

Scaling Just-in-Time Support using Practice-Based Curriculum and Virtual Learning Communities

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Background Information

Dr. Ryan Meuth and Phillip Miller are Senior Lecturers in computer science at Arizona State University. Among their responsibilities is the introductory course, **Principles of Programming Online with enrollments up to 1,000 students**. Maintaining high levels of engagement and support is tricky in any class this size, but it was particularly challenging when teaching this class in a virtual format.

These faculty needed new ways to:

- keep track of which students were struggling,
- find time to answer each student's questions, and
- encourage students to engage with and support each other.

What We Did

To combat this challenge, the team envisioned an instructional approach where **community based, just in time support was integrated directly into the digital curriculum**. This integrated experience would offer solutions to common questions so many students could find answers and keep progressing without faculty intervention. The community model would also create an experience where students could learn from and support each other across many aspects of the course material. This would free up faculty to spend more time on higher level interventions.

How We Did It

1. Practice-Based Curriculum



zyBooks, an interactive digital curriculum that emphasizes practice-based learning, was the primary instructional material. This allowed students to practice skills as they were taught so they could quickly identify concepts they didn't fully understand.

2. Learning Communities



InScribe's digital community platform was deployed to create a virtual space where students could connect with peers and faculty to ask questions, find answers, and share ideas. Classmates and faculty could provide answers and students were encouraged to help each other when they could.

3. Integrating for Success



zyBooks and InScribe were integrated so students had one-click access to support throughout the curriculum via a "Need Help" link. Anytime a student got stuck, they could launch the learning community to view supplemental resources and previous questions from peers, or to post a new question to the community.

4. Smarter with ROSI



As the student entered their question, a community bot called ROSI surfaced a set of recommendations that match what the student was typing. This created a second opportunity for students to find relevant help before posting a new question.

5. Scaling On-Demand Support

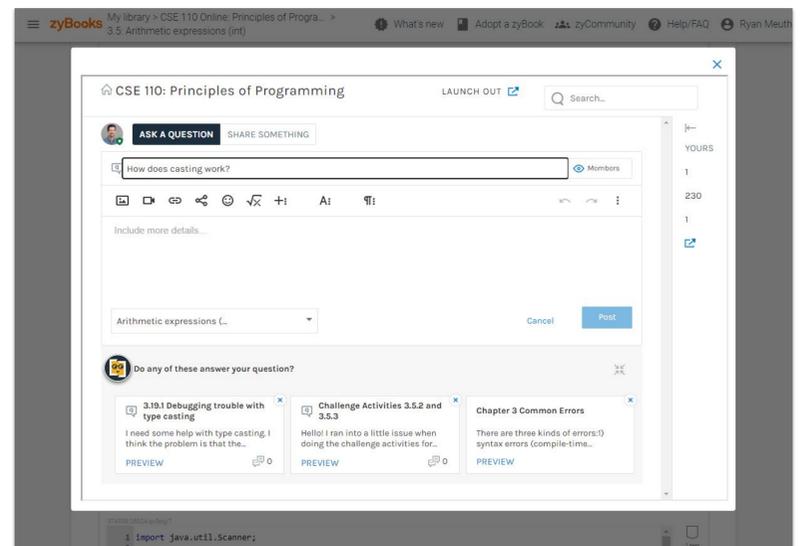


When new questions were asked, they were automatically tagged to the relevant zyBooks topic and added to the community repository. If many students had the same question, a single answer could be shared to them all, saving faculty time and helping students connect to solutions more quickly.

Results

The integrated model of curriculum + support allowed students to work independently, while never learning alone.

- There were **850 active members** in the learning community.
- On average, **20-30 questions were posted each week**, an **85% decrease** over previous semesters. (*Prior to this model, the faculty were managing 20-30 questions per day.*)
- On average, there were **answers were viewed 750 times per day**, for a total of **40,774 views over the semester**.
- The **average time to response** for a new question was **1hr 28min**.
- In an end of term survey, several **students called out the InScribe community as something they specifically liked about the course**. No students indicated that they did not like it. (*This is compared to previous tools used for support which MANY students said they disliked and NO students indicated they liked.*)



Conclusions

- Integrating support directly into a practice-based curriculum helped students identify areas of confusion quickly and encouraged them to reach out for help.
- Students valued the ability to see classmate's questions and learned from the answers provided.
- Answering questions in shared spaces dramatically reduced the number of repeat questions, improved time to response, and cut down on the amount of time faculty spent answering emails.
- Students were intrinsically motivated to help each other, and often able to provide high quality answers to their peers.

Future Directions

- How can we continue to minimize the "time to answer" for students?
- How can we determine the value of a specific InScribe post? How can we make each post more valuable to students?
- Are there differences between ASU Online and Hybrid student use of InScribe?
- Can we leverage data from the zyBook to identify struggling students and proactively serve up interventions and support materials that are likely to help?

Contact & Additional Information

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