SQC™ SUMMER SPRINT 2025

PARTICIPANT FEEDBACK REPORT

Black Opal

CLASSIQ

qBraid

QLITE^X

Contents

Summary

The SCQ Summer Sprint 2025 invited participants from across North and South Carolina to explore online quantum education platforms and share their experiences. The platforms included:

Black Opal from Q-CTRL
Classiq
qBraid
QLiteX

While the sample size was small, the feedback offered valuable insight. Participants showed strong personal interest in quantum tools, though many faced institutional barriers such as limited funding, lack of formal support, and time constraints. They appreciated platforms that offered clarity, ease of use, and opportunities for deeper engagement with quantum topics.

Interactive features, hands-on environments, and structured learning paths were especially valued. Participants also emphasized the importance of good pacing, intuitive design, and a clear connection between the content and real-world applications.

One key insight was that no single platform currently meets all instructional or institutional needs. A mix of learning tools, with different strengths, may be better suited to support diverse learners and use cases.

Many participants expressed interest in adopting these platforms in their own settings, particularly for undergraduate teaching, educator development, and workforce preparation. To support this interest, SC Quantum can offer more than just access. Participants called for help with training, curriculum development, internal advocacy, and technical support. Creating a regional community of practice may also help educators exchange ideas and reduce the friction that often comes with trying something new.

South Carolina Quantum (SC Quantum), a 501(c)(3) established in 2022, brings together academia, entrepreneurs, industry, and government to develop collaborative solutions that strengthen the state's position in a rapidly evolving field. https://scquantum.org

Analysis

Purpose of this report.

This report summarizes findings from the SC Quantum Summer Sprint survey. The Sprint provided free access to online quantum education platforms for educators and practitioners. The goal of this analysis is to document participant feedback, platform specific insights, and forward looking needs, with a focus on how these insights can inform future SCQ programming and partnerships.

1. Methodology & Respondent Profile

Survey format. The survey was administered online after the Summer Sprint. It combined multiple choice questions, Likert scale ratings, and open ended responses about platform experiences and implementation needs.

Sample size. Seven individuals completed the survey. Although this is a small sample, the respondents represent a highly relevant audience for early quantum adoption in education.

Professional context. Most respondents work in higher education. Four of seven primarily serve in college or university settings, with additional representation from healthcare and quantum technology. Roles include university educators, researchers, mid level staff, and technical staff.

Academic disciplines and teaching areas. Respondents reported backgrounds in physics, electrical engineering, biomechanics, and topological materials. Teaching responsibilities center on engineering and physics, with some involvement in computer science and mathematics. Most work with undergraduate and graduate students, and at least one respondent engages continuing or non traditional learners.

Education level and experience. The group is highly educated. A majority hold doctorates, with the remainder reporting bachelors or masters degrees and one high school credential. Age ranges span from under 25 to mid sixties, which indicates that interest in quantum is not limited to early career professionals.

2. General Response Themes

Quantum familiarity. Respondents reported relatively high familiarity with quantum technologies. Half described themselves as fully aware and half as somewhat aware. None selected options indicating lack of awareness. When prompted about specific technologies, all respondents who answered indicated familiarity with quantum computing. A small number reported exposure to quantum algorithms. There was little to no familiarity reported for quantum sensing, quantum communications, or post quantum cryptography.

Technology adoption mindset. Individually, respondents tend to be early adopters. Two reported that they like to be among the first to try new technologies, and four said they adopt early after reading some reviews. No one selected the option to wait for widespread use. This suggests that personal attitudes toward innovation are relatively forward leaning.

Institutional context for advanced technologies. The institutional picture is more cautious. A majority of respondents were not sure whether their institution formally supports training in advanced technologies. Only a small number reported formal institutional support. When asked to characterize the institution's posture toward technology adoption, responses were distributed among early adopter, responsive adapter, cautious follower, and not sure. No one identified their institution as having limited adoption, but uncertainty and caution were recurring themes.

Current technology use. In their teaching and research practice, respondents rely heavily on lab instrumentation, learning management systems, and classical computing. Some reported using quantum computing tools directly. Cloud tools are present for a minority of respondents. This mix is consistent with applied STEM teaching and research in university settings.

Obstacles to implementing new technologies. Participants described institutional and practical barriers that slow adoption of emerging technologies. Common obstacles include limited funding, constrained time to integrate new tools into courses, and uncertainty about institutional priorities. Some respondents noted general limits in resources and capacity. Together, these factors explain why personally motivated early adopters may struggle to implement quantum platforms at scale inside their organizations.

3. Platform-Specific Findings

Participants evaluated one or more online quantum education platforms during the Summer Sprint. The primary platforms reviewed were qBraid and Black Opal from Q CTRL. A few responses also referenced Classiq and QLiteX, but the most detailed feedback focused on the fromer platforms.

3.1. Black Opal from Q-CTRL

Perceived strengths. Feedback on Black Opal centered on its interactivity and pacing. Respondents described the platform as highly interactive, with short microlessons that feel approachable. Each lesson includes at least one interaction, which made progress feel rewarding. One respondent noted that the structure and pacing make learners feel good as they move through the content. Clear content and strong visual design also received positive ratings.

Perceived weaknesses. Critiques of Black Opal focused less on content difficulty and more on the nature of some interactions. A respondent observed that a few interactive exercises felt forced. There was also a desire for more advanced topics, suggesting that while Black Opal is strong for introductory and intermediate learners, power users may eventually outgrow the content.

Use cases and target learners. Respondents saw Black Opal as suitable for high school, undergraduate, and graduate learners. Use cases centered on self paced learning and potential integration into undergraduate curriculum. Educators recognized its value, yet did not yet describe it (or other platforms) as a complete solution.

3.2. qBraid

Perceived strengths. Respondents appreciated qBraid's integrated environment and connection to real quantum hardware. They highlighted features such as integration with a quantum computing back end, an integrated cloud environment, and battery included convenience. The scaffolded structure, described as moving from Qubes to Qints, was noted as a helpful way to build skills over time. Several respondents described the content as clear and concise.

Perceived weaknesses. The most detailed critique focused on the learning curve. One respondent noted that the training becomes steep once quantum topics and underlying mathematics are introduced, which slowed progress within the timeframe of the Sprint. Others mentioned connection speed and a general sense that the platform featured longer stretches of text or video.

Use cases and target learners. Respondents saw qBraid as suitable for undergraduate and graduate learners, and for educators who want to bring real hardware access into the classroom. Potential uses included self paced learning, employee upskilling, and elements of undergraduate curriculum. There was limited indication that respondents would use qBraid directly for K 12 or corporate training at this stage.

3.3. Comparative Feedback & Ideal Features

Comparative assessments. A subset of participants evaluated both qBraid and Black Opal. Among these respondents, there was a clear pattern. Black Opal was preferred for interactive learning and user experience, while qBraid was valued for the integrated environment and direct access to quantum hardware. One respondent stated that if they had to choose one platform for future use, they would select Black Opal because of its microlessons and inviting pacing, noting that qBraid presents more walls of text and long videos.

Ideal platform configuration. When asked to imagine an ideal platform, respondents combined features from both environments. They proposed a solution that mixes the interactivity and microlesson format of Black Opal with the robust computing environment of qBraid. This reinforces the idea that SCQ may not need to champion a single platform, but can instead curate a complementary stack for different stages of learning.

4. Forward-Looking Uses & Support Needs

Planned uses of quantum education platforms. Respondents indicated several ways they might use the platforms in the future. The most common were self paced or explanatory learning, employee upskilling and reskilling, and professional development for educators and staff. Some respondents mentioned integrating content into undergraduate curriculum or using the platforms for STEM outreach and public engagement. There was almost no immediate interest in K 12 curriculum, formal graduate level courses, or research applications. This suggests that near term adoption will focus on foundational exposure rather than deep specialization.

Interest in implementation. Six of seven respondents expressed interest in implementing one or more of the Summer Sprint platforms at their institution or organization. Half of these indicated a desire for more time or information before making a commitment, and half felt ready to explore implementation at this time. Only one respondent reported no interest in implementing the platforms. This indicates a positive opportunity pipeline for continued engagement.

Support elements required for adoption. When asked which support elements would be most useful in advocating for platform adoption, respondents highlighted several needs. Funding was the highest priority, with a majority ranking it as the most important support. Curriculum building support was also important, with respondents spreading their rankings across moderate to high importance. Technical support and troubleshooting assistance were seen as necessary to lower the barrier for educators who do not have deep quantum expertise.

Promotional materials and leadership facing presentations were valued as tools to make the case for adoption inside large institutions. Peer to peer forums and communities of practice were also viewed as helpful for sharing experiences and practical tips.

Content and design preferences. Across platforms, participants emphasized the importance of clear content, usable interfaces, and effective support tools. In ranking exercises, clear content tended to score highly, and interface quality and tooltips or help features were consistently recognized. In open responses, several participants noted that quantum topics often feel daunting and complex to new audiences. They stressed the need for material that feels approachable, digestible, and connected to real applications.

Additional comments on quantum literacy. In final open comments, respondents reinforced that the biggest barrier to broader interest in quantum is perceived complexity. Several noted that people see quantum as a large, abstract topic at the bleeding edge with unclear practical relevance. They urged that platforms and programs make quantum feel more approachable and grounded in real world examples. One respondent suggested that more projects and connections would help learners see the relevance and build confidence.

5. Participant & Institutional Insights

Institution type and size. Most respondents work in large organizations with more than one thousand employees. Within higher education, they represent research universities, undergraduate institutions, and regional universities. This scale and diversity mean that adoption efforts must consider complex internal structures and multiple layers of decision making.

Roles and influence. Respondents serve as educators, researchers, and technical staff. Many work directly with students and have responsibility for curriculum choices or lab activities. However, they may not be the final budget or strategy decision makers. This reinforces the need for SCQ to equip these champions with materials that can persuade leadership.

Student populations. The primary student audiences are undergraduate and graduate learners, with some engagement of continuing and non traditional students. High school and K 8 populations were essentially absent from the sample. For the near term, this points to undergraduate focused programming as the most promising channel for quantum literacy efforts.

6. Directives for South Carolina

Accessibility is central. Quantum content must feel less intimidating and more digestible for new learners. Platforms that combine short microlessons, interactivity, and clear explanations are likely to see stronger engagement. SCQ can prioritize partners and content that support this kind of experience.

Peopleware and support matter as much as platforms. Respondents repeatedly emphasized funding, curriculum support, technical help, and advocacy materials. This aligns with SCQ's emphasis on peopleware. Adoption is not primarily a technology problem. It is a people and capacity problem. Programs that package platforms with training, templates, and leadership facing narratives will have a greater chance of success.

Champion driven but institution constrained. Individuals who participated in the Sprint are personally inclined to adopt new technologies, but they operate within cautious institutions. SCQ can position itself as a convening and support partner that helps these champions navigate internal processes and build coalitions for change.

Hybrid platform strategy. Feedback suggests that no single platform meets all needs. A combination of highly interactive frontline learning with an integrated environment for hands on experimentation may be more powerful than a single tool. SCQ can explore program designs that sequence or bundle platforms according to learner level and use case.

Focus on undergraduate entry points. Given respondents' roles and student populations, the most immediate opportunities lie in undergraduate coursework, self paced modules, and professional development for educators. K-12 and advanced research integration may follow later once foundational capacity is built.

Building a community of practice. Interest in peer to peer forums suggests that educators want to share what works and learn from each other. SCQ can consider creating a regional community of practice for quantum education, anchored by the platforms piloted during the Summer Sprint.