending on intervention condition
 - **Checklist One:** 10 steps, used for I-Connect alone condition
 - **Checklist Two:** Same as checklist one, but with addition of graphic organizer steps, used for I-Connect + Visual Supports condition

I-Connect alone: 98% (range = 88-100%)

I-Connect + Visual Supports: 99% (range = 90-100%)

Interobserver Agreement (IOA)

- The first author and conversational partners conducted IOA for procedural fidelity for a minimum of 30% of intervention sessions across all participants.
- I-Connect alone: 96% (range = 88-100%)
- I-Connect + Visual Supports: 98% (range = 90-100%)

Social Validity

- All young adults completed a **social validity questionnaire** and **brief exit interview** with the first author at the conclusion of the study.
- The questionnaire contained **eight Likert-style questions** in which young adults rated their agreement on statements related to satisfaction with the I-Connect app in community settings.
- The Likert-type questions were on a **four-point scale** (i.e., *strongly disagree, disagree, agree, and strongly agree*).
- Young adults were also asked to describe **what they liked** about the intervention, **what was challenging**, and **which intervention as most helpful** to them.

Results

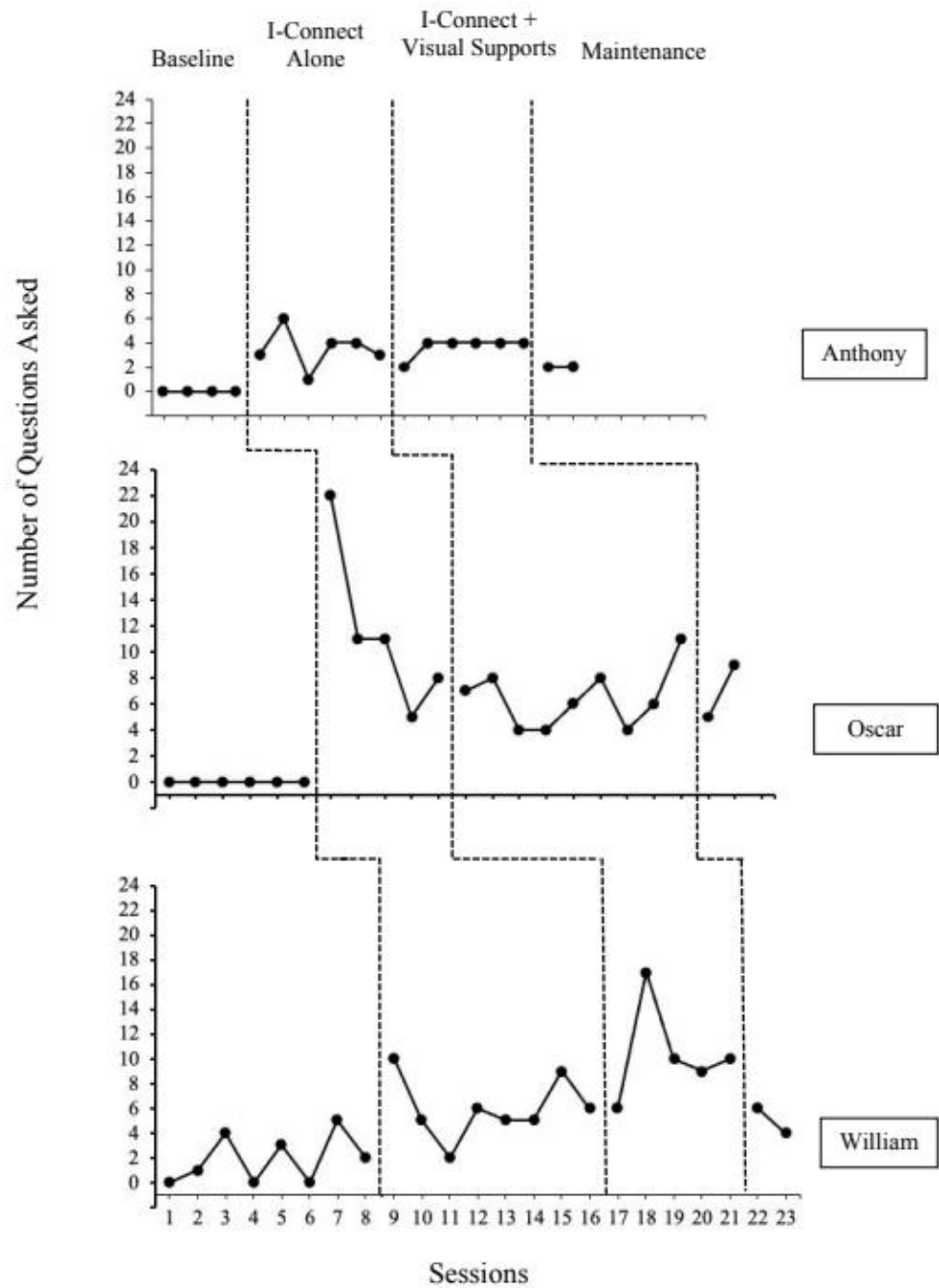
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Participant Social Validity Questionnaire Results

Questionnaire Statements	Anthony	Oscar	William	Mean
1. I liked using the I-Connect application (app) in community settings.	4	3	4	3.6
2. The I-Connect app was easy to use.	3	4	4	3.6
3. I liked the instruction I received for how to use the I-Connect app.	4	3	4	3.6
4. I feel independent when I used the I-Connect app in my community.	3	3	4	3.3
5. I like using the I-Connect app more than other methods of self-monitoring (e.g., using pencil and paper).	4	2	4	3.3
6. I would like to continue using the I-Connect app after the study finishes.	3	3	4	3.3
7. I would like to continue using the I-Connect app in different settings.	4	3	4	3.6
8. I liked using the visual support (i.e., graphic organizer) with the I-Connect app.	3	2	4	3

Note. 1 = Strongly disagree; 2 = Disagree; 3 = Agree; 4 = Strongly agree.

*Sample Questions Asked by Participants During Intervention*

Participant	Sample Questions Asked
Anthony	“Do you think people deserve a second chance?” “Do you wear wool sweaters?” “Are you excited about the holidays?” “Are you having Thanksgiving with your family?” “Can you tell the truth?”
Oscar	“Do you have any video games you like to play?” “What’s your favorite TV game show?” “Do you like bowling?” “Did you see the football game this weekend?” “How was your hike?”
William	“What have you been up to this weekend?” “Do you have any big plans for December?” “Who’s your team?” “How long did you teach elementary school?” “What’s your favorite animal?”

Discussion

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What We Found

- **A functional relation** was observed for I-Connect for all participants.
- The **efficacy** of I-Connect alone versus I-Connect + Visual Supports **varied across participants**.
 - Anthony demonstrated **little difference** between the two conditions.
 - Oscar demonstrated a **higher mean** number of questions asked during I-Connect alone condition
 - William demonstrated **higher responding** during the I-Connect + Visual Supports condition
- **Social validity results** indicated preferences for the different interventions **also varied across participants**.



Contribution to Literature Base

- ❖ Findings from this study extend the **technology-based intervention** literature to teach **social and communication skills**.
 - ❖ Technology-based self-monitoring apps may be considered along with bug-in-ear coaching (Chezan et al., 2020; Mason et al., 2020) and telecoaching (Gregori et al., 2022) to enhance conversation skills of young adults with ASD.
- ❖ This study extends the **I-Connect literature base** beyond on-task behavior to include **social and communication skills**.



Limitations and Suggestions for Future Research

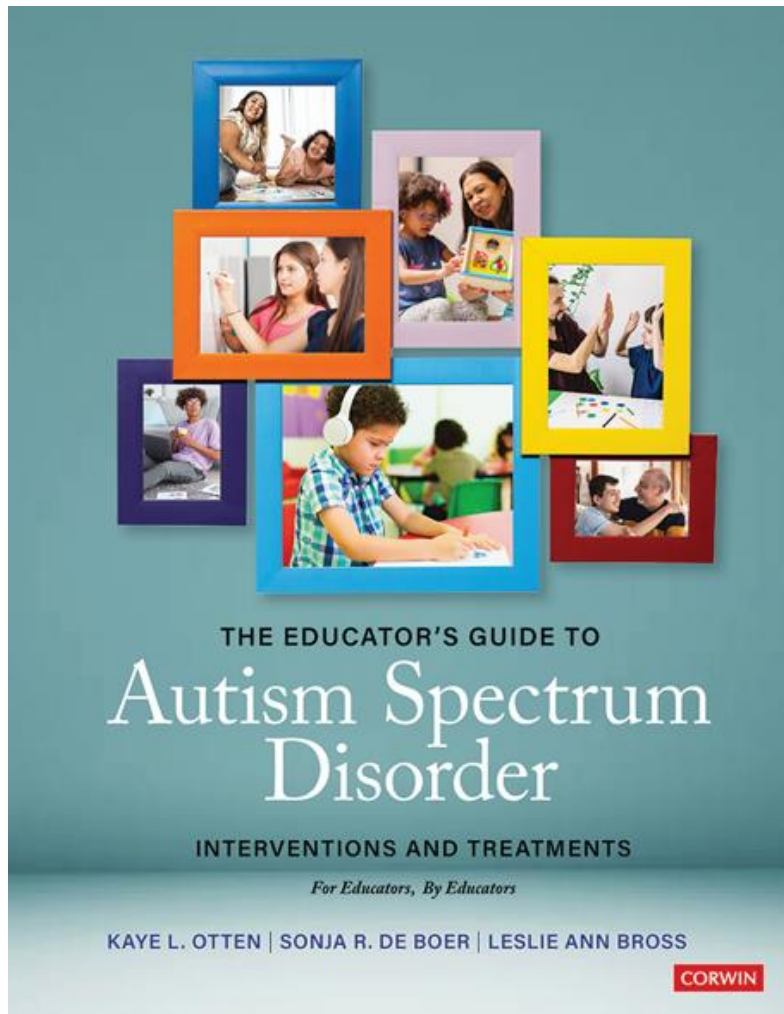
- While a strength of the study is its emphasis on a discrete behavioral skill (i.e., number of questions asked), **more complex social skills were unexamined.**
 - Future researchers may consider **expanding beyond question-asking skills**, based on the goals that the individual with ASD has set for themselves.
- We did not evaluate the **quality** of questions asked. The quality of questions asked varied across participants, throughout the duration of the study.
 - Future researchers may **create a rating system** to evaluate the quality of questions or overall conversation.

Additional areas for growth include **more naturalistic conversational partners, more diverse respondents, and potential blind research studies** in which participants do not know the study objectives.

Implications for Practice

- Educators and practitioners should conduct social skills instruction in **natural environments** based on the **preferences** of the young adults.
- Professionals should embed technology-based interventions in **socially acceptable** and **non-stigmatizing** ways.
- Professionals should work with young adults to identify **social and communication goals**.
- Professionals should **program for maintenance** and consider fading use of interventions and **incorporating a support person** other than a researcher.





The Educator's Guide to Autism Spectrum Disorder

Interventions and Treatments

Kaye L. Otten, Sonja R. de Boer, Leslie Ann Bross

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Thank you for your time and attention!

What questions do you have?

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