Discussion of the effectiveness of the national accreditation process of secondary science education programs, a pilot study

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ABSTRACT

This paper reflects upon a discussion via wiki, face-to-face, and telephone concerning the processes involved in the national accreditation of teacher education programs in science. Specifically, five professors and administrators from public and private institutions, across the nation were involved in the discussion. Our collective reflections and a plan put forth to see if other people had the same expectations is discussed in this paper. The study created the basis for a new study to be developed concerning whether other professionals were thinking about the process similarly.

Keywords: Accreditation, Science Education, National Accreditation, University Accreditation

BACKGROUND

The National Council for Accreditation of Teacher Education (NCATE) was founded "in 1954 to accredit teacher certification programs at U. S. colleges and universities. NCATE is a council of educators created to ensure and raise the quality of preparation for their profession. NCATE is recognized by the U. S. Department of Education as an accrediting institution (National Council of Accreditation of Teacher Education)."

There are currently two national teacher education accrediting organizations, NCATE (National Council of Accreditation of Teacher Education) and TEAC (Teacher Education Accrediting Council). Accreditation is voluntary in some states and mandatory in others. In some states, California is an example, the state is creating their own accreditation. NCATE's president is James Cibulka and TEAC's is Frank Murray. TEAC's website lists staff members, board members and organization affiliates; whereas, NCATE's website does not list staff and it is difficult to find board members; however, the site does list the many organization affiliates.

The boards of the Teacher Education Accreditation Council (TEAC) and the National Council for Accreditation of Teacher Education (NCATE) have consolidated into a new agency, the Council for the Accreditation of Educator Preparation (CAEP). CAEP will focus on teacher candidates performance and on standards as supporting evidence. As people who have completed the NCATE process, we felt it important to discuss our work and to assess if accreditation activities did help us improve our programs and/or help us understand the strengths and weaknesses in our programs.

METHOD

For this study we chose to work in a qualitative action research tradition that focuses on multiple case studies. Qualitative case study (Bogdan & Biklen, 1998, 2007) was chosen because we needed faculty and administrators expertise in the national secondary science accreditation processes. Choosing specific faculty members and administrators so that patterns stand out is purposeful sampling (Bogdan & Biklen, 1998, 2007). We were able to use purposeful sampling in order to keep the research focus at the forefront (McMillan & Schumacher, 1997, 2006). The criteria for the purposeful sampling were faculty member or administrative expertise or oversight of the process and/or writing, of a national secondary science accreditation report. The faculty members and administrators were specifically selected for the project because they met the criteria established for this study.

Another reason for choosing qualitative case study was because we wanted to look at specific cases in depth. Case study was utilized "precisely because the researcher wishes to understand the particular in depth, not to find out what is generally true of many" (Merriam, 1998, p.208, 2009). We specifically kept careful notes about our work with the faculty members and administrators and recorded information on a case-by-case basis.

There were 5 faculty member and administrators who regularly replied to a wiki with responses about the questions for the formation of the survey. We collected data in the traditional three formats of notes about experiences with writing the national

secondary science accreditation reports (wiki replies), face-to-face interviews, and artifacts, review of national secondary science accreditation reports, (Bogdan & Biklen, 1998, 2007).

Finally, we chose case study for the purpose of motivating and facilitating development and improvement of science teacher education programs. Case studies are often more motivating for researchers, but specifically, "...they promote better problem solvers and critical thinkers" (Ertmer, Newby & MacDougal 1996, p. 720). It is our hope that our science education faculty members will use this research as a basis for self/critical reflection. We feel that due to the extremely complex political structures involved with this study that qualitative case study best suited our needs.

PROCEDURE

In the summer of 2009, one of the researchers proposed having discussions with five faculty/administrators across the nation concerning NCATE accreditation of science education and its process. This pilot study was preparation for a national reflective study. The researcher identified four faculty members from public and private universities and contacted each requesting time for the discussion and the possibility of personal visits. She also worked with her University information technology personnel in order to design a wiki that was used for both focused discussions and for subsequent article writing. Times for visitations were scheduled for the summer. During the first visit, the researcher designed a questionnaire to use for all the faculty interviews (see appendix A). The questionnaire consisted of twenty questions developed during the first two-day visitation. The researcher used the questionnaire in order to ask the same questions of each faculty interviewed. The researcher recorded each participant's answers and then posted the questionnaire and responses on the wiki requesting responders edit and add as they saw appropriate. She then developed a running dialogue response sheet that was again edited by the faculty. This paper is the summary of all of the discussions.

Context and Sampling

This study was accomplished using a wiki for discussion and then follow-up interviewing of five faculty members who teach in five different states in the West, Northeast, Midwest, and South of the U. S. The members of this research team also compared their institutions national secondary science accreditation reports. This is a reflective practitioner study. The questions used for the interviews and posted on the wiki are listed in Table 1. The questions were open response and the participants used an interactive process to clarify meaning and understanding across the group.

Participants

The faculty asked to participate included both current faculty and faculty that are now administrators but were faculty at the time of accreditation and administrators with responsibilities for accreditation. Three of the faculty members were the sole authors of their institutions national secondary science accreditation report. The institutions were in the south, east, mid west and west of the U. S. Both private and public institutions were

represented. In addition, one faculty member was at a school that had recently gone through accreditation but was now relocated into another school that has chosen to become state certified. This participant provided information from both schools.

Notes about Experiences

Notes about experiences pertaining to writing a national secondary science accreditation report writing were collected by the lead researcher each wiki session. Each entry included a time line, attendance, descriptions of the dialogue and activities, and observers' comments. The field notes were taken to assist in collecting details so that interviews could be used to further clarify and deepen the wiki notes.

Interviews

The lead researches interviewed each of the other researchers in this study. The interviews provided the researchers with verbatim language usage, and more details about the writing a national secondary science accreditation report writing process. Table 1 lists the questions asked in interviews

Artifacts

Artifacts such as the national secondary science accreditation report were collected. These artifacts were reviewed and provided further evidence about the report writing process and its effect(s) on the science teacher education programs.

Data Analysis

Triangulation of the three data sources, notes about the experiences, interviews and artifacts occurred recursively throughout the study. Each of the researchers completed an analysis and then compared findings. Findings that were agreed upon are reported in this document (Bogdan & Biklen, 1998).

RESULTS

Of the four schools, three were nationally accredited in secondary science education and one was choosing to go through the process of statewide certification. The three accredited colleges/universities began the process in the early 1990's, mid 1990 and mid 2000. Generally, the process of national accreditation in secondary science education took 5 to 6 years from start to fully accredited. For the one school choosing to go through state accreditation instead of national accreditation, the process required seven years. The secondary science faculty member was responsible for writing the documents necessary for accreditation in all four nationally certified colleges/universities. No team was formed for any of the colleges/universities. The faculty member was provided guidelines from the certification group and in some cases the faculty member was provided past report documents to use as guides. Sometimes consultants were hired to work with the education faculty to explain the theory of the accreditation process.

However, a consultant specifically hired to address how to write the secondary science education report was not provided in any of the schools. Secondary science education reports were once submitted on either paper or CD; however, currently all reports are submitted using the internet. In earlier reports no science program assessments were required but grades and assignments were submitted. Eight assessments were designed for secondary science at one school. The eight assessments were then linked to the ten NSTA Standards. In 1998, accreditation forms did not exist. Forms for NSTA/NCATE were matrices and continue to be matrices.

In two of the colleges/universities, the secondary science educator kept track of the data, analyzed it and reported it. At the other school, a person was hired to do the job for all reports. At one school, a grant was funded and faculty were given release time for writing the report. The faculty members at the other schools were assigned the responsibility of writing the documents and gathering, analyzing, and reporting without remuneration in neither the form of financial compensation nor course release. Basically it was an added part of their responsibility. New committees of science were formed at all the schools with the outcome of more communication between science educators and science faculty.

CONCLUSION

Faculty members involved with this study did not find that the accreditation process did not make the programs in question stronger. The process did clarify and codify information about the methods and materials of the program. In addition, the process helped faculty members regularly review the data from the newly codified materials. We are hopeful that the formal survey sent to faculty in science education across the country will help us identify and describe how, and if the accreditation process assisted in causing their science teacher education programs to become stronger or not.

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APPENDIX

Table 1: Questions asked in interviews

1. Is your college/university nationally accredited in secondary science education?
2. If yes to #1, in what year did you begin the accreditation process?
3. How long did the process take from start to accreditation?
4. Who was responsible for the secondary science program report?
5. If a team effort, how were the responsibilities divided?
6. What exactly was the process?
7. How were the reports submitted? For example, by mail, by e-mail, by fax
8. Were secondary science program assessments required?
9. If yes to #8, what were the assessments?
10. If yes to #8, were there science assessments for the elementary program?
11. Was it necessary to keep track of data for the secondary science program?
12. If yes to #11, whose responsibility was it to keep track of the data?
13. Whose responsibility was it to gather the data?
14. Whose responsibility was it to analyze the data?
15. Whose responsibility was it to report the data?
16. Did any of the team receive remuneration in the form of money or course release?
17. Did any of the team receive training on how to write the report?
18. Are you required to keep science faculty current in the national requirements for secondary science education?
19. If yes to #18, how do you keep current in the national requirements for secondary science education?
20. Are there other questions that need to be asked about secondary science education accreditation?

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