Assessing Preservice Teachers Competence as a Virtual Schooling Site Facilitator

Amina Charania, Niki Davis and Karly Wortmann
Iowa State University Center for Technology in Learning and Teaching
United States

Zahrl Schoeny, Sandi Cohen and Curby Alexander
University of Virginia Curry School of Education
United States

Email: aminik@iastate.edu, nedavis@iastate.edu, kwortmann@iastate.edu; zgs@virginia.edu; sbc7v@virginia.edu; rca4a@virginia.edu

Abstract: Given the rise of distance learning engaging K-12 students and the importance of the role of the Virtual Schooling Site Facilitator (VSSF) to support these students in K-12 schools, it is important to prepare all teachers for this role (Davis & Niederhauser, 2007). This paper reports a scientific experimental study of curriculum for this preparation for use in preservice programs and finds that both the elementary and secondary Virtual Schooling labs of the "Teacher Education Program Goes into Virtual Schooling" project are effective.

Introduction

K-12 students in most US states are enrolled increasingly in Virtual Schools and a key to enhance quality and reduce dropout is the role of the Virtual Schooling Site Facilitator (VSSF) to support these students in K-12 schools. Davis & Niederhauser (2007) argue that it is important to prepare all teachers for this role. VS Site Facilitators known by a variety of terms including site coordinators, coaches, tutors, and mentors, can play a major role in retaining VS students (Roblyer, 2003) and the quality of student experiences in VS depends on the site coordinators (Aronson & Timm, 2003; Frid, 2001; Zucker & Kozma, 2003). Frid (2001), in her qualitative study in an online program for elementary students, found that students whose adult supervisors took an active role in monitoring and organizing their activities remained active participants until the end of the course and were also found to give more complete and in-depth reports of the activities than their counterparts.

Much of the literature related to VS site facilitators comes from the first Virtual High School (VHS) in United States. VHS is a "consortium of high schools that offer network-based courses taught by consortium teachers for students in participating schools" (cited from Zucker & Kozma, 2003) and the participating school should provide a VSSF that was called a site coordinator. The VSSF serves as the point of contact for administrative matters and mentors participating students' participation, registration, and grading (Zucker & Kozma, 2003.) Participating schools select their own VSSF, who are mostly teachers or technology specialist in the schools and in some cases administrators, media specialists, or guidance counselors. Some of the site coordinators' roles highlighted in Zucker and Kozma (2003) are:

- Promoting and marketing the VS courses within the school plus recruiting and selecting students
- Handling local administrative issues related to course credits, grades and so on
- Distributing to students, and later collecting for reuse, any special materials the VS teachers have assigned for their courses, such as a textbook, assigned readings, or equipment
- Reporting to administrators or school board members on progress of the initiative
- Coordinating with VS central staff
- Assisting students who have difficulties with technology
- Assisting VS students, monitoring their work, and communicating with their VS teachers

Kozma and Zucker's (2003) survey of teachers, school principals, and students of the VHS to revealed that 88% of the students agreed that the coordinator was able to assist them with technical problems and 40% agreed that the coordinator was able to help them stay on schedule and monitor their progress in VHS courses. 77% of the teachers

agreed VHS site coordinators should be continued. 62% of school principals agreed that both VS teacher and VSSF coordinator were vital to the success of VHS. Davis & Niederhauser (2007) describe the role of a VSSF in detail and argue that all teachers need to be prepared for it, including future teachers.

Context

"Teacher Education Goes Into Virtual Schooling" is a project developing a national model to prepare future teachers for VS, including all students as VSSF (Davis, 2008). Four teacher education programs led by Iowa State University (ISU) Center for Technology in learning and Teaching are ISU, University of Florida (UF), University of Virginia (UVA), and Graceland University (GU). The project created two lab tools, one for elementary majors and one for secondary majors, for instructors to test in the four programs before national dissemination. The lab tools use two or three short multimedia scenarios that can be downloaded from the project web site (Davis, 2008). There are three objectives for this VS curriculum:

- to increase awareness of VS
- to introduce three aspects of VS: technologies, distant collaboration, and local facilitation
- to help preservice teachers to start to become competent to facilitate and plan for Virtual Schooling

Examples of existing VS courses and other relevant web sites were linked in this curriculum. The three aspects highlighted in these lab tools were the range of technology used in VS, the importance of online collaboration, and organizational factors in VS:

- *Technology:* The technologies used to support VS that connects K-12 students with teacher(s), students, and/or content beyond their school
- *Online collaboration*: The distant teacher's role and responsibilities of VS and that of the VS organization.
- *Organizational factors*: Counseling and advising the students, establishing and monitoring effective study habits, monitoring assessment, including proctoring tests where relevant, and support for technology tools, including health and safety.

Use of the TEGIVS lab tools in four preservice programs

In common with good practice all four teacher education programs introduce student teachers to information technology along with instructional design and challenge them to develop skills and knowledge for their future educational context. In ISU the equivalent of one week in a fifteen week course focused on virtual schooling and related issues in face-to-face sessions. The topic was introduced in an hour long lecture and that week's two hour lab applied the relevant lab, which ended with a presentation by small groups of 2-4 students followed by a plenary discussion reviewing the benefits and challenges of virtual schooling. The students were also required to write a reflection on virtual schooling and elementary students had the option of developing this work into one of the artifacts in a required electronic portfolio. The University of Florida course had the lecture portion online and then students used the secondary lab in their on-site lab class. Given the relevance to the online mode of instruction, the virtual schooling session was moved earlier in the semester over time. In the University of Virginia the grouping of the introductory courses is according to content and phase even more tightly than in ISU so that the course has some similarity to a methods course in which TEGIVS elementary and secondary labs were both the piloted successfully. In the elementary pilot Curby Alexander adapted the material to his two elementary sections (total of 33 undergraduates plus 5 graduates) by moving the entire class session online and using his existing discussion tool and class Blogs that were already in operation in his course. The class was directed to use the TEGIVS Elementary Lab, to discuss their perceived affordances and constraints of VS based on two scenarios, and then blog individually about overall impressions of VS. Graceland University does not have an introductory course, so Dennis McElroy chose his secondary methods course to introduce virtual schooling along with other education issues starting early in the course with readings that rose issues relevant to many aspects of twenty-first century schooling. Towards the end of the course students undertook the secondary lab to promote deeper reflection on classroom management, and in future virtual schooling will be a required as an assessed aspect of the unit of instruction designed by each student teacher. The instructor also plans to have an online teacher be a visiting speaker with the class to bring home to the students that online learning is common in their state, even though few of them had experienced it.

This Study

Given the anticipated boom in VS and the importance of VSSF in the success of VS, it is apparent that the teacher education programs should prepare future teachers to take the role of VSSF and to do so they will need evidence about the effectiveness of the two labs created by the TEGIVS project. This study assessed the impact of the two lab tools. This paper reports finding for data collected at ISU in fall 2007 from secondary students (CI 201) and elementary students (CI 202) during their 2 credit course "Introduction to Instructional Technology" See Table 1 for a brief description of the procedures. Both quantitative and open ended data related to competency were analyzed.

Table 1. Data gathering procedures at ISU for secondary (CI 201) and elementary (CI 202) preservice students.

University	**Course**	**# of labs**	**Design**	**Assignment of groups**	**Procedure**
ISU	CI 201	4 labs	Experimental-control; pre & post test	Randomly assigned	All participants took online pretest prior to the intervention lab. The experimental lab was administered posttest after the intervention. The control group was administered posttest prior to the intervention.
ISU	CI 202	4 labs	Experimental-control; pre & post test	Randomly assigned	All participants took online pretest prior to the intervention lab. The experimental lab was administered posttest after the intervention. The control group was administered posttest prior to the intervention.

Instruments

Competency assessment: Competency assessment included both perceived competence and actual competence as future VS site facilitator. The perceived competence includes preservice teachers' self ratings of the extent to which they are competent as site facilitators. The actual competence assessment for site facilitator involved a hypothetical scenario and preservice teachers were asked to rate their competence. Those who rated themselves as somewhat competent or competent, were asked questions to provide evidence of their competence on the three aspects of VS noted earlier: Technology, Online Collaboration and Organizational factors.

A rubric was developed by the authors to assess the participants' responses and it was used analyze actual competency for this paper. Responses were graded for each of the three aspects of VS (Technology, Online Collaboration and Organizational factors). Three points were allocated for response to each aspect (maximum score of for actual competency). Below are examples of good and poor responses:

Good answer on all three aspects:

- ISU Fall 07, CI 202: By using the web to explore the virtual school, requirements, online management, etc, you could help the student with any difficulties. You would need to collaborate with the virtual teacher and other on-site faculty members to ensure that the student is learning what they need, their grades and credits are being logged, and that there is the correct funding and support from administration.

Poor answer:

- ISU Fall 07, CI 202: Just letting him know that if he ever gets stuck or needs help I would be able to help him

Hypotheses

1. The perceived competency ratings of experimental groups' will significantly increase at the posttest; while there will be no significant increase in the perceived competency ratings of the control groups at the posttest.
2. The competency scores of experimental groups' actual competency will significantly increase at the posttest; while there will be no significant increase in the actual competency scores of the control groups at the posttest.

Data analysis

Means of the experimental and control groups were calculated and compared using T-test for Independent Samples. Two Way Repeated Measures ANOVA test using SPSS 15 was administered to compare pretest and posttest competency scores of experimental and control groups. Comparisons of mean competency scores of current students was made using ANOVA.

Results

1. Perceived Competency

Table 2 indicates that in both CI 201 and CI 202, there was no significant difference between experimental and control groups on their competency as VS Site Facilitator at the pretest. However, at the posttests both CI 201and CI 202 participants in the experimental groups showed significant increase in their perceived competency as VS Site Facilitator (See Table 3) when compared with the students in the control groups. This indicated that the experimental group, who were exposed to VS curriculum, perceived their competent as VS SITE Facilitator higher than the control group participants, who were not exposed to the VS curriculum.

*Table 2: T-test Comparisons of **Pretest** Scores Between Experimental (E) and Control(C)Groups on Perceived Competence as a VSSF for ISU Secondary (CI 201) and Elementary (CI 202) students.*

Courses	Means		SD		Std. Error		t	df	Sig. (two-tailed)
	E	C	E	C	E	C			
CI 201	2.50 (*N*=30)	2.41 (*N*=29)	.68	.57	.12	.10	.526	57	.601
CI 202	2.56 *(N=16)*	2.47 *(N=19)*	.63	.61	.16	.14	.422	33	.675

*Table3: T-test Comparisons of **Posttest** Scores Between Experimental (E) and Control (C)Groups on Perceived Competence as a VSSF for ISU Secondary (CI 201) and Elementary (CI 202) students.*

Courses	Means		SD		Std. Error		t	df	Sig. (two-tailed)
	E	C	E	C	E	C			
CI 201	3.32 (*N*=31)	2.33 (*N*=21)	.47	.48	.08	.10	7.32	50	..000***
CI 202	3.19 *(N=16)*	2.42 (*N=19*	.54	.69	.14	.16	3.59	33	.001**

***p<.000, **p<.01

2. Actual competency

Table 4 indicates that in both CI 201 and CI 202, there was no significant difference between experimental and control groups on their actual competency as VS Site Facilitator at the pretest. However, at the posttests both CI 201and CI 202 participants' in the experimental groups showed significant increase in their actual competency as VS Site Facilitator (See Table 5) than their controls. This indicates that the experimental group, who were exposed to VS curriculum, was graded as more competent as VSSF than the control group who was not exposed to the VS curriculum.

Table 4: *T-test Comparisons of **Pretest** Scores Between Experimental (E) and Control (C)Groups on Actual Competence as a VSSF for ISU Secondary (CI 201) and Elementary (CI 202) students.*

Courses	Means		SD		Std. Error		t	df	Sig. (two-tailed)
	E	C	E	C	E	C			
CI 201	.48 (*N*=31)	.52 (*N*=29)	.99	.83	.18	.15	-.14	58	.889
CI 202	.81 *(N=16)*	.68 (*N=19*)	1.47	1.16	.37	.26	.28	33	.775

Table 5: *T-test Comparisons of **Posttest** Scores Between Experimental (E) and Control (C)Groups on Actual Competence as a VSSF for ISU Secondary (CI 201) and Elementary (CI 202) students.*

Courses	Means		SD		Std. Error		t	df	Sig. (two-tailed)
	E	C	E	C	E	C			
CI 201	2.10 (*N*=31)	.21 (*N*=29)	1.11	.56	.20	.10	8.26	58	.000***
CI 202	2.12 *(N=16)*	.47 (*N=19*)	1.50	.90	.37	.21	4.01	33	.000***

***p<.000

3. An excerpt from participants' reflections at UVA

A control group was not available for the pilot of TEGIVS materials at UVA in fall 2007. However, qualitative data provided evidence that the use of TEGIVS elementary lab improve students' perception of VS, including the VSSF. Overall the students liked the experience and were less critical than expected by their instructor. The best example of a student teacher's blog reflection from UVA was:

> All in all, I think that virtual schooling is a wonderful experience for those that need it and would benefit. There are ups and downs… I must say that this type of education is far more involved and engaging than I originally thought it would be. There are many more people involved, for example the liaison who communicates with the students/parents and the class of peers to make sure everyone is connected. It is fortunately much more thought out and planned than I originally suspected. I was pleased to learn this. My own experience with virtual schooling was pleasant. I enjoyed the self-pacing and freedom that it gave me, but I don't know if I would like to do it every time.

Conclusion

In conclusion, the experimental study presented in this paper provides evidence that the TEGIVS curriculum is effective in raising future teachers awareness of VS, including the role of VSSF that they may well be asked to take on in their future careers. Overall both future secondary and elementary teachers showed significant increase in their perceived and actual/measured competency as Virtual Schooling Site Facilitator after their exposure to TEGIVS curriculum. Qualitative data from the reflective blog used in UVA also provided valuable evidence. The measure of actual competency was based on a preliminary rubric, so a more reliable rubric should be developed and validated to measure actual competency and multiple sources of evidence can also include future teachers' reflections on Virtual Schooling and their future roles as teachers.

Future plans include development of more curriculum and field experience in virtual schools (Compton, Davis, & Graham, 2008) and a 3 credit course in flexible and distance learning that includes Virtual Schooling Desmiralin & Davis, 2008). As the TEGIVS curriculum resources appear to perform as predicted they are recommended to all programs in the U.S. To support adoption the TEGIVS team led by Niki Davis will lead a

workshop at the 2008 annual conference of the Society of *Information Technology in Teacher Education* in Las Vegas in March 2008. In addition, the project has uncovered a pressing need for further research in the professional development of teachers, including future teachers and this will be discussed in a symposium at the same conference, which this paper also supports. We look forward to the debate.

References

Aronson, J. Z., & Timms, M. J. (2003). *Net choices, net gains: Supplementing the high school curriculum with online courses.* WestEd Knowledge Brief. Retrieved November 1, 2003, from http://www.wested.org/online_pubs/KN-03-02.pdf.

Compton, L., Davis, N.E. & Graham, R. (2008, in press). Filed experience in Virtual Schools. *SITE 2008 conference proceedigns* edited by Maddux, C. et al.

Davis, N.E. (ed.) (2008). *TEGIVS web site*. Retrieved December 2007 from http://www.public.iastate.edu/~vschool/

Davis, N.E. & Niederhauser, D.S. (2007, April). New roles and responsibilities for distance education in K-12 education. *Learning and Leading.*

Davis, N.E. & Rose, R. (2007). *NACOL Issues Brief on Professional Development for Virtual Schooling and Online Learning.* The North American Council for Online Learning. Retrieved November 2007 from http://www.nacol.org/resources/

Demiraslan, Y. & Davis, N.E. (2008, in press). Teaching a Course in Flexible and Distance Learning including Virtual Schooling. *SITE 2008 conference proceedigns* edited by Maddux, C. et al.

Frid, S. (2001) Supporting primary students' online learning in a virtual enrichment program. *Research in Education, 66*, 9–27.

Roblyer, M. D. (2003) Virtual high schools in the United States: Current views, future visions. In *Distance Learning In and Out of Schools: The Open Classroom*, J. Bradley (ed.). London: Kogan Page.

Zucker, A., & Kozma, R. (2003). *The virtual high school: Teaching generation V*. New York: Teachers College Press.

Acknowledgements

The contents of this paper were partly developed under a grant from the Fund for the Improvement of Post Secondary Education (FIPSE), U.S. Department of Education. However, these contents do not necessarily represent policy of the Department of Education, and no one should assume endorsement by the Federal Government. Support from all participating organizations, particularly the Iowa State University Center for Technology in Learning and Teaching, is also acknowledged. In particular we acknowledge the student participants.