

Analysis of the Computer Science
Teachers Association's Online Community

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Aminata Edith Adewumi
Terri Evans
Daniel Ward

New Jersey City University

Introduction

Online Communities, such as the Computer Science Teachers Association (CSTA), provide individuals and members, whether being at a professional or social level, with an outlet for sharing opinions, ideas and activities to like-minded individuals with a similar interest or goal. CSTA provides their members with a venue for productive conversations about a set of topics related to computer science instruction, recruitment and advocacy. It is incumbent upon online community managers of this organization to effectively develop, design, and facilitate an online community in order to foster a productive collaboration with the mission of empowering, engaging and advocating for K-12+ CS teachers worldwide. This mission is at the forefront of all interactions.

Members of CSTA are able to develop additional knowledge and skill sets with active involvement in online communities. Behaviors of the professional members of this organization are likely to change which affects the professional practice that takes place in the classroom, their view of the importance of continuous improvement and encourages professionals to self-assess their current practices and take ownership of their practice (Humanada-Ludeke, 2013, p. 104). Computer Science educators are welcomed K-12+ and they participate in a community of practice that learns from and with one another, through formal and informal activity, and from outside and inside the community (Wenger, White & Smith, 2009). In addition, Lupplicini (2007) states an educational online community should first address the issues an educator face, then mentioned their achievements to build the community, develop a common trust, have a sense of membership and support, and create a sense of belonging (Lupplicini, 2007).

The Computer Science Teachers Association (CSTA) was developed in order to provide global support for computer science teachers and to provide a platform to discuss ideas and activities relating to the instruction of the Computer Science discipline .(Computer Science Teachers Association (n.d.). CSTA was founded by the Association of Computing Machinery in 2004, and is comprised of 25,000 members from more than 145 countries (CSTA, n.d.). Those members are made up K-12 teachers, higher education faculty, as well as, government and industry supporters.

Online Community Goals

The purpose of the CSTA's online community is to grow a collective community of Computer Science educators in order to support, promote and improve the practice of teaching and learning by way of Computer Science teacher members. Three online community managers of the CSTA online community were interviewed in an effort to analyze more detailed information on the maintenance and promotion of the community (see Appendix B). The interviewees were asked about the specific goals of the online community in order to determine the specific criteria which depict the objectives of the online community (see Appendix A).

Claudette Guy, the current President of the Computer Science Teachers Association of Central New Jersey region explained that various platforms are used to disseminate specific types of information throughout the community. For example, Twitter and Facebook are used to disseminate information in regards to agendas for meetings and conferences and information regarding advocacy events pertaining to a Computer Science education requirement in the curriculum (see Appendices C and D). Social Media is also used to promote the mission of the community and to recruit individuals who are interested in connecting with other professional in

the field of Computer Science education. For instance, with 7920 CSTA Facebook members and 82 from CSTA NJ (Appendix D), members are able to connect and share various CSTA Annual conferences. Guy also explained that CSTA's online community is committed to providing members with resources pertaining to teaching best practices in relation to various Computer Science topics used in classrooms throughout the region. These goals contribute to strengthening Computer Science educators by improving their teaching practices and capacities to better serve the student population. As Eichler (2007) explains, this is a sense of community building as the organization is "forming collaborative partnerships among [stakeholders] to strengthen their internal capacity to solve their problems" (p.6).

Community Interventions and Actions

Various actions and methods of the CSTA are taken and utilized in order to meet the aforementioned goals and mission of the organization. Guy explains that social media platforms are regularly used for disseminating information and synchronous and asynchronous tools have been adopted in order to share information in a scalable fashion (see Appendices C and D). She expressed concerns about the success of the synchronous online sessions as participation rates have been low, so platforms such as Google Groups have been formed in order for members to collaborate and share relevant resources. Guy explains that the physical presence of members in a physical gathering space would be more beneficial for its members. Various applications are used for a-synchronous communication and collaboration. Google Applications, such as Google Docs, is often used by CSTA in order to assist members with collaborating on initiatives and projects (see Appendix E). Online polling applications, such as Doodle, are also used in order to collect membership data on areas of interest and for possible future initiatives. Integrating use of

technology, finding resources and support and bridging organization boundaries are a natural outcome of taking care of a community (Wenger, White & Smith, 2009).

As Lave and Wenger (1991) explain that communities of practices require transparency of the artifacts involved in a given community (p.103). In CSTA's online community, managers of the venues, including all platforms being used by its members (social media, document repositories, survey data, etc.) must be visible by all of the community members in order for them to become legitimate and effective participants. Therefore, limiting online communities to asynchronous communication, as suggested by Guy, may be a detriment of the goals of the community.

Community Metrics

Metrics, collected from any source or from the platforms used, would provide online community leaders with important information on the growth or decline of its community and would provide a window to the activity levels of its members. Claudette Guy explained that the organization does not formally assess the effectiveness of the CSTA online community. The community managers do, however, review the number of members who attend online collaborative sessions, the total number of online community members over a period of time as well as review the number of national members who attend regional online collaborative sessions. CSTA leadership has discussed the examination and analyzation of this data.

Overall online community usage and membership data is helpful, but data from various areas and sources are needed to effectively assess the trajectory of the organization's future growth and effectiveness. DePew and Hewett (2015) explain that collaborative online environments should be assessed and evaluated on the following criteria: facilitator presence,

strategies for building and encouraging conversation, responses, environment organization, evaluation and the technology being used in the environment (p.151). CSTA should implement additional processes to measure the activity and usage of its members in all areas of the community platform to ensure that the members' needs are being addressed.

Conclusion

Traditional communities, where like-minded individuals gather to share ideas and collaborate on specific topics of interest, would take place in agreed upon physical locations. Modern technologies offer communities alternative modalities for connecting, networking and growth. The *Computer Science Teachers Association* has taken advantage of various technologies in order to enhance and scale outreach in order to meet its objectives. The online community also has areas that could be improved to assure sustainability, growth and additional benefits for its members.

CSTA utilizes various social media, repository and collaborative platforms in order to encourage shared governance, information and interests. A stronger use and more willingness to use online synchronous technologies would allow for a more personalized interactions amongst CSTA members. Community managers would be able to monitor conversations and interject with possible plans to address members' concerns, ideas for future topics and provide opportunity for future projects.

Metrics can be utilized in various areas to ensure that all components of the online community are operating at an optimal level. Currently, CSTA is utilizing analytics in a limited fashion. The number of members attending online forums, the number of national memberships and individual regional memberships. The organization has an opportunity for growth and

improvement by collecting data on online community activity among members at the individual, regional and national levels. This would allow CSTA managers to focus their efforts on addressing members' needs and areas where online participation is low or remains stagnant. Furthermore, surveys requesting data from members on the current status of online community components should be disseminated. This valuable information would provide insight on areas of weakness and opportunities to strengthen the community in numerous areas.

Collaboration

Edith Adewumi

- Contacted multiple online community managers and requested interviews.
- Developed invitation to prospective online community managers.
- Secured and Interviewed one online community manager from the National Council of Teachers of Mathematics (NCTM), whose mission was to support for high-quality mathematics teaching and learning for all scholars (NCTM, n.d.).
- Edited written project.

Terri Evans

- Contacted multiple online community managers and requested interviews.
- Secured and interviewed three online community managers from the *Computer Science Teachers Association*.
- Edited written project.

Daniel Ward

- Developed set of interview questions
- Contacted multiple online community managers and requested interviews.
- Compiled interview data into the written project.

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Appendix A

Interview Questions

Message to send:

Dear (name of individual or Online Community Name)

I am a doctoral student at New Jersey City University for the Educational Technology Leadership Program, I am presently doing a research about Online Community. As a proud manager of your community, I am asking for your permission to do an interview about your community.

If yes, can you please help me answer the following questions below?

Interview Questions

- 1) What are you seeking to accomplish through your online community?
- 2) What are the specific objectives?
- 3) What actions have been taken to meet these objectives?
- 4) What specific tools are used for collaboration amongst members?
- 5) How do you assess the effectiveness of your community in order to understand the progress of the community (turn around time, customer satisfaction, number of members, types of interactions, speed of responses, etc.) you able to share the metrics used to measure the effectiveness of your online community
- 6) How do you encourage participation amongst members of the community?
- 7) What types of interactions take place in your community?
- 8) That technology tools are utilized in order to foster collaboration?
- 9) How does the community keep communication strong or effective?

Sincerely,

Appendix B

Interview Responses

Claudette Guy, Computer Science Teachers Association NJ Central, President, 2018-2019

Terri

What are you seeking to accomplish through your online community? What online communities do you have?

Claudette

We have the google group and also a facebook page, and a twitter presence. The most active is the google group. And there is a web page

Terri

What are the specific objectives?

Claudette

The purpose of the webpage and the facebook page and twitter is dissemination of information like agendas for learning experiences or what is going on for state advocacy and promotion if someone is searching for a community of computer science teachers we want that they will find the organization. Information, letting people know and recruitment(members). The google group is more closed, you have to join but everyone is approved. It is more of a community. Like the 60 minutes segment that was sent, it is a place for people to ask questions For example, if I want to teach python what are the best resources and for educators to think of equity and what is going on nationally. This may not be related but the past meeting we tried to show the meeting live on the website or maybe use a link through the google group. The recording did not happen but some people canceled to try to watch it online. I have been thinking alot about is it a limitation. I don't want online instead of people being together so much happens during the socialization time.

Terri

What specific tools are used for collaboration amongst members?

Claudette

From the leadership point of view , and the advocacy level we use google hangout, zoom for the larger group , google docs for collaborative work and the message feature while we are all online together and we use doodle poll.

Terri

How do you assess the effectiveness of your community in order to understand the progress of the community?

Claudette

This is not formally done. Informally we feel it is successful if people show up at meetings. The size of the google group it is growing which makes it feel like we are reaching people. A good measurement would be how many people are in the group vs how many show up to the meeting or how many are in the group and how many are actually national members. The leadership has discussed examining this information.

Terri

How do you encourage participation amongst members of the community?

Claudette

Sending interesting and helpful information and making it a safe place for new teachers to ask questions. We are always trying to make sure questions are answered within 24 hours.

Terri

What types of interactions take place in your community?

Claudette

Answering questions, discussion of current events, promotions of hackathons, grants, professional development, and we are adding recognition and district awards. We recognize the great work teachers are doing.

Terri

How does the community keep communication strong or effective?

Claudette

By constantly putting interesting things and what people need like summer camps, hackathons....making sure it is not a waste of people's time. (C. Guy, phone communication, March 7, 2019)

Interview Responses

Kim Smith, Computer Science Teachers Association NJ, Webmaster

Terri.

How did you come about your position?

Kim

I am a volunteer. Officers are voted in, but we did not like the national presence website so NJ made their own.

Terri

What are you seeking to accomplish through your online community?

Kim

The number 1 goal was to lead the country in getting computer science access for all students in the state of NJ. That meant a requirement for all schools. It has been a legislative journey as bill after bill was written, revised and now the law is effective. There is still success as CSTANJ recently received 2 million dollars more for professional development for teachers. The website came about because the national website was hard to use. It requires a login and you had to sign up and the chapters were separate. In NJ there are 3 chapters, North, Central and South and they like to do things together. They meet online, they meet face to face and they do the advocacy together. The site is to keep people abreast of the advocacy so everyone one knows where CS is and what is going in NJ in relation to the laws. Each of the chapters don't have someone that can log onto the national cite and pull information so I stepped in. The chapter president asked if anyone is willing to video and keep up website because it is too much for the President. I tried to video tape this year but I am not sure if they want to keep that. Many cancelled coming to the face to face when the option to watch remote was available. In the the future maybe a google meeting but they do want people face to face and talking to one another and accessing resources.

Terri

What are the specific objectives?

Kim

Dissemination of information. We have the google group for day to day and I will pull out info from those conversations and put them on the web or add recommendations from leaders. I want to see chapter presidents pictures. The national site does not do that and we want all of the NJ chapters in one place and we cannot do that with the national site either.

Terri

What specific tools are used for collaboration amongst members?

Kim

The Google group, Google sites, and at times Google meetings and Zoom, and face to face meetings and at all the meetings Daryl will attend PD and meetings to give updates in person on legislative progress with the state of New Jersey.

Terri

How do you assess the effectiveness of your community in order to understand the progress of the community?

Kim

There is no measure. We can tell some by numbers of people involved in google group conversations, and meeting participation and discussions with the national organization.

Terri

How do you encourage participation amongst members of the community?

Kim

Reply to emails and emojis, shout outs at meetings and online for people doing cool things in their classroom. We encourage grant submissions. The more people see it the more people do it. The more people post the more people reply the more involved they get.

Terri

What types of interactions take place in your community?

Kim

Face to face, Google group, virtual meetings, professional developments and we have college liaisons and partnerships with TCNJ, KEAN and Rutgers, The group was in the past mostly high school. Now CS is targeting middle school and lower grades. CSTA is also reaching out to CS teachers in lower grades or to teachers who want to add CS to what they are already teaching.

Terri

How does the community keep communication strong or effective?

Kim

The numbers have increased face to face. I think it is because the 3 chapters are working together to share information. Now we are trying to figure out how to meet face to face or meet online or both to accomodate more members in a discussion. (K. Smith, phone communication, March 8, 2019)

Interview Responses

Adam Michlin, Computer Science Teachers Association NJ Central , Past President 2017-2018

Terri

How did you become involved with CSTA?

Adam

I was a volunteer. I was President when no one else wanted it. When they were looking for officers, I was the only one who did not step back. Officers are now voted in, but we did not like the national presence so NJ made their own. I implemented a nominated K-8 position to reach out to folks interested in collaboration in the lower grades.

Terri

What are you seeking to accomplish through your online community?

Adam

I focused on erasing the division between north, south and central New Jersey. All of the emails and twitter was separate and I was finding we were reproducing the same work. Some events might be integrated. With the social media mailing list everyone gets invited to everything. Before not everyone would hear about things and people on the borders missed options. Some people live near Pennsylvania or Connecticut and they don't necessarily get information for events in those areas. Integrated social media takes care of that. Now everyone has access to all of the information.

Terri

What actions have been taken to meet these objectives?

Adam

Integration of the social media was one thing I wish for as a member. There is still some separate accounts for the different chapters. I came from Florida and in Florida there is no division. It was all virtual and it was one state. I liked reaching out to the other presidents. There was a big event in Philly and state wide convention in Philly. Some parts of New Jersey are very close to Philly. Members need to know what is going on. The point is this. It is information that everybody wants. CS education is rarely isolated, so I would love to see more of the walls broken down.

Terri

What specific tools are used for collaboration amongst members?

Adam

The biggest thing preventing collaboration is we don't know what we are doing among the groups. I signed up for Philly and Connecticut list. We need to find more ways. We have a nationwide mailing list.. It goes back to when CSTA was under the ACM umbrella. It is not usable for email to be sent every 4 months or so. National will send to leaders and say send to members. CSTANJ rejected the infrastructure for efficiency reasons. There are maybe 17 mailing lists for NYC, PA and CT to find out what is going on and my biggest thing as a member is to look at the resources we are using and not using and look where we can combine and realize most of the information we receive we send out to the members.

Terri

How do you assess the effectiveness of your community in order to understand the progress of the community?

Adam

I was tasked with reaching out to more people. We had a lot of people not coming to meetings and alot coming to meetings that weren't members. People did not know it was free. I worked a lot with nationals and the database to get that sorted out. I was reaching out to K-8 community. They did not feel like they were welcome so I was tasked with outreach to that community because the outreach was originally high school and college. We have experiments with shifting locations and dual meetings.

Terri

How do you encourage participation amongst members of the community?

Adam

It is about asking the right questions, listening and following up, talking to the members and change what you are doing based on that information. My biggest concern is the teacher who is a math teacher and has to teach 1 period of Computer Science. That is where I think the key to expanding CSTA is... to get those that are not a pure CS Teachers.

Terri

What types of interactions take place in your community?

Adam

My biggest was I was responsible for was the interactions with the colleges. Connecting people is a lot of it. Someone needs to coordinate it all. Collaborating between people who want to do good and focusing it in a way that everybody wins.

Terri

What technology tools are utilized in order to foster collaboration?

Email is the biggest, but we pushing chapters to go to the website. I am concerned about that people are moving from email and are instead creating constant websites. They went to a message forum. People don't have time to log into several different websites. I find it is creating more walls. I don't see snail mail going away, I don't see social media making email go away. Social media is a bite size community. It is more off the cuff. People are more likely to be emotional with their writing and email seems to be more civilized. Get rid of lists by combining and not replacing them with wall gardens. I believe social media plays a different role. I feel it is more about getting the word out but I find it more of a one way thing. The Facebook page is getting information out.

Terri

How does the community keep communication strong or effective?

Adam

A lot of it has to do with someone who is constantly providing content. So when things get quiet there is something to talk about. It is a lot about giving information in a timely manner. This is most important. (A. Michlin, phone communication, March 8, 2019)

Appendix C

CSTA's Twitter Feed

CSTANJ
@CSTANewJersey
cstanj.org
Joined August 2016
1 Follower you know

Tweets 52 | Following 28 | Followers 92 | Likes 3

Tweets | Tweets & replies | Media

CSTANJ Retweeted
Ms. Santella @RHS_StatsMama · 9 Apr 2018
Please share so we can reach as many computer science teachers in the NY/NJ/PA area!! @mobilecsp @CSTANewJersey @CSTASNJ DM me if you have any questions. Thanks! #CS4All

Mobile CSP @mobilecsp
@CSTANewJersey @CSTASNJ Teachers may be interested in information sessions this week about @mobilecsp #PD @KeanUniversity this July! Sign up for an info session at goo.gl/forms/Pv3IQcpg... #APCSP #CSforAll

Appendix D

CSTA's Facebook Account



The image shows a screenshot of the Facebook profile page for the Computer Science Teachers Association (CSTA). At the top is a large yellow banner with the CSTA logo in black, which consists of the letters 'CSTA' in a stylized font followed by a plus sign. Below the banner is the profile picture, a circular logo with a white background and black geometric shapes. The name 'Computer Science Teachers Association' is displayed in bold black text, followed by 'Nonprofit Organization' in a smaller font. To the right of the name is a 'Like' button with a thumbs-up icon. Below the name is a blue 'Sign Up' button with a pencil icon. To the right of the 'Sign Up' button are two grey buttons: one with a speech bubble icon and another with three dots. Below these buttons is a line of text that says 'Carol and 7,919 others like this' next to a small circular profile picture. At the bottom of the page is a navigation bar with the following options: 'Home' (highlighted with a blue underline), 'About', 'Posts', 'Photos', 'Events', and 'Videos'.

Like Follow Share ...

CSTA New Jersey shared a post.
January 23 · 🌐

Check this out. [Code.org](#) is using the video made by Building CS in NJ at TCNJ summer training. Nice !!!

Code.org is with The College of New Jersey.
January 23 · 🌐

Applications are open for the 2019–20 Professional Learning Program for middle and high school teachers! If you've ever wanted to teach computer science, now is ...
[See More](#)

3,599 Views

Like Page

Home
About
Photos
Posts
Community
Info and Ads
Create a Page

Appendix E

CSTA's Use of Online Repositories

