The Vermont Millennium Arts Partnership:
Evaluation of the Integration of Technology into Arts and Music Education in Vermont Primary and Secondary Schools

1998-2001

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CENTER FOR RURAL STUDIES

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Executive Summary

The Vermont Millennium Arts Partnership (VT-MAP) is an Internet-based arts education program, providing an online forum to facilitate student learning through an exchange among students, teachers, artists, musicians, and other professionals. Several initiatives are involved in this project. The Vermont Musical Instrument Digital Interface Project (MIDI) was established in 1995 and Art Responding Through Technology (ARTT) was established in 1997 based on the model of the MIDI Project. The MIDI and ARTT projects were part of the predecessor initiative on which VT-MAP is based, the WEB Project. More recently, the Vermont Young Playwrights Online (VYP Online), a part of the Vermont Stage Company, joined this project in 2000. An offshoot of the MIDI project is the Digital Audio Initiative, which also joined the project in 2000. VT-MAP is a program of the Vermont Arts Council, operating in conjunction with MIDI, ARTT, VYP Online, the Vermont Alliance for Arts Education, and the Vermont Department of Education. Funding is provided through a grant from the U.S. Department of Commerce's Technology Opportunities Program, with other funding coming from the Jesse B. Cox Charitable Trust, Josephine Bay and C. Michael Paul Foundation, the State of Vermont, IBM, and Verizon.

In the last fiscal year of grant funding, from July 1, 2000 to June 30, 2001, VT-MAP awarded competitively funded grants to twenty-four schools (39 classroom teachers) in twelve counties throughout Vermont to participate in either the Vermont MIDI Project or ARTT. An additional ten schools participated in VYP Online, receiving funding to purchase software and attend teacher professional development training, and two additional schools received equipment to participate in MIDI's Digital Audio Initiative. Including the past two fiscal years, a total of 54 teachers in 34 schools have received grants and assistance through VT-MAP.

Classroom involvement in VT-MAP exposes students to the art, musical, and written creations of their peers, the language of critique in the Arts, the critique of their work by professional artists, and the creative possibilities to learn and share through the integration of technology into the classroom and class instruction. Students, teachers, administrators, and online mentors subscribe to a common protocol for sharing work online using a password protected website, which is based on the experience of online sharing undertaken by the Vermont MIDI Project in 1995. The three projects focus their work and student learning on several Vermont and National Standards of Education, specifically the *Vital Results* of the Vermont Framework of Standards and Learning Opportunities. In classroom learning and the online network also address standards that focus on Reflection and Critique and Skill Development of young composers.

Evaluation Design

The Center for Rural Studies (CRS) at the University of Vermont is the evaluator of VT-MAP for the three-year grant period from July 1, 1998 to June 30, 2001. This evaluation is primarily based upon qualitative data collected through online and paper surveys, with supplemental quantitative data from surveys and website activity. The model of evaluation documents the project's implementation or process and resulting outcome of the project. Project process refers to the experience that takes place in the classroom and outcomes refer to the outcomes of teacher and student participation in the online forum and related in-classroom activities, specifically student performance and achievement based on Vermont and National Standards.

Meeting Grant Goals

Goal I: Increase Vermont public awareness of and support for Arts education.
Data collected through CRS's representative statewide public opinion poll shows that VT-MAP
has increased community support for the arts and introduced new audiences to the arts (N=720;
95% confidence level, +/- 5% margin of error). Community support for the arts is evident as
80% of respondents rated that it is important or very important for state government to provide
funding to support arts programs such as arts education in schools, community arts organization,
and arts programs provided through social services agencies. Respondents indicated a
willingness to spend a mean of $128 of their personal tax dollars to provide additional support
for the arts, with 32% willing to spend between $51-100 and 31% willing to spend between $1-
25. More than half of respondents (59%) selected arts education programs in schools as their top
priority to receive funding from this pool of money. Twenty-six percent of respondents were
aware of Internet based arts education programs in Vermont and 9% were able to identify the
Vermont MIDI Project, 14% identified ARTT, and 13% identified VYP Online.

Sixty-four percent (22) of the 34 schools presented student artwork, music compositions, and
dramaturge developed as a result of VT-MAP funding during the 2000-2001 school year. These
presentations and showcases publicized the project and results to school communities. Students
demonstrated how they use technology in their classrooms to compose music and create digital
works of art through computers and software such as Sibelius and Adobe Photoshop. They also
demonstrated the process of posting their work online and the online exchange between their
peers, other teachers and professional mentors. To show the learning and end result of this
process, students presented visual and audio examples of initial, revised and final works
completed through in-class technology and the online exchange. The target audiences of these
presentations included parents, school principals, the school board, and the public. All teachers
who coordinated presentations and exhibits reported that they received a positive response from
their audience.

VT-MAP made significant progress towards improvement in arts programs at the school level,
however due to limited additional funds goals related to increased teacher FTE were not met.
Over the past two years, 24% (8) of teachers from the 34 participating schools reported an
increase in their FTE and one school or 3% added one full time arts teacher position. A quarter
(24%, 8) of participating schools reported an increase in their arts budget for the 2001-2002
school year. Regarding school action plans, most school officials noted that the arts were a part
of their total program but that the arts were not specifically included in the school action plan.
However, 9% (3) schools plan to improve their arts program through their school action plan.
Additionally, 44% (15) of grant funded schools received additional hardware from their school
budget and one or 3% received budget funds for improvement of an art related workstation.

Goal II: Improve opportunities for students to learn the Arts.

VT-MAP met the following objectives within to the goal of improving opportunities for learning in the arts. Over the course of three years, the available pool of artists skilled in on-line mentoring grew to 37 artists and 23 actively mentor students on-line. Ten of these mentors work with ARTT, eight with MIDI, and five with VYP Online. Approximately 10,000 students have been exposed to the online mentoring forum through the 34 grant schools and an additional 85 schools that participate at their own expense. VT-MAP has maintained online arts learning opportunities in 12 of the 14 counties in Vermont with the online network at large present in all 14 counties. All students who have participated in the project have shown improvement in performance, achievement, and related areas based on Vermont and National Standards. VT-MAP has held three annual conferences and five showcases of student work, two of which were presented at annual conferences.

VT-MAP did not meet the objective of assisting 7 Local Area Arts Organizations (LASO) with connectivity and computer technology through training and provision of hardware. A total of four LASO's applied for and received assistance through this grant; however only two programs remained by the end of the grant as two LASO programs withdrew from the project in year two.

Goal III: Increase use of computers and Internet technology in arts education.

All of the objectives under the goal of increasing computer and Internet technology in arts education were met by VT-MAP. A total of 54 teachers from the 34 grant schools have integrated the use of computers, software, and the Internet into their art, theater and music curriculum. An additional 84 schools joined the online network without financial assistance. All grant schools posted at least one piece of work to the online forum; however project coordinators emphasized the importance of posting quality over quantity of posting. Throughout the project, coordinators observed a common trend in posting, beginning with a spike in online activity at the project's onset and when new teachers joined the project. After this initial peak in usage, coordinators observed a decrease in activity that correlated with increased experience in teaching and using technology.

Student In-Class and Online Activities

Students participate in the Vermont MIDI Project, ARTT, and VYP Online through in-class activities that take place off-line and in the online forum. Working in the classroom, students become familiar with computers, software such as Sibelius and Adobe Photoshop, and equipment such as keyboards, digital cameras, and scanners. Classroom instruction is also where students learn appropriate vocabulary and theory within their field so that they may participate in the online and in-class dialogue of asking questions and providing and responding to feedback.

Student activities in the online website include:

- Viewing and exploring the website – students gain ideas for their own works
- Critiquing work posted on the website – students develop appropriate arts vocabulary to interact with online mentors
- Posting their work for review

- Reviewing and processing constructive criticism they have received
- Improvement of student artwork based on mentors comments – sometimes students choose not to incorporate the advice of mentors, however teachers comment that the experience is still beneficial as it introduces students to different ideas for creating.

Examples of student projects

♫ MIDI students studied different composers' work and presented their research to the class by listening to examples of compositions. Students then developed their own compositions using computer software that were inspired by the composers' work. The teacher commented that using MIDI technology enhanced this classroom activity and student learning, which had been in place for several years.

♫ One MIDI teacher, whose classroom has been involved with the project for two years, noted significant improvement in the compositions produced by seventh and eighth grade students. The teacher remarked that since her students have used MIDI technology and the online, their quality of work has increased tremendously with students writing more intricate "three part, twelve measure piece" compositions.

♫ A teacher involved in the Digital Audio Initiative through the MIDI Project wrote that students created commercials using the technology of a "mini disk recorder." Each student created a background sound track that was layered under narration, song or both, to create an audio advertisement for local business. The teacher noted, "The students had great fun, were highly creative, and demonstrated a good grasp of the tools. Several commercials were good enough for the local radio station!"

🎨 In an ARTT classroom, art students draw with mediums such as markers and pencils and make creations with paper mache and clay. Students who made pencil drawings posted their work to the online forum to receive feedback. They then incorporated the artists' suggestions into their work by adding color and texture.

🎨 High school ARTT students developed digital portfolios with Adobe Photoshop and wrote reflections on their artwork. Students stored this portfolio on a CD and printed and pasted images into their sketchbooks. Photography students took images with digital and 35mm cameras and then manipulated them using Adobe Photoshop to create new images. Students in a painting class used Adobe Photoshop alongside their painter's canvas to create a work of art that incorporated painting and digital filter techniques.

Website activity

Posting student artwork or compositions is only one component to participation in the project. The coordinators of ARTT, MIDI, and VYP Online stress that the number of postings by each classroom is not an appropriate measure of success or quality in the project. Oftentimes, the initial use of the website and posting work is high while the teachers and students learn the critique process and practice their digitizing and uploading skills. Many of these postings are not "need" driven but are practice for students and teachers. As teachers become confident that they

are able to use the online forum when a student has a real question to ask the online mentors about a work in progress, classroom activity drops off.   The following presents the website activity data of the three online organizations. The project coordinators note that several schools experienced technical difficulties that prevented them from either posting work or replying to mentor comments. Further, several new schools that were learning to use the online process had posted work numerous times yet few students engaged in dialogue. This occurrence tended to lower the percentage of student replies to mentor comments.

A total of 148 musical compositions were posted between September 2000 and August 2001 for VT-MAP schools involved in the Vermont MIDI Project, with a total reply rate of 41% (61). Four of the six schools involved in the Digital Audio Initiative posted twelve pieces online. A total of 150 pieces of artwork were posted between September 2000 and August 2001 by VT-MAP grant recipients in ARTT, with a total reply rate of 58% (87). The VYP Online project posted a total of 69 pieces on the website between September 2000 and August 2001 with 27% (19) of the total posts completing the request-respond-reply cycle.

Project Impact on Student Achievement and Performance

Teacher reported data indicates that participation in VT-MAP positively impacts student achievement and performance, based on Vermont and National Standards of Education, through revitalizing arts curriculum and learning opportunities in schools.

> *"I have seen students with severe handicaps, emotionally and physically, excel at composing a singable simple melody to which other students respond very enthusiastically."*

Teachers have used the online forum as a teaching tool to facilitate student learning of creative development, the critique process, use of hardware and software relating to the arts, and arts vocabulary. As a result of their online participation, students are encouraged to challenge their creative abilities and improve their work. Teachers comment that the online forum has had a positive impact on their curriculum as it supports and enhances their current curriculum and student learning.

The Vermont MIDI Project

Teachers of the Vermont MIDI Project reported that students developed skills in listening and evaluating music, notation skills and understanding musical elements, composing music, critiquing work, asking more specific question for feedback, and processing and applying constructive criticism received. Students also demonstrated personal growth and development, including an increased motivation to learn and increased self-esteem and self-confidence in as individuals and musicians. Overall, teachers have observed an increase in the quality of student work because of their classrooms participation in VT-MAP. As the Digital Audio Initiative joined the project more recently in 2000, the project coordinator commented that students have developed skills in creating digital audio projects although it is premature to determine actual impact on

> *"This project has given new life to the music program at our school. In the four years I have been teaching here, general music education has gone way beyond singing songs for forty-five minutes. The composition work fits extremely well with the curriculum that I have been developing. I'm not sure I would continue teaching music if I were not involved in this project! I certainly would feel out in left field if my students did not have this opportunity."*

performance and achievement. The coordinator was able to develop a set of standards to share online work, which engaged several schools to post work online.

"This project has been extremely beneficial to our visual arts program. Communication skills have expanded dramatically and camaraderie between teachers in the project has increased. There has been a revival of dynamics in our arts curriculum."

ARTT

ARTT teachers reported that students have developed skills in the use of mixed media, critical thinking, critique and reflection, asking appropriate questions for feedback, improved arts vocabulary, and analytical skills to improve work. Students have also shown an increased motivation to learn as well as an increase in student self-confidence. Overall, students who have participated in the project have demonstrated learning, some beyond their grade level, and have shown a higher quality of work.

"Online experience brings out the "special" in all kids. One student I had was an outcast. One of his pieces was selected to be presented at the Gathering. It was a very rewarding experience for him to meet the artist mentors. This validated his feeling that it is ok to not be like everyone else. He showed the ability to follow through with a project, talk with artists, and participate in a show. This was a very empowering experience for him."

VYP Online

Since VYP Online is a new addition to the online community, most of the teachers involved in this project reported that it is too early in their involvement to notice impact on students. However a few teachers reported that students have developed enhanced writing and critiquing skills. Further, in one Career Center involved in the partnership, several students have been placed in post-secondary intuitions.

"The online exchange seems to have piqued student interest in looking at more plays and made some more open to criticism."

Community Response and Support for Arts Education

Students, teachers, school principals, school boards, parents, and local communities of the grant schools have given a positive response to VT-MAP. Most students are enthusiastic about the project and are excited to share their work and get back responses. Students are also excited to hear or see other student's work online. Several teachers mentioned that feedback provides an important stimulus for students to reflect and explore new directions artistically. Teachers involved in VT-MAP are thrilled and excited about the online exchange and to be a part of this new step in arts education. Teachers are appreciative of the hardware, software, and other technology they have received through the grant. Teachers feel that this project enhances their curriculum and validates their teaching. They are also excited by the learning that takes place as students work online and hear/see other students work and work through their own pieces. Teachers report that the general response of the principal and school board is positive, supportive, enthusiastic, and impressed. Parents are also enthusiastic and supportive about the work their children are doing in the arts. Several teachers note that it is important to share this work with parents so they understand the process and what their child is doing, as well as allowing them to see their child's creativity. Although most teachers have shared the project

only with their school community, a few teachers have sent press releases to local newspapers about events and achievements, posted work on their school website, and written articles for their school newsletter. One VYP Online teacher noted that they presented two plays written by students at the University of Vermont. Parents and the community were very excited and impressed with the quality of student work.

Strengths and Challenges Faced

Teachers reported that support system in place, from VT-MAP administration, project coordinators, mentors, and other teachers, is crucial to the introduction of the online forum and technology into the classroom. Teachers stress that the commitment, technological skills, and time and effort made available by project administrators has ensured that classrooms are connected to the Internet, technical difficulties are resolved, and teachers have administrative support from school technicians, principals, and the school board. School technical support staff has assisted with getting setting up and troubleshooting computers and other technological difficulties as they arise. Support from school principals, school board members, parents, and other teachers within the school has also been critical to the project's success. One teacher commented that a parent had donated a computer to her classroom. Teachers commented that professional development offered through the VT-MAP sponsored *Summer Institutes,* local workshops, and the annual *Gathering* in November of each grant year helped participants learn, network, and share their strategies and experiences with one another.

The two major barriers reported by many teachers included lack of classroom and professional development time to fully integrate technology into their teaching and a lack of computer stations for each student. Several teachers also had difficulty maintaining access to the Internet and with the limited availability of technical support within their school. A few teachers reported frustration related to slow server speed, small monitors, financial limitations within school budgets, and a lack of support from school administration.

Recommendations

As this is the final year of funding for VT-MAP, the evaluators have made recommendations for project sustainability. Recently, the Vermont MIDI Project and ARTT have established their independent identities through the formation of the non-profit Vermont MIDI/ARTT Project, Inc. The evaluators recommend that this organization continue to use of online mentoring programs as planned, implemented the use of online protocols. The evaluators recommend that that project coordinators continue to identify evidence of student achievement and learning based on Vermont and National Standards of Education. Interviews with teachers show that there is a strong sense of dedication and belonging to the online community, which should continue to be fostered through annual conferences, workshops, student showcases, and online support. At the current time, funding is not available for future evaluation. However if funding becomes available, the evaluators would like to continue serving as evaluators for the spin off project, Vermont MIDI/ARTT Project. The evaluators propose using a case study approach for evaluation, closely following several teachers over time through interviews, site visits, and student focus groups and interviews. This approach will provide a more in-depth review of the project process and impact on students.

Introduction

Art educators continually search for new ways to improve opportunities for students to learn the arts, excite students about learning, and facilitate the learning process. Teachers also try to expose students to different mediums that their newfound skills can be applied. The Vermont Millennium Arts Partnership (VT-MAP) is an Internet-based arts education program that, through the use of the latest technology, works to facilitate classroom curriculum and student learning through an online exchange between students, teachers, artists, musicians, and other professionals.

VT-MAP is based on the groundbreaking work of the WEB Project and its founding initiatives, the Vermont Musical Instrument Digital Interface Project (MIDI) and Art Responding Through Technology (ARTT). VT-MAP is a program of the Vermont Arts Council, operating in conjunction with MIDI, ARTT, Vermont Young Playwrights Online (VYP Online), the Vermont Alliance for Arts Education, and the Vermont Department of Education. Funding is provided through a grant from the U.S. Department of Commerce's Technology Opportunities Program, with other funding coming from the Jesse B. Cox Charitable Trust, Josephine Bay and C. Michael Paul Foundation, the State of Vermont, IBM, and Bell Atlantic. The grant goals include:

- To increase Vermont public awareness of, and support for Arts education.
- To improve opportunities for students to learn the Arts.
- To increase the use of computers and Internet technology in Arts education.

In the last fiscal year of grant funding, from July 1, 2000 to June 30, 2001, VT-MAP awarded competitively funded grants to twenty-four schools (39 classroom teachers) in twelve counties throughout Vermont to participate in either the Vermont MIDI Project or ARTT. An additional ten schools participated in VYP Online, receiving funding to purchase software and attend teacher professional development training, and two additional schools received equipment to participate in MIDI's Digital Audio Initiative. Including the past two fiscal years, a total of 54 teachers in 34 schools have received grants and assistance through VT-MAP.

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Evaluation Design

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Process evaluation components
- The development of classroom level goals,
- Online and in-classroom activities,
- Facilitators and barriers, and
- Professional development activities for networking and skill building.

Outcome evaluation components
- Progress made towards grant and classroom goals,
- Project impact on arts curricula,
- Impact on student performance and achievement based on Vermont and National Standards,
- Response to the project and Arts education in general at the classroom, school, community, and state-wide level, and
- Recommendations for the future.

The outcomes of the project are the result of improved opportunities for students to learn the Arts and the increased use of computers and Internet technology in Arts education. Ultimately, VT-MAP has the vision that improved opportunities for students to learn the Arts through technology and local and statewide advocacy of the project will increase Vermont public awareness of, and support for Arts education.

Methodology

Using a qualitative approach, CRS collected data from teachers, students, project administrators and partners over the course of the grant through interviews, focus groups, observation, record review, and participant observation. Data were collected on site, in person, through online and mail surveys, and telephone interviews.

Survey Instruments

CRS collected qualitative data from paper and online survey instruments to evaluate VT-MAP. The evaluators developed survey instruments with input and feedback from VT-MAP administrators and project coordinators. The following provides an outline of the survey instruments used, the response rate to the surveys, and data analysis methods employed. The complete surveys are available in the appendix of the report as noted below. The findings of the surveys are integrated in the body of the report.

Expectations Assessment
At the *Summer Institute – Integrating Arts and Technology* in July 2000, CRS administered an Expectations Assessment for the 14 new grant schools of VT-MAP for 2000. This survey was distributed on the first day of the institute to gain insight on the teachers' initial perspectives of their involvement in the project, their classroom goals, and expectations for the first, second and third year of participation in the project. The survey consisted of four closed-ended questions relating to the impact of VT-MAP with respect to the grant goals, using a five point lichert scale from strongly disagree to strongly agree. Teachers were also asked two open-ended questions about their classroom goals and expectations. Sixteen out of the thirty-six first year teachers responded to the Expectations Assessment for a response rate of 44%. (Appendix A)

Winter and Spring Mentor Reports
Online mentors were asked to complete an online report in January 2001 (Winter) and again in June 2001 (Spring). The Winter survey consisted of five open ended questions concerning their methods of mentoring and advice given, their perception of online mentoring with VT-MAP, and suggestions for changes and/or improvement of the online exchange. CRS and VT-MAP administrators decided to ask one additional question on the Spring report, regarding what they felt worked well about the online forum. A 100% response rate was received for both mentor reports. (Appendix B and C)

Winter Semester Questionnaire
The Winter Semester Report was administered online and in hard copy in February 2001 to the VT-MAP teachers of the thirty-four grant schools. It was designed to document the process and progress of each classroom half way through the school year of the first year of the project. The survey consisted of seventeen open ended questions regarding classroom goals, progress toward these goals, Vermont and National Standards being addressed in the classroom, impact on student achievement, percent of posting that completed the request-respond-reply cycle, facilitators and barriers, online and in-classroom activity, changes in their curriculum, student and teacher response to the project, activities presented to their community and the reaction of that community, and areas of support or professional development needed for the future. The

survey had four closed ended questions, three concerning online activity using yes/no response categories and one relating to barriers using a four point scale from no extent to great extent of how various barriers impeded their progress. Twenty-three of the fifty-nine teachers responded to the Winter Questionnaire for a response rate of 39%. It should be noted that the evaluators and VT-MAP administrator made several attempts to increase the response rate, including multiple reminders and offering teachers the option of completing the survey online, on paper, or via email. (Appendix D)

Spring Semester Questionnaire
The Spring Semester Questionnaire was administered online and in hard copy in June 2001. This survey followed–up with many of the questions asked on the Winter Semester Questionnaire. This survey also asked sixteen open-ended questions regarding teachers classroom goals and any changes made, progress towards goals, changes in their curriculum as a result of this project, how ideas raised in discussion about student projects on the online forum are incorporated into the classroom, percentage of postings that completed the request-respond-reply cycle, facilitators and barriers, need for additional support or professional development, activities presented to their community, and community reactions. This survey also addressed whether or not their classroom has received any additional equipment or resources and early evidence of impact on student achievement based on the Vermont and National Standards. This survey also asked three closed ended questions. One asked the extent to which ideas raised in discussion about online projects are incorporated into the classroom using a four point scale from no extent to great extent. The second asked if students had posted any work using a yes/no response category. The third repeated the barriers question from the Winter Questionnaire using the four-point scale from no extent to great extent. Twenty-eight out of the fifty-nine teachers responded to this survey for a response rate of 47%. Again, the evaluators and VT-MAP administrator made several attempts to increase the response rate, including multiple reminders and offering teachers the option of completing the survey online, on paper, or via email. (Appendix E).

Follow-Up Teacher Focus Group and Interviews
CRS, VT-MAP administrators, and ARTT and MIDI project coordinators decided to conduct an additional follow-up with teachers this past year. This questionnaire was designed as a focus group and interview guide to gather more in-depth information about the teachers experience in the project and anecdotal evidence of impact on students. This information was designed to further enrich this report, providing more documentation on "what happened" than the previous evaluation report. The questionnaire consisted of seven open-ended questions regarding student stories, changes in teaching styles in working with this project, student interaction with mentors, impact of student turnover rate in the classroom on their teaching, interaction with school principals and administrators, and their relationship with fellow teachers in the online forum. Eight teachers attended the focus group at the Summer Institute in July 2001 and five teachers responded individually to telephone interviews conducted from August to October 2001. These teachers were randomly selected by VT-MAP administrators to provide a case study approach for the evaluation (22% of teachers). (Appendix F)

Evaluation Forms
CRS developed evaluation forms for the VT-MAP grant recipients at the *Summer Institute – Integrating Arts and Technology* in July 2000 (Appendix G) and *The Gathering*, the annual conference held in November 2000 (Appendix H). The evaluation forms were designed to offer feedback to the project administrators on what did and did not work at this workshop institute and conference and recommendations for improvements. (The report of the findings for *Summer Institute – Integrating Arts and Technology* and the *Gathering* are in Appendix I and J, respectively.)

The Vermonter Poll
In March 2000, The Center for Rural Studies conducted the "Vermonter Poll", an annual statewide opinion poll about issues important to the state. Five questions on the Vermonter Poll were asked related to public funding for the arts and awareness of Internet-based arts education in Vermont, specifically the Vermont MIDI Project, Art Responding through Technology (ARTT), and Vermont Young Playwrights online VYPO. A total of 720 Vermonters responded to the poll. A complete report of the findings of this section is available in Appendix K of this report

Data Analysis

Qualitative data were analyzed using N-Vivo, a program designed to organize and analyze the content of qualitative material and various categorical and thematic grouping techniques. Quantitative data was analyzed using the Statistical Package for the Social Sciences (SPSS) to provide descriptive statistics. Data were examined for individual and unique experiences of each school and for trends common experiences across schools. Conclusions and recommendations were developed based on this analysis.

Participating Schools

This past year, fourteen new schools participating in either the Vermont MIDI project or ARTT received grant funds under VT-MAP. These fourteen joined the ten previous grant schools from the 1999-2000 fiscal year and the existing online networks since 1995. During the 2000-2001 school year the Vermont Young Playwrights Online forum was organized and implemented in partnership with the Vermont Stage Company. Twenty-one schools expressed interest in participating initially. Ten schools followed through with visiting artist residencies and online discussion. The following provides a background of the twenty-four schools in the Vermont MIDI project and ARTT, including where the school is located, who is involved in the program, and how technology has been used in the classroom before the VT-MAP project.

1999-2000 Grant Recipients

Calais Elementary School
Calais Elementary School, located in Calais, has both a music teacher and an art teacher involved in the VT MIDI and ARTT projects, teaching students from K-6. The art and music classrooms at Calais became involved in this project with a foundation in the expression of art through technology. Students in the music program have composed music using MusicTime software and have used MIDI technology in student performances. The art classroom has used CD-ROM to introduce students to the work of the masters and as a source for digital images. This classroom also employs the use of a scanner and a digital camera. Before this grant, the arts department at Calais had a computer in their classroom and was in the process of getting an Internet connection.

Clarendon Elementary School
Located in North Clarendon, two art teachers involved in MIDI, one music teacher involved in ARTT, and a media/technology specialist have worked together as a team this past year to help students from K-6 and teachers make connections between art, music, and writing across disciplines. Prior to the start of this project, the art and music classrooms had begun the exploration of Adobe Photoshop and use of MIDI software, along with use of the Internet, a digital camera, scanner, and LCD projector. The arts department had one computer and an Internet connection prior to this grant.

Craftsbury Schools
In Craftsbury Commons, the music teacher at Craftsbury School, one of the smallest public high schools in Vermont, exposed students from K-12 to the VT MIDI Project at the beginning of this school year through this grant. This classroom had limited experience with technology in the music classroom, as the teacher most often used the Internet for information related to curriculum, such as a unit on Jazz. The music classroom had one computer and an Internet connection prior to this grant. In Craftsbury Schools, the school board increased the music teaching position from .8 to 1 FTE for the 2000-2001 school year, to provide more time for the use of technology in the classroom. In Craftsbury schools, the technology coordinator moved hardware that was being replaced by an upgraded computer into the music classroom. Software for the computer was purchased through additional grant money.

Ferrisburgh Elementary School
At Ferrisburgh Elementary School, a music teacher, art teacher, and technology coordinator are involved in the project, teaching students in grades K-6. At the onset of this project, the arts classrooms at Ferrisburgh had had some exposure to the use of technology in the arts, as all students in the school attend a weekly class in technology. This class is often integrated with the art department. Students had used digitized photographs for a class exhibit and had used ClarisWorks Paint. The arts department did not have a computer in their classroom prior to this grant.

Ludlow Elementary School
Ludlow Elementary School had both an art teacher and a music teacher involved in ARTT and the VT MIDI Project this past year, teaching students in grades K-6. Located in the town of Ludlow, the arts classrooms had some experience with the use of technology in the classroom at the onset of the project. Students had previously used the Internet for research purposes, and had composed music on MusicTime Deluxe and other CD-ROMs for younger students. At the onset of this grant, the arts department had just received a computer in their classroom, but did not have an Internet connection. The art classroom at Ludlow Elementary School received a new computer through the school budget for the art classroom for this past school year (2000-01).

Mettawee Community School
The music and art teachers involved in MIDI and ARTT at Mettawee Community School, K-6, in West Pawlet had used the Internet for research purposes and digital images before becoming involved in the project. The art department had one computer for use in arts education, however they did not have Internet access as the computer did not have this capacity.

Mount Abraham Union High School
Mount Abraham UHS in Bristol had two persons involved in the MIDI project through the music department, teaching students in grades 7-12. This past year one teacher has joined VYP online. The music teacher at this school had previous experience in using MIDI keyboards and software, notation and sequencing, and the Internet before participating in this project. The music classroom did not have a computer prior to this grant. At Mount Abraham Union High School, the school budgeted for the music classroom to receive an additional computer through the technology plan for this past school year (2000-01).

Shoreham Elementary School
The main art teacher and third grade general teacher are involved in the ARTT project at Shoreham Elementary School, grades K-6. Before their involvement in this project, both teachers had used the Internet for research purposes in the classroom, as well as a digital camera to copy images into reports. The arts department had one computer and Internet connection in their classroom prior to this grant.

St. Albans City School
Two art teachers from St. Albans City School in ARTT taught students from K-8. The teachers had previous experience in using the Internet for projects and research. Further, one of the teachers was involved in the WEB Project as a community member. This teacher also has experience in using this technology in another school as a substitute art teacher. The art

department did not have a computer prior to receiving one through the VT-MAP grant. For this past school year, 2000-01, the art classroom at St. Albans City School had several tables installed for their current equipment through the school budget.

West Rutland School
West Rutland School has two music teachers involved in the VT MIDI Project teaching students in K-12. At the onset of their participation in the Partnership, the teachers and students had little opportunity to use the computers in the school labs for use in music classes. The music classroom did not have a computer prior to receiving one through the VT-MAP grant. Further, the music classroom at West Rutland School received an entire computer station through a donation from a parent for this past school year.

2000-01 Grant Recipients

Berlin Elementary School
Berlin Elementary School, located in Washington County employs one .8 FTE art teacher and two music teachers: a .6 FTE who also teaches theater and a .3 FTE. Instruction in arts and music is given to students in Kindergarten through sixth grade, and fifth and sixth graders take the theatre class. Teachers hope to gain competence in modern technology tools, and integrate the arts into their curriculums by allowing students critical feedback on their works from mentors. Prior to the initiation of this project, students had done one art project using PowerPoint. The music room had one old computer but the art room had nothing.   The art teachers had experience using Microsoft Word, Corel, and Word Perfect. Berlin is a rural school of 260 students in Kindergarten through sixth grade. It is a divided town with no district community center. Consequently, the school often serves this purpose acting as the community educational and social center.

Burke Town School
Caledonia County's Burke Town School has a .5 FTE art teacher and a .4 FTE music teacher involved in the ARTT and MIDI projects. Instruction is given school-wide from Kindergarten through the eighth grade. Teachers anticipated the grant to aid them in the integration of arts into their classrooms by having art history information readily available through the Internet. They also hoped to become proficient in MIDI composition and open up opportunities for students to meet current technology standards. Prior to this grant, seventh and eighth grade students had been allowed the opportunity to use the Internet for research projects. Teachers had used the Internet for ideas for classroom lessons and other curriculum based research, but student access was very limited. Teachers had experience using the ClarisWorks, Microsoft Works, Microsoft Word, Lotus, and Print Shop programs. The music teacher also had experience with a digital camera through Photoshop and a scanner. The art/music classroom had no access to computers. Burke Town is a Kindergarten through eighth grade school with approximately 200 students. Located far (two or three hours) from cities with educative institutions such as art museums or theaters, Burke students are relatively isolated from cultural exposure.

Danville School
Also located in Caledonia County, Danville School is a 500 student school with grade levels from Kindergarten through the twelfth grade. Students at Danville are in support of the arts, but

are underexposed. Prior to the grant, there was no access to computers in the art/music classroom and lab time for the arts program was scarce as they took last priority over the high school science classes. Teachers had experience with Microsoft Works, Microsoft Word, ClarisWorks, Lotus, Print Shop and Microsoft Publisher. The school employs 1.7 FTE art instructor and 1.6 FTE music instructor. Both interact with students from Kindergarten through twelfth grade. Goals include MIDI training for teachers and the opportunity for students to access arts and technology information, examples, and critical dialogue from the World Wide Web.

Hancock Village School
Hancock Village School, located in Addison County, has two teachers in art and music at .15 FTE involved in the VT-MAP project. One teacher works with the subjects of art and art history primarily teaching special education. The other teacher works with music, voice, theater, and dance. This classroom initially had a computer and Internet access in their classroom. At the onset, the primary teacher had experience in word processing, conducting Internet research and using the CD Rom and could use Claris Works, Simple Text, Netscape, Microsoft Internet Explorer, and Windows She also had some familiarity with using a digital scanner. The teachers felt that their involvement in the VT-MAP project would enhance and improve their arts curricula by offering students the opportunity to share their work online and connect with other students, artists, and teachers through the state. Hancock Village School is located in a rural and geographically isolated community. Students do not have convenient access to any significant cultural events. However the teachers feel they the school has a strong community arts program, which exposes students to culture and discovery of ideas. Their involvement in the VT-MAP project will enhance their community arts program.

Mallets Bay School
Mallet's Bay School in Chittenden County employs one full time art teacher, one .3 FTE for art, one full time music teacher, and one .3 FTE for music. The physical education teachers also teach 8, 45-minute dance classes per year. Teachers' goals were to use computer technology to inspire student interest in the arts. They hope to allow students to use the Internet to visit art museums and other art students around the world as well as post work on the school's own web site for a community involvement element. The full time art teacher has experience with Apple Computers and Claris Works. Mallets Bay is located in Colchester, which borders Lake Champlain, Burlington, Essex, Winooski, and Milton. Students come from a broad range of background (rural and suburban) depending on which part of town they live in. Prior to the inception of this grant, the art room housed one donated IBM computer with Internet access and a printer for classes of approximately twenty-five students each.

Manchester Elementary and Middle School
Manchester School in Manchester, Vermont maintains one full time art teacher and two full time music teachers for grades K-8. Two teachers are also involved in VYP online. Their goals for the grant state that they wanted to create web sites for the art and music programs and allow students to learn HTML and participate in this project. They were also enthusiastic about the mentoring program that would allow students to seek advice and opinions on their work. Prior to the grant, the art teacher had participated in the Web Project's Summer Institute where she was introduced to digital imaging leading to the school's purchase of a digital camera. She also has software use experience with ClarisWorks and Microsoft Word. The Visual Arts classroom had

one old computer before this grant. Manchester is located too far from the cultural institutions in Burlington. Travel costs and time restraints make student field trips nearly impossible.

Milton Junior / Senior High School
Chittenden County's Milton High School employs 2 full time art teachers, one full time music teacher, a .5 FTE music teacher, and a full time theater teacher. One art teacher is responsible for grades 7-8 and the other for 9-12. The music and drama teachers cover grades 7-12. They hoped to incorporate technology into a large classroom setting with a wide array of musical skills. The grant was mainly to be used to purchase hardware and equipment and allow for technology training for teachers. Prior to the grant, Milton had Internet access for music classrooms and the teacher had experience in using the Internet of research. The Internet was not used in classrooms.

Richmond Elementary School
Richmond Elementary School, located in Richmond, has a music teacher involved in the VT MIDI project. The third and fourth grade students would be the first to receive this instruction and then eventually onto the entire school. The students have worked on group composition using "Music Time." The school does not have a computer lab and only recently has been wired for the Internet. The workstations are primarily 386 and 486 PCs connected via a Citrix Winframe network operating system - most are without sound. The music and arts rooms do not have access to the Internet or to the school's network. There is a need for another computer (music room) and a piano keyboard, so students can begin to use "Music Time."

Rochester School
Rochester Elementary School located in Rochester Vermont, and employs no full time people but has .50 FTEs (art), .95 FTEs (music), and .20 FTEs (theater). The technology coordinator and K-12 music specialist are working on this program. There is a need for grades 6-12. The tech coordinator is experienced in multi-track recording, digital imaging, and CAD design. The music specialist is experienced in researching on the Internet, Access, Excel, MusicTime and Cakewalk. The school has a computer lab and a technology lab and has access to the World Wide Web via computers in the classroom. They also have a network for the computer systems. Rochester has a population of about 1000 and is physically completely isolated due to mountain ranges o the east and wet.

Twinfield Union School
Twinfield Union School is located in Plainfield, Vermont. The school employs one full time art teacher and two full time music teachers. There are also two physical education teachers who teach dance. This project would be used for students in all grades. Plainfield's population is 1302 with 460 households.   The school has Internet connection to the art room. The school is wired to the Internet and has computers for the classroom. One art teacher is the coordinator for this program. The teacher of the program does not have any formal training in technology or art.

Waits River Valley School
Waits River Valley School is located in East Corinth, Vermont. The Technology Coordinator is the coordinator for this program, including one art teacher and an English teacher. There is also a teacher involved in VYP online. Three hundred and fifty-six students attend this school, and

the sending area covers ninety square miles and all of its villages are rural with widely dispersed populations. The school has some computers and a network. The network allows 10 users to connect to a modem that runs at 31,000bps. The library is networked and the computer lab is in the process of being networked.

Waitsfield Elementary School
Waitsfield Elementary School is located in Washington County, teaching 153 students from pre-kindergarten through sixth grade with multiple-age classrooms.   Waitsfield employs three teachers involved in the VT-MAP project. One teacher is the technology coordinator who is actively involved in technology in education. The second is a music teacher employed full time teaching both music and drama. The third teacher is an art teacher employed at .3 FTE. Initially, there was one computer in their classroom with Internet access. Their school was also in the process of developing a technology plan that integrated the arts curriculum into it. As the one teacher is a technology specialist, she has extensive knowledge of the use of technology in education. Waitsfield Elementary School is located in a more rural area of central Vermont. Their geographic location and reduced budget for field trips has limited students' exposure to cultural activities and the arts.

Underhill Central and ID Schools
Underhill ID School is also located in Chittenden County with one art and one music teacher working at 40% FTE. The music teacher has had previous experience working with music software to help students learn music composition, however initially she was in the process of working on getting a computer and Internet access in their classroom. Underhill Central School is located in Jericho, Vermont, with most students depending on the school's arts programs for exposure to cultural activities and the arts.

VYP Online Schools
Mt. Abraham Union High School
Rutland High School
Mt. St Josephs
Lothrop Elementary School
Rochester High School
Hannaford Career Center
Rivendell Academy (Rivendell Interstate School District)
Twinfield Union High School
Bellows Free Academy
Rock Point School
St. Johnsbury Academy

Digital Audio Initiative through the Vermont MIDI Project
North Country Union High School
St. Johnsbury Academy

Project Development and Implementation

VT-MAP is an Internet-based arts education program, providing an online forum to facilitate student learning through an exchange among students, teachers, artists, musicians, and other professionals. Three main organizations are involved in this project, including the two former initiatives of the WEB Project, the Vermont Musical Instrument Digital Interface Project (MIDI) and Art Responding Through Technology (ARTT). A recent addition to the online forum is the Vermont Young Playwrights Online (VYP Online), a part of the Vermont Stage Company. This is their second year working online through VT-MAP, whereas the Vermont MIDI Project and ARTT have been working online several years prior to the onset of VT-MAP. The Digital Audio Initiative is also a part of the Vermont MIDI Project established in 2000. The following provides a brief description of each organization and the various online agreements to which the online community subscribe.

Timeline to Develop the Online Forum
The Vermont MIDI Project began in January 1995 with a grant award from the Vermont State Legislature for Distance Learning. The impetus for the project were discussions that began in the Arts Assessment Design Team meetings and focused on difficulties meeting the National Standards in Music (specifically #4 in composition) for all students. The original members set out to explore using telecommunication and consulting with a professional composer as they learned about technology and strategies for teaching music composition in the schools.

> 1995 – Based on early successes of the Vermont MIDI Project, a federal innovation technology challenge grant was submitted to the US Department of Education and awarded to the WEB Project. This $2.5 million grant was for a five year period and was co-directed by Fern Tavalin for the purpose of demonstrating improved learning through the use of multimedia. The Vermont MIDI Project was one initiative under this grant. Sandi MacLeod, a music teacher and arts assessment design team member, become project coordinator and continues in the position today with the assistance of Peggy Madden, a composer.

> 1997 – ARTT (Art Responding Through Technology), the first replication of the Vermont MIDI Project, was formed under the leadership of Judy Tiplady. Present coordinator is Penny Nolte.

> 1998 – Vermont Arts Council was awarded a grant to continue and expand the work of the WEB Project and it's initiatives in online arts mentoring through the Department of Commerce Technology Opportunities Grant– the Vermont Millennium Arts Partnership.

> 2000 – Vermont Young Playwrights Online formed in 2000, replicating the models of MIDI and ARTT. The program is modeled as an extension of the in-class residencies conducted through the Vermont Stage Company

> 2001 -Vermont MIDI Project and ARTT (Art Responding Through Technology) form a non-profit corporation to work for the sustainability of the projects. (http://www.vtmidi.org).

Partnering Initiatives and Groups

The Vermont MIDI Project
Member schools of the Vermont MIDI Project post student musical compositions online in a password protected site for the purpose of sharing and critique. The student pieces are created in music classrooms, often by small groups of students working together. Professional composers as well as teachers, pre-service educators, and other students reply to the compositions offering substantive feedback and encouragement about the work. Goals of the Vermont MIDI Project include:

1) Sustain and expand the online arts mentoring opportunities currently provided for music composition in Vermont;
2) Provide professional development for music teachers and mentors;
3) Develop instructional materials related to the project;
4) Develop opportunities for growth and replication of the project.

ARTT
The ARTT branch of Online Arts Mentoring formed in 1997, as a replication of the Vermont MIDI Project at the request of art teachers. Students, artists, and teachers originally built an online forum to provide serious discussion and to give practical guidance in the use of elements and principles of design and to exchange techniques in the use of various media to help students improve expression. Overtime members of ARTT have worked together to modify this system so that it affirms students as artists, improves the quality of work presented, provides a model for respectful reflection and critique, and demonstrates the use of art vocabulary in online and in-class communication (Tipalady, Tavalin & Roozendaal, 1999).

VYP Online
Vermont Young Playwrights Online formed in 2000, replicating the models of MIDI and ARTT. The program is modeled as an extension of the in-class residencies conducted through the Vermont Stage Company. A visiting artist conducts a one or two-day residency to act as a dramaturge for middle and high school students. Students are instructed to write a ten-minute play. The manuscript is posted online where the visiting artists comments on the work. The student submits a revised script and re-posts the work online where it is then open to comment and discussion by the full online community.

Online Mentors
The mentors of the online forum play a critical role in the project as they are the professional artists and musicians who respond and critique student work in the "request-respond-reply" cycle, as developed by members of the WEB Project of which the Vermont MIDI Project and ARTT were initiatives from 1995-2000 (http://www.webproject.org/connecting/reflect.html). There are ten active mentors in ARTT and eight mentors for the Vermont MIDI project. There are also five mentors active in the VYP Online forum, for a total of twenty-three mentors practicing online.

In response to the Mentor Reports, the mentors discussed several different types of methods employed in the course of their mentoring as well as advice given to students. The methods and

advice of the mentors is unique to each person as each artist has his or her own style of critiquing, responding, and providing feedback to the students' work.

MIDI mentors begin their session of critique by down-loading, listening to and reading the score of students work in composition. Critiquing student work includes describing and analyzing melodic, rhythmic, harmonic and timbral elements, textures, colors, tones, structure, and performance. Mentors also provide information on music theory as related to composition, focusing on various theoretical concepts from various angles and styles as appropriate for the level of the student work. The ideal cycle is known as "request-respond-reply". In this cycle, students *request* feedback, mentors, teachers, and other students *respond*, and students *reply* by posting revisions. MIDI mentors vary their selections of postings to insure a fair distribution of attention to different levels of student work. Mentors also have the responsibility of addressing the requested feedback questions from students as well as any other concerns that need attention. Four mentors also mentioned that they have offered technical support in response to a request from a teacher. The MIDI Mentors reported that they spend between 2 and 5 hours per week acting as an online mentor. The average time spent was just over 2.5 hours per week.

Several mentors wrote that during the course of on-line mentoring, they provide advice to students on arrangement and production techniques, as opposed to strictly harmonic analysis. Several other mentors wrote that they provide specific comments on topics including harmonic, melodic, and rhythmic structure, form of the piece, the effectiveness of instrumentation of the piece, tonal components, and voicing. Several mentors outlined specific teaching methods that they use. One mentor wrote that he capitalizes any word that he feels the student should seek a definition in order to assist students in developing an enhanced vocabulary of music critique and composition. This mentor also mentioned that he often spells out solutions note by note to various compositional problems and often backs up his critique for improvement with his personal opinion, stressing to students that his opinions were personal and should not offend anyone.

Several mentors mentioned they offer listening examples to students that can help exemplify the mentor's comments/suggestions. One mentor specifically stated that he often refers students to popular artists/music that may have relevance in helping to convey the advice given. One mentor wrote that because music composition with MIDI requires the composer to act as a producer and engineer, she encourages students to think about these aspects of composition and offers suggestions to improve their skills in these areas.

Protocols for Online Posting and Interaction

The Vermont MIDI/ARTT Project, Inc. provides a password-protected web site for the purpose of sharing and critique of student work. Work should be posted "in progress," with the expectation that the student is open to receiving feedback. All interactions should be respectful, positive, and constructive.

Students
- In posting compositions, students will describe their assignment or "artistic intent." They will also include grade level, musical background and experience, and any other personal information that will guide the listener.
- The students will ask for specific feedback on their compositions, indicating what their next steps are, and how the observer can help them.
- When the feedback is received, the students will be willing to revisit their work, and to try some of the changes or suggestions offered.
- Students agree to acknowledge the responses they receive by describing what was helpful, and how they used the feedback in developing their work. Further uploads of the work in progress will generate more responses from mentors.

Teachers
- Teachers are responsible for respectful interactions on the site, and will screen postings of work and comments, guiding students through the description of their work and formulating questions for feedback.
- Each school will post at least four pieces by December, and another four by May of each year.
- Teachers are encouraged to use the site as a teaching tool in their classroom, critiquing compositions from other schools. Each school is responsible for posting one critique per month, whether by the teacher or a class.

Administrators
- Administrators of participating schools will provide appropriate technical support to ensure the success of the program.
- Teachers will be given two release days per year to attend professional development activities of the Vermont MIDI Project.

Mentors
- Mentors will offer positive, constructive comments to student composers, appropriate to their age and experience.
- Mentors will make sure that pieces have received a response within 48 hours of their posting.

General
- Any attached files should be in the following formats: .mid, .sib, .htm, .rm, .ram, .jpg, gif, txt, doc. Audio files should not be larger than 600k.

Request-Respond-Reply Cycle

The dialogue for online communication is known as the "request-respond-reply", developed by members of the WEB Project. In this cycle, students *request* feedback, mentors, teachers, and other students *respond*, and students *reply* by posting revisions. This cycle is important to student learning and communication as completion of this cycle demonstrates student engagement and learning. Completion of this cycle also provides mentors with feedback on their response to the students, showing that students value their responses and take them seriously. Completion of the cycle is examined in further detail later in this report.

Figure 1. The Request-Respond-Reply Cycle

Students **REQUEST** feedback
Composer mentors, teachers, and other students **RESPOND**
Students **REPLY** by posting revisions or telling how they used the feedback
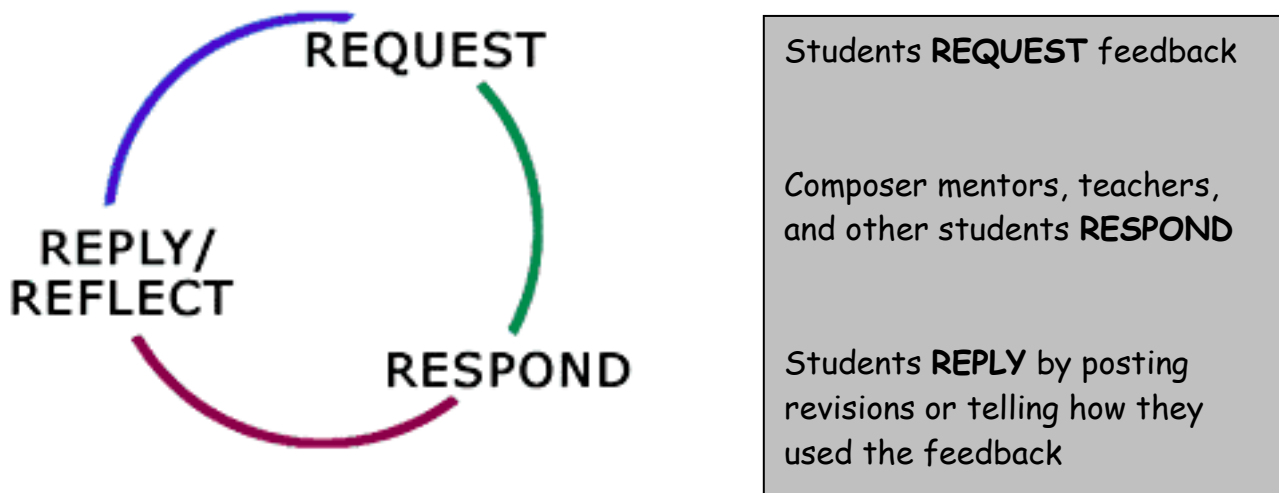
Addressing Vermont and National Standards

The Vermont MIDI Project, ARTT, and VYP Online have focused their work on several of the Vermont and National Standards of Education. The MIDI network addresses standards from Vermont Framework of Standards and Learning Opportunities and the National Standards for Arts Education. Because the process being used is dynamic, many standards are being addressed at once. The following list represents the standards of the network as a whole; individual classes or projects may draw upon additional standards.

Vermont Framework of Standards and Learning Opportunities
- *Communication Standards*
  - Clarification and Restatement 1.13: Students listen actively and respond to communications.
  - Critique 1.14: Students critique what they have heard.
  - Speaking 1.15: Students use verbal and nonverbal skills to express themselves effectively.
  - Artistic Dimensions 1.16: Students use a variety of forms, such as dance, music, theater, and visual arts, to create projects that are appropriate in terms of the following dimensions

- ▪ Skill Development - Projects exhibit elements and techniques of the art form - including expression - that are appropriate to the intent of the product or performance.
- ▪ Reflection and Critique - Students improve upon products and performances through self-reflection and outside critique, using detailed comments that employ the technical vocabulary of the art form.
- ▪ Making Connections - Students relate various types of arts knowledge and skills within and across the disciplines.
- ▪ Approach to Work - Students safely approach their media, solve technical problems as they arise, creatively generate ideas, and cooperate with ensemble members where applicable.
    - o Information Technology 1.18: Students use computers, telecommunications, and other tools of technology to research, to gather information and ideas, and to represent information and ideas accurately and appropriately.
    - o Selection 1.21: Students select appropriate technologies and applications to solve problems and to communicate with an audience.

- *Problem Solving Standards*
    - o Problem Solving Process 2.2: Students use reasoning strategies, knowledge, and common sense to solve complex problems related to all fields of knowledge.
    - o Application 2.6: Students apply prior knowledge, curiosity, imagination, and creativity to solve problems.
    - o Persevering 2.9: Students persevere in the face of challenges and obstacles
    - o Fluency 2.10: Students generate several ideas, using a variety of approaches.
    - o Elaboration 2.11: Students represent their ideas and/or the ideas of others in detailed form.
    - o Flexibility 2.12: Students modify or change their original ideas and/or the ideas of others to generate innovative solutions.

- *Personal Development Standards*
    - o Respect 3.3: Students demonstrate respect for themselves and others.
    - o Teamwork 3.10: Students perform effectively on teams that set and achieve goals, conduct investigations, solve problems, and create solutions.
    - o Interactions 3.11: Students interact respectfully with others, including those who they have differences

National Standards for Arts Education
- Music Content Standard 4: composing and arranging music within specified guidelines
- Music Content Standard 5: reading and notating music
- Music Content Standard 6: listening to, analyzing, and describing music
- Music Content Standard 7: evaluating music and music performances

ARTT has chosen to focus on the following standard from the Vermont Framework of Standards and Learning Opportunities and the National Standards for Arts Education. (Tiplady, Tavilin & Roozandal, 1999).

Vermont Framework of Standards and Learning Opportunities
- *Communication Standard:*
  - Artistic Dimensions 1.16b. Reflection and Critique: Students improve upon products and performances through self-reflection and outside critique, using detailed comments that employ the technical vocabulary of the art form.

National Standards for Arts Education
- Visual Arts Standard 5: Students reflect upon and assess the characteristics and merits of their work and the work of others.

VYP Online is an extension of the classroom and should consider structuring its activities on the Vermont Framework of Standards and Learning Opportunities. In particular their work is focused on the following Vital Results:

Vermont Framework of Standards and Learning Opportunities
- *Communications Standards:*
  - Reading 1.3 - Students read for meaning, demonstrating both initial understanding and personal response to what is read.
  - Writing 1.5 - Students draft, revise, edit, and critique written products so that final drafts are appropriate in terms of the following dimensions:
    - a. Purpose - Intent is established and maintained within a given piece of writing.
    - b. Organization - The writing demonstrates order and coherence.
    - c. Details - Details contribute to development of ideas and information, evoke images, or otherwise elaborate on or clarify the content of the writing.
    - d. Voice or Tone - An appropriate voice or tone is established and maintained.
  - Writing 1.6 - Students' independent writing demonstrates command of appropriate English conventions, including grammar, usage, and mechanics.
  - Responses to Literature 1.7 - In written responses to literature, students show understanding of reading; connect what has been read to the broader world of ideas, concepts, and issues; and make judgments about the text.
  - Narratives 1.9 - In written narratives, students organize and relate a series of events, fictional or actual, in a coherent whole.
  - Artistic Dimensions 1.16 - Students use a variety of forms, such as dance, music, theater, and visual arts, to create projects that are appropriate in terms of the following dimensions
    - a. Skill Development - Projects exhibit elements and techniques of the art form - including expression - that are appropriate to the intent of the product or performance.

- b. Reflection and Critique - Students improve upon products and performances through self-reflection and outside critique, using detailed comments that employ the technical vocabulary of the art form.
- c. Making Connections - Students relate various types of arts knowledge and skills within and across the disciplines.
- d. Approach to Work - Students safely approach their media, solve technical problems as they arise, creatively generate ideas, and cooperate with ensemble members where applicable.

Generic Rubric of Critique

Many of the standards listed above are being assessed locally in individual classrooms. However, there are several standards that the network as a whole is approaching together. These standards are the ones begun by the original design team group and focus on Reflection and Critique and Skill Development of young composers. A three point scale is currently in place to assess the quality of feedback and the level of reflection seen as students and teachers discuss work and give input. Because discussion of work is new in music classrooms and must be extensively modeled, the assessment is currently applied to groups rather than individuals (Vermont Arts Assessment Design Team, 1995, p. 32). This scale includes:

- *Level 1* – Student gives general comments that could apply to other situations as well as the discussion.
- *Level 2* – Student accurately describes the area being discussed. Uses a mix of arts vocabulary and general terms.
- *Level 3* – Student accurately describes the area being discussed. Gives detailed examples, references, connections, or responses to general insights. Uses arts vocabulary.

Developing Classroom Level Goals

The goals of the art and music teachers of the thirty-four grant schools were assessed at three points during the year. Teachers were first asked to identify their classroom goals at the onset of their involvement in the project, during the Summer Institute – Integrating Arts and Technology in July 2000. At this time, most of the teachers were not familiar with the use of technology in the classroom, thus the Expectations Assessment survey captured their hopes and goals before they were fully introduced to the project. The evaluators followed up with the teachers in February 2001 through the Winter Semester Questionnaire, to assess their top two classroom goals half way through their involvement of the first year. In June 2001, the teachers were administered the Spring Semester Questionnaire to identify any changes in their goals at the end of the year. The following narrative describes the initial goals of the ARTT and MIDI teachers and changes in the goals half way and at the end of the first year. Examples of classroom level goals developed include:

- To have the online exchange help students to improve their artwork, knowing they can get feedback and suggestions that they can use to improve their work.
- Student become involved in critiquing artwork by other elementary students…this two-way communication will help students think of themselves as worthy artists.
- Foster creativity and imagination through computers
- To have students explore and examine the artwork on oneself and peers in order to understand the meaning, importance and purpose of art.

ARTT Classroom Goals

The initial goals of the ARTT teachers focused on developing skills and knowledge for the use of technology in the arts, integrating the technology into the curriculum, teaching students how to pursue arts through technology, teaching students about online mentoring, receiving and giving critique, improving student artwork and art vocabulary, and introducing this technology to students. Initial goals of ARTT teachers are highlighted in the box below with the number of teachers who had that goal in parenthesis (eight teachers completed the Expectations Assessment).

Initial Goals of ARTT teachers	Modified ARTT Goals
To develop skills and knowledge for using technology in the arts (5)	Further integrate technology into the curriculum (5)
To develop a curriculum for art and technology (1)	Students develop positive critiquing skills (4)
To introduce the technology to students (3)	Students receive critique and improve their artwork with the suggestions (4)
To introduce students to the process of working with online mentors and receiving critique (5)	Post student artwork online (4)
To increase the use of art vocabulary in the classroom (1)	Students engage in the Request-Respond-Reply cycle (2)
To have students become familiar with critiquing other student artwork (1)	Students improve their ability to speak and write about art and think critically (2)
To create an after school online arts project for students (1)	

The ARTT teachers were asked to identify their top two classroom goals for the VTMAP project in February 2001 for the Winter Semester Questionnaire. Half way through the first year of the project, the teachers continued to express the desire to further integrate the technology and online exchange into the curriculum. The teachers also specified several goals relating to student learning, such as posting artwork, receiving critique and incorporating suggestions to improve their artwork, and developing positive critiquing skills to critique work of their peers.

Develop critiquing skills

All seven teachers who responded to the Winter Semester Questionnaire discussed goals relating to students learning the art of critique. Teachers specified that they would like their students to develop positive critiquing skills to examine their own artwork and the work of their classmates and peers. In developing critiquing skills, teachers hope that students will develop their ability to speak and write about art, using elements of design and appropriate vocabulary. Further, teachers have the goal that students will learn how to accept constructive criticism given to them

by others and use this feedback to improve their artwork. One teacher remarked that the online forum will provide students with an expanded audience for their artwork and allow them to explore new ways of creating art through viewing the work of others.

Post student artwork online - use of the Request-Response-Reply cycle
Two of the teachers noted their goal of posting student artwork online. Several teachers specified that they would like their students to engage in online dialogue with mentors using the request-respond-reply cycle.

Development of reflection and critical thinking skills
One teacher expressed the goal that she would like her students to explore and examine the artwork of oneself and peers in order to understand the meaning, importance and purpose of art. Another teacher specified that she would like her students to have the opportunity to work creatively and develop critical thinking skills. Another teacher commented that the online forum will help students to develop respect for their own artwork and personal potential through reflection and connection to other students and artists who value the creative process and its visual rewards.

Final revision of goals
Most of the teachers who responded to the Spring Semester Questionnaire in July 2001 reported that their goals had not changed since the beginning of the year. One teacher wrote that she was not able to include as many students to post online as she had hoped, thus lowering her expectations of student posting. Another teacher commented that she needed to become more proficient with image processing, in using the digital camera, scanner, and Adobe Photoshop. This teacher also noted that after participating in the project for a year, she and her students have come to appreciate the benefit of the request-respond-reply cycle and have the goal of posting more works in progress for next year.

MIDI Classroom Goals
Several of the initial goals of teachers involved in the Vermont MIDI Project were similar to those of the ARTT teachers. All the teachers initially expressed the goal of integrating the MIDI and internet technology into the curriculum, specifically the practice of composition and using the online forum. Teachers also had the goal that their students would develop skills in composition, including sequencing and notation, learning from a variety of outside sources through the online forum. In working with the website and mentors, teachers had the goal that students will develop critiquing, reflection, and analytical skills through critiquing others, receiving feedback, and incorporating feedback into their work. Several teachers expressed goals of achieving personal and professional growth through working with the technology and online forum. Teachers also noted that this project provides students with an additional creative outlet through the use of technology. One teacher remarked, "As a special education teacher, a major goal in using arts and creative performance is to decrease risk of delinquency and academic failure…and it works!"

Initial MIDI Goals	Modified MIDI Goals
♫ Integrate the VTMAP project and music composition in the curriculum (6)	♫ Develop and improve composition skills (9)
♫ Students develop skills in music composition (6)	♫ Integrate technology into the classroom (5)
♫ Students develop skills of critique, reflection, analysis (6)	♫ Develop and improve skills of critique (4)
♫ Increase teacher comfort with using technology (2)	♫ Effectively utilize dialogue with mentors (4)
♫ Offer students an additional creative outlet using technology (2)	♫ Improve student ability in the creative process (4)

The MIDI teachers were asked to identify their top two classroom goals for the VTMAP project in February 2001 for the Winter Semester Questionnaire. A general goal of all of the MIDI teachers included the expansion of their current music curriculum to include composition and integrate the online forum and use of technology into the classroom. One teacher noted that in working towards this goal, she expected that her students would improve their technology skills. Other goals related to developing skills of composition, critique, working with mentors, and improving student ability in the creative process.

Develop and improve composition skills
Eight teachers discussed goals relating to composing in the classroom. Teachers specified the goals of introducing students to the use of MIDI technology so they may improve their skills in reading and writing notation. Through using the technology, teachers expect that students will be able to compose in a meaningful and theoretically knowledgeable way. Teachers want to use MIDI technology to excite students about composing music and using the online interaction with the mentors as a way to expose students to professional composers/musicians. One teacher noted that this project would also expose students to a lot of different types of music so they may develop creative ideas for composing. Another teacher specified that she wanted her high school students to submit work for consideration of the Opus 3 concert. Further, one teacher specified that, in general, she expected her students to increase their ability in working through a creative process of composition.

Develop and improve skills of critique
Five teachers noted the goal of working with students to develop and improve their critiquing skills. Teachers specified that students will learn how to ask for critique, accept constructive criticism, apply a critique to improve work, and provide critique for work of their peers.

Effectively utilize dialogue with mentors
Three teachers reported that a classroom goal was to effectively utilize online mentors. Teachers expressed the desire to have students develop and improve their dialogue with mentors, use a critique to improve student work, and respond to the mentors based on their critique. One teacher also noted that she would like to more effectively use the comments of mentors in classroom instruction.

Final revision of goals
MIDI teachers were asked to discuss how any of their classroom goals had changed at the end of the year on the Spring Semester Questionnaire. Three teachers reported that their classroom goals did not change since the beginning of the year. Several teachers noted that they were less successful in reaching their goals than they had hoped. One teacher specified that she spent the year learning how to use the technology and developing a curriculum that integrates MIDI and composition. Another teacher noted that she spent most of her time (which she stressed was very limited) struggling and dealing with problems of hardware and Internet connection. Several teachers commented that their goals exceeded the amount of time and workstations they had available. One teacher noted a specific change in goal stating that she would like her class to spend more time listening to pieces from the website and developing more in class critiques. One teacher remarked that her students exceeded her expectations! She noted that all of her student groups had posted their work online as they had learned how to use the software and create music faster than she had anticipated.

VYP Online Teachers Classroom Goals
Teachers involved in VYP Online did not attend the Summer Institute in 2000, thus data is not available on their initial goals of the project. However, four of the teachers identified their classroom goals half way through the project in response to the Winter Questionnaire. Most of the VYP Online teachers expressed the desire to incorporate the technology and computer skills into the classroom and curriculum. Three other major goal areas were identified by the teachers including, to connect students to resources outside of their local area, to have students develop skills of critique, and to have students improve their work through feedback received.

VYP Goals
Connect Students to resources outside of local area
Students develop skills of critique
Students improve their work through feedback.

Connect Students to resources outside of local area
Several teachers expressed the goal for the online exchange to connect students to other students, professionals, and other opportunities in theater outside of their local area. Specifically, one woman who teaches at a Career Center expressed her desire that students become aware of Vermont Arts career opportunities and for the project to connect her students to post-secondary opportunities.

Develop skills of critique
Several teachers noted that they would like to teacher their students to give and receive constructive criticism to a variety of plays. Through participation in the online forum and communicating with other students and professional playwrights, students will gain skills in providing feedback, criticism, and critical thinking.

Improvement of student work through feedback
Several teachers also wrote that they would like students to improve upon their work through feedback they receive from other students and professional writers. One teacher commented that this feedback will provide teachers further insight on how to better facilitate writing plays.

Final revision of goals
Five teachers responded to the Spring Questionnaire. Teachers noted that they would like to further incorporate the technology and online forum into classroom instruction. Several teachers would also like to have more students work online, both in posting work and ultimately completing plays as well as looking at other plays posted by students at other schools and feedback they received. One teacher specified that she would like to further teach students how to develop more specific constructive responses to other students and mentors. She felt that the online comments to her student's plays were too general, such as "that was a really good play". She would like to build in more instruction on how to respond to the script. Also specified was to have students focus on completion of the request-respond-reply cycle and so that students may complete a final play. Goals focused more on quality of participations involvement in the project, not just as much on number of persons participating.

Professional Development for Teachers
Professional development activities included the *Summer Institute – Integrating Arts and Technology* in July 2000, *The Gathering* in November 2000, and a host of ARTT and MIDI workshops held locally. Positive feedback was received in response to these activities.

The *Summer Institute – Integrating Arts and Technology* provided both initial and follow-up training and coursework for credit for teachers, artists, and musicians involved in the online community, as well as other artists not directly involved in the online community. Approximately sixty people attended the training involved in ARTT and the Vermont MIDI Project, VT-MAP, and individuals independently involved in the online forum. At this training, the new VT-MAP grant recipients received their equipment for the first time and received initial instruction on the use of their equipment and website. CRS developed and administered an evaluation questionnaire to all participants to obtain their feedback on this training and improvement of future trainings of new project participants (Appendix G. Thirty-five people responded to this questionnaire, with sixteen from MIDI, sixteen from ARTT, and three people who were not involved in either of these projects. Of the people who responded to this survey, most persons felt that working in small groups, working hands-on with the technology, learning new software, and networking with both new grantees and experienced members of the online were extremely beneficial. Teachers gained technical skills including how to use new software programs and equipment. Teachers also gained confidence in themselves and a support network through working with colleagues. They also noted that the instructors, staff, and adequate time available for instruction were helpful to the learning process.

The second annual *Gathering*, hosted by VT-MAP in November 2000, also provided an opportunity for members in the Vermont MIDI Project and ARTT to work together in a variety of workshop and strategy sessions and network and share among members. The entire Partnership responded positively to the evaluation form for this conference (Appendix H). Members who responded to the evaluation reported that the opportunity to network with others was the most important aspect of The Gathering (the complete evaluation report is available in Appendix J). In addition to these major workshops, between eight to ten workshops in both ARTT and Vermont MIDI were held each semester. The VT-MAP administrator note that lack of participation at these workshops is often related to time constraints in teachers schedules, support from school administration for teachers to attend, awareness of these workshops, and desire to attend. Teachers have also attended the *VAAE for Arts Education Conference* in September 2000.

Learning opportunities and professional development for the future
Teachers in MIDI, ARTT, and VYP Online expressed the need for continued professional, including training to use equipment and software and sharing of ideas on how to integrate the technology into the curriculum. Teachers also noted that they would like to make class visits to other schools to observe and learn and would like mentors to make site visits to work with students. Teachers also expressed the need for additional equipment and continued technological support. One teacher suggested the expansion of online technological support to further assist teachers.

Continued training and sharing of ideas
Most teachers stressed the importance of annual meetings and conferences with other teachers. These offer teachers the opportunity to network, share, and discuss ideas with other participating educators. Teachers would like training sessions to continue throughout the year (ongoing basis) so they may develop and maintain skills using software such as Adobe Photoshop, Acrobat, and Sibelius. One teacher specifically asked for more training in how to better facilitate the request-respond-reply cycle with students. One teacher suggested that these training sessions should be open to para-educators and parent volunteers.

Classroom observation
Several teachers noted that they would like the opportunity to observe other classrooms and learn how other art and music teachers with more experience in the partnership have implemented the technology into the classroom.

Traveling mentors
One teacher noted that she would like mentors to make site visits at schools to meet students and help them with the work one-on-one and with posting questions and feedback.

Additional equipment
Many art, music, and writing/theater teachers expressed the need for additional equipment. These include overhead projectors to share the website with the class, computers, printers, digital cameras, and a site license for Adobe Photoshop. One teacher requested that teachers should receive periodic upgrades on their equipment as needed or available.

Continued technology support
Several teachers noted that they would like to have continued technology support from the project coordinators. One suggested that the project should expand the availability of online technical support

Meeting Grant Goals

Goal I: To increase Vermont public awareness of, and support for Arts education.

- *Public support: increase number of Full Time Equivalent arts instructors in 20% (5) of the 23 participating schools/school districts.*

At the end of 2000-2001 school year, one (3%) of the 34 participating schools has added 1 Full Time Equivalent (FTE) arts instructor. In seven other schools the school board has increased teaching positions by as much 40% to provide more time for the use of technology in the classroom. Over the past two years, eight (24%) teachers in the 34 participating schools had an increase in FTE, while one school (3%) added one full time arts teacher.

- *Public support: increase arts materials budgets in 40% (9) of the 23 participating schools/school districts.*

Eight (24%) of participating schools reported an increase in their arts budget for the 2001-2002 school year. St. Johnsbury Schools reported an increase from $25,000 to $45,000.   This is an increase from last year, as in the previous school, none of the participating schools had any significant increase or decrease in the arts material budgets.

- *Public support: 75% (18) of participating schools will plan for improvement in the arts through their school action plan.*

Most schools stated the arts were an integrated part of their total program but were not specifically included in their schools action plan. Three (9%) have plans to improve their arts program through their school action plan. This is also an improvement from last year as no significant changes were made last year in the school action plan for improvement in arts education.

- *Public support: 65% increase (15) of participating school/school districts will acquire additional hardware or connectivity for arts education.*

Eleven (32%) out of the 34 grant schools have acquired additional hardware and/or connectivity for arts education. This past school year, 2000-01, one (3%) out of the ten schools has received funds from the school budget for six new workstations for their music program. Over the past two years, fifteen schools (44%) received additional hardware and one (3%) received funds for workstation improvement from their school budget.

- *Public support: increase by 7% the Vermont public's perception of the importance of the arts in education as measured through an existing annual statewide opinion poll.*

In March 2000, CRS conducted the Vermonter Poll, an annual statewide opinion poll about issues important to the state. Five questions on the Vermonter Poll were asked related to public funding for the arts and awareness of Internet-based arts education in Vermont, specifically the Vermont MIDI Project, ARTT, and VYP Online. A total of 720 Vermonters responded to the

poll. A complete report of the findings of this section is available in Appendix K of this report. The following summarizes the highlights of the findings and conclusions.

Regardless of education, geographic location, having children at home under 18, and income, 80% of respondents feel that it is either important or very important for state government to provide funding to support arts programs such as arts education in schools, community arts organization, and arts programs provided through social services agencies. Females and people who are younger (mean age 47.9) are significantly more likely to feel that this funding is either important or very important. Recall that last year, the 2000 Vermonter Poll showed that almost 90% of Vermont residents support arts education regardless of demographics.

The mean dollar amount that respondents would be willing to spend to provide additional support for the arts is $128. The median amount is $100 and the mode is also $100. Highest percentages were received in the dollar range of $51-100 (32%) and $1-25 (31%). Those who do not have children under 18 living at home and those living in the Northeast Kingdom are significantly more likely to spend $51-100 in tax dollars. Recall that in 2000, almost 83% of Vermont residents support expanding the Internet-based arts programs to all of the schools in the state.

More than half of respondents (59%) selected arts education programs in schools as their top priority to receive funding from this pool of money, followed by local organizations (25%) and local social service agencies (15%). Respondents who have some college education or more are more likely to support local organizations, however respondents with a high school diploma or less education are more likely to support arts programs provided by local social service agencies. Almost equal percentages of these two education categories supported arts education programs in schools.

Twenty-six percent of respondents reported that they were aware of Internet based arts education programs in Vermont, while almost three quarters were not aware. This is higher than the results from 2000 as approximately 22% of Vermonters' have heard about VT-MAP or any other Internet-based arts programs at that time. In 2001, 9% reported having heard of the Vermont MIDI Project, 14% ARTT, and 13% VYPO. Respondents with a high school diploma or less education (36%) are more likely to be aware that Internet based arts education programs exist in VT and to have heard of VYPO. However, people with some college or more are more likely to have heard of the Vermont MIDI project. Respondents who are at or above the median income in Vermont are more likely to have heard of ARTT and female respondents are more likely to have heard of VYPO.

- *Public support: introduce new audiences to student arts and technology work, as indicated by 15% of showcase audiences having a first time experience.*

Twenty-two (64%) of the thirty-four schools reported on the Winter and Spring Questionnaire that they presented the project and student artwork, music compositions, and dramaturge during the 2000-2001 school year. These presentations/showcases helped to introduce the project, present student artwork, demonstrate the process of posting and the online exchange, and

ultimately the benefit of the project for the art education of children. The target audiences of these presentations included parents, school principals, the school board, and the public.

By the end of the 2000-01 school year, twenty-two teachers reported promoting student work through presentations at school board meetings, school assemblies, technology open houses, school report nights, district art shows, and parent/teacher conferences presentations. Teaches have also written press releases and news editorials in local newspapers. Several teachers reported having set up a computer display of student work during their school Open House. Student compositions have also been featured during school band and chorus concerts. Teachers have also posted print outs of student work on classroom and school bulletin boards. Several have written press releases about student artwork for local newspapers and one reported writing an article about the project in her school newsletter. All teachers have introduced the project to parents through sending them information in the mail or inviting parents to the classroom for a demonstration of student work ("Open House" night or "Technology Night"). Parents are also given the web address to view student work on the website.

The exact percentage of attendants at these showcases who had a first time experience was not documented. However, as this is a new project in the fourteen grant schools (2000 grant recipients) and most of the performances and demonstrations were to introduce the project to their community, the majority of the audiences at these showings had a first time experience of student arts and the integration of technology. Similarly, as most teachers of the ten grant schools from 1999 experienced student turnover this past year, parents of these new students experienced the program for the first time this year.

- *Public support: 70% of showcase audiences will have a favorable opinion of the student work generated by the project.*

All of the teachers who presented the project or arranged for a student art show or musical performance reported that they received a positive response from their showcase audiences. The audiences (parents, principal, other teachers, school board) were very impressed with student work and the project and were excited and amazed that this type of online exchange for arts education was possible. Teachers reported that in general, the school principal and parents have been very supportive of the project. Although some teachers noted that their school board is supportive and impressed with the project, several remarked that they need to continue to make the them aware of the project as they do not have much contact with the school board.

Goal II: Improve opportunities for students to learn the Arts.

- *Arts Learning Opportunities: enlarge the pool of artists skilled in on-line mentoring by at least 35 artists.*

There is a distinction to be drawn between artist/mentors who are trained and capable of acting as online mentors and those who are active online mentors. Funding is the defining issue since there are more trained artist/mentors than funded positions. There are thirty-seven artists trained in on-line mentoring and have acted as an on-line mentor. There are currently eight veteran active mentors in the Vermont MIDI Project, with four trained mentors who are inactive. In ARTT, there are eighteen trained mentors, with thirteen veterans and five new this past year. Currently there are 10 active mentors within ARTT. Within VYP Online, there are five mentors, all of whom are new this past year. Finally, there are three mentors in video and animation, all of whom are veterans in this online community. Over the course of three years, the pool on artists skilled in on-line mentoring has increased by 37 artists.

- *Arts Learning Opportunities: enlarge the pool of practicing artist mentors by at least 20 artists.*

This past year, due to a decrease in available funds from the other contributing grants, the pool of practicing online mentors has decreased. There are ten active mentors in ARTT and eight mentors for the Vermont MIDI project. There are five mentors active in the VYPO forum. This is a total of twenty-three mentors practicing online.

- *Arts Learning Opportunities: increase the participation of Vermont students in the on-line mentoring forum by 2000 students.*

"Participation" in the online mentoring forum expands beyond students posting and responding to work in the online exchange. Many students participating in the project are not "visible" online, however they participate in their classroom lessons and activities, which are involved in and utilize the online mentoring program. Thus, there is potential for students to benefit from the online activity through classroom participation, such as learning the skills of critique by viewing the discussion and benefiting from the feedback other students receive, without directly working online. Approximately 10,000 students have been exposed to the online mentoring forum through the thirty-four grant recipient schools and the other 85 participating schools. There are, however, other classrooms that have not received funds or equipment from VT-MAP that are present on the online forum and are engaged in the exchange through classroom activities.

- *Arts Learning Opportunities: maintain on-line arts learning opportunities in all 14 of Vermont's counties.*

At the end of the second round of grants, VT-MAP schools have maintained online arts learning opportunities in 12 of the 14 counties in Vermont (Windham and Essex counties were excluded.). The other schools participating in the online network, which have not directly received assistance from VT-MAP, have maintained online arts learning opportunities in all 14

counties.

- *Arts Learning Opportunities: assist 7 local area Arts Organizations with connectivity and computer technology through training and providing hardware on an as-needed basis.*

Three LASO (Local Arts Service Organizations) accepted the challenge of connectivity and computer technology through training and hardware provided by VT-MAP last year. The recipients included: Catamount Arts in St. Johnsbury; Crossroads Arts Council in Rutland; and Vermont Arts Exchange in North Bennington. Of the three, Vermont Arts Exchange has taken the initiative with the technology and training by partnering with a middle school teacher at Mount Anthony Middle School. The administrators of VT-MAP have created an alternative web site for the online exchange of VAE that will take place during summer workshops.

By the end of the second year, two of the three LASO accepting assistance had withdrawn (Catamount Arts in St. Johnsbury and Crossroads Arts Council in Rutland). One additional LASO applied for and received assistance through the grant. Studio Place Arts in Barre has implemented the use of computer technology in their education programs to a limited degree.

- *Arts Learning Opportunities: develop 3 live annual conferences of students, teachers and artists engaged in performance and arts technology activities.*

The Gathering, the second and third annual conference of VT-MAP, was held in November 2000 and 2001 in Montpelier, Vermont. Students, teachers, artists, musicians, and other professionals attended 'The Gathering'. The evaluation form of this conference is available in Appendix H of this report. The complete evaluation report of the findings of the second annual Gathering is available in Appendix J of this report. Two of the annual Gatherings have featured showcase performances and displays of student works (including Opus 2 and Opus 4). There have been five additional showcases of student works: at Montpelier High School on April 29, 2000 (Opus 1); at the Vermont Statehouse on February 14, 2001; at Montpelier High School on March 24, 2001 (Opus 3); and at the Vermont Statehouse on April 19, 2001.

Forty-three persons responded to the Gathering Evaluation questionnaire, of which 59% (24) were VT-MAP grant recipients (second annual Gathering). This conference will be held in November 2001, and possibly on an annual basis, as a way for teachers, students, artists, musicians, and others to hold and participate in professional development workshops, interact and support one another, share ideas, and learn from each other, and network. This annual conference is especially helpful for new participating schools as they have the opportunity to ask questions and learn from more experienced schools.

- *Arts Learning Opportunities: encourage an improvement in student performance in arts and related areas (according to the Vermont Framework of Standards and Learning Opportunities) in 50% of participating students.*

ARTT, MIDI, and VYP Online projects utilize standards abstracted from the Vermont Framework of Standards and Learning Opportunities and the National Standards for Arts Education to measure student performance in the arts and related areas. Specifically, they

address the Vital Results Standards, which are the responsibility of teachers in all field of knowledge. The following depict the impact of the project on student performance and achievement in the areas of skill development, personal development, and student performance and achievement, with reference to the standards they achieve. This data is based on reports from teachers through interviews, focus groups, and questionnaires. Data is not available on the percentage of students who achieved these results, however teachers report that all of their students have experienced success through some or all of these areas at one time. (See p. 54-56 and Appendix L for a complete listing of the standards followed by The Vermont MIDI Project, ARTT, and VYP Online teachers).

MIDI Standards
Skill development
- Listen and evaluate music - standards achieved include: 1.13, 1.18, 3.10, 5.5, National Music Content Standard (NMCS) 6 and 7
- Skills of critique - standards achieved include: 1.14, 1.18, 2.6, 5.5, 5.6, 5.7, 5.22, 5.23, 5.27, B.4, NMCS 6 and 7)
- Learn to ask more specific questions for feedback - standards achieved include: 1.16c, 1.21, 2.11, 5.4, 5.7, 5.22, 5.23, 5.27, 5.28, B.4, NMCS 6
- Improved musical vocabulary - standards achieved include: 1.13, 1.14, 1.15, 1.16b,c, 5.4, 5.12, NMCS 6,7
- Notation skills and understanding of musical elements - standards achieved include: 1.16a, 5.31, 5.32, NMCS 4,5,6,7
- Increased ability to sight-read music - standards achieved include: 1.16a, c
- Composing Music - standards achieved include: 1.18, 1.16a,d, 1.21, 3.10, 5.31, 5.32, NMCS 4,5,6,7
- Process and apply the criticism they receive - standards achieved include: 1.13, 1.15, 1.21, 2.2, 2.9, 2.10, 2.11, 2.12, 3.3, 5.22, 5.23, 5.24, 5.27, B.4, NMCS 4,5,6,7

Personal Development
- Increased motivation to learn – direct application of skills and positive feedback - standards achieved include: 1.13, 1.15, 1.16a,b,c,d, 1.18, 1.21, NMCS 4,5,6,7, 2.2, 2.9, 2.10, 2.11, 2.12, 3.3, 3.10
- Increased self-esteem and confidence - standards achieved include: 2.9, 3.3, 3.10, 3.11, B.5

Student Performance and Achievement
- Increased quality of student work Standards achieved include: 1.13, 1.15, 1.16a,b,c,d, 1.18, 1.21, 2.6, 2.9, 5.24, 5.28, NMCS 4,5,6,7, 2.2, 2.9, 2.10, 2.11, 2.12, 3.3, B.1, B.3

ARTT Standards
Skill Development
- Use of mixed media - standards achieved: 1.15, 1.16b,d, 1.18, 1.21, 5.29, 5.30, National Visual Arts Standard (NVAS) 5
- Critique and reflect - standards achieved include: 1.1, 1.2, 1.14, 1.16b, 2.10, 5.4, 5.6, 5.7, 5.22, 5.23, 5.24, NVAS 5
- Analytical skills to improve work - standards achieved include: 1.13, 1.16c, 1.21, 2.1,

2.2, 2.3, 2.10, 2.11, 2.12, 5.4, 5.6, 5.7, 5.22, 5.23, 5.24
- Clear communication of ideas, critical thinking, and asking appropriate questions - standards achieved include: 2.1, 2.3, 2.3, 2.9, 5.5, 5.6, 5.7, 5.27, 5.28
- Improved arts vocabulary - standards achieved include: 1.15, 1.16a,b,c,d, 5.4, 5.12, 5.22

Personal Development
- Increased motivation to learn - standards achieved include: 1.16a,b,c,d, 2.9, 3.3
- Increase in self-confidence – all students excel - standards achieved include: 2.9, 3.3, 3.4, 5.5, B.5

Student performance and achievement
- Demonstrated learning - standards achieved include: 2.2, 2.3, 3.3, 5.28, B.1, B.3
- Higher quality of work - standards achieved include: 1.16a,b,c,d, 5.28, 5.29, B.1

VYP Online
Skill Development
- Enhanced writing skills (Standards achieved include: writing 1.5 and 1.6, 1.16a,c,d, 5.4, 5.5, 5.12, 5.18, 5.28)
- Enhanced critique skills (Standards achieved include: Reading 1.3, 1.16a,b,c,d, 5.6, 5.22, 5.23, 5.24)

Student achievement
- Post-secondary education (Standards achieved include: 1.16a,b,c,d, 5.7)

Goal III: Increase use of computers and Internet technology in arts education.

- *Increased Technology Use: increase by 23 the number of participating classrooms using computers and the Internet technologies.*

From the past two years, there are 54 teachers from the 34 grant schools that are using computers and the Internet technologies within their art, theater and music curriculum. Within the art curriculum, students are using the online forum to post their work for mentor feedback, view and critique student work, developing animations and web pages, and utilizing programs such as Adobe Photoshop. Several classrooms have used the Internet to view artwork at various museum websites. The classrooms also have used technology, such as the digital camera and scanner to create artwork on the computer.

Within the music curriculum, the classrooms are using Sibelius and MusicTime notation software, as well as sequencing software, to compose music, uploading their compositions onto the online forum for critique, and listening to and critiquing compositions online created by other students. Six classrooms have used computer technology to create digital audio projects (detailed information on student activities in the project are available beginning on page 57 of this report).

- *Increased Technology Use: an additional 15 classrooms will join the on-line forums over the Project period.*

There were ten participants in the initial network of the Vermont MIDI Project in 1995. ARTT began in 1997 with a network of eleven teachers. The VT-MAP grant began with an existing network of about 36 schools that were the core of two online student exchange forums: ARTT and Vermont MIDI Project. Within the first year, the project had selected from submissions 10 schools and 15 classroom teachers to receive equipment and teachers training. In the first year 17 additional schools joined the online forums - outside of our assistance in equipment. In the second year the participation increased by 14 grant recipient schools and an additional 43 classrooms that came in by their own means. Over the past two years, 60 schools have joined the online network without out the assistance of VT-MAP.

- *Increased Technology Use: all 23 new participating schools/school districts will successfully post work within the forum by the end of the project.*

All VT-MAP schools posted work to the online interface and requested feedback at least once this past year (2000-01). It is important to note that posting work is a measure of "getting started" not necessarily a measure of successful use of the project's opportunities.

- *Increased Technology Use: increase in the frequency of use of the communications forum when new teachers begin integrating technology in the classroom.*

Anecdotal evidence from interviews with project coordinators indicates that after an initial peak in usage by new teachers as they practice their uploading skills, more experienced teachers use the online forum less often as they direct their online inquiries in a more specific manner based on "need" for feedback about artwork. As teachers become more knowledgeable and experienced with using technology and techniques in art, music, and theater themselves, they bring these techniques into classroom instruction. The teacher then becomes a mentor to students for basic questions and students utilize the online forum on a less frequent basis to request feedback from online mentors for more specific and complex questions.

Meeting Classroom Level Goals

Through both the Winter and Spring Semester Questionnaires, teachers were asked to discuss any progress they had made towards their goals. The following describes the progress that ARTT, MIDI, and VYP Online teachers made towards their goals this past year.

Meeting ARTT goals

All of the teachers in ARTT commented that they have made some progress towards their classroom goals. Teachers reported making progress towards goals in the areas of introducing students to the online exchange, posting work, student's use of art vocabulary, integrating the coursework into new curriculum or offering new courses based on the online exchange, and presenting class work. Three teachers in the winter and spring reports noted that they had made moderate progress and felt their work had been slow. This was mainly due to limited classroom time and limited opportunity to post work online for revision of pieces. However, one teacher commented that she had achieved all of her goals and her students had worked hard and surpassed her expectations!

Introduction of the website and technology to students

All of the teachers successfully introduced students to the online forum during the year. Teachers note that the online exchange has provided a forum in the curriculum for students to think, write, and speak about art. Another teacher wrote that she has been using the online threads for instructional purposes through the use of an LCD projector. Several teachers commented that their students had learned to use Photoshop, a scanner and digital camera for art projects.

Posting work online - engaging in online dialogue through the request-respond-reply cycle

Most of the teachers reported in both the winter and spring that their students had posted work on the website. More teachers noted this on the Spring Questionnaire than on the Winter Questionnaire. Several teachers specified that their students were posting work using the request-respond-reply technique. Using this technique, students interpret the information they are given

> *"The online exchange has provided a place in my curriculum where I can have students thinking, writing, and speaking about art." - ARTT teacher*

from various artists and students and make decisions about how to change their artwork. One teacher commented that the online forum is very exciting for students and motivates them to do more and higher quality work. One teacher wrote about the challenge her classroom had in posting works in progress. She noted that before the VTMAP project, her classroom focused on celebrating completed artwork. However, since their involvement, they are working towards posting unfinished work because she has learned that posting only finished work short changes the request-response-reply cycle. Several teachers noted that they receive terrific feedback from parents after they read mentor responses to their student's request for feedback.

Student use of art vocabulary

A few teachers commented that students have learned how to describe their work and ask the appropriate questions for feedback. In posting work online and critiquing others, students have improved their use of art vocabulary.

Integrating online component into the curriculum - development of new curriculum or courses
Three teachers wrote that over the past year they have integrated the online component into several courses previously offered and courses recently developed because of the VTMAP project. One teacher discussed how she has incorporated the use of online mentoring and other technology into her high school classes, such as photography, craft, design, drawing, and painting. Through this course work, high school students have developed digital portfolios on both disk and in their sketchbooks. This teacher also discussed how she developed curriculum for an Art Challenge class, where students work independently to create and post work online. Further, digital imaging and online posting are part of a new middle school class that meets daily for five weeks throughout the year as part of the schools Exploration Program. A teacher discussed how she incorporated online mentoring into her digital imaging and stained glass classes. Another teacher wrote that she developed an after school ARTT club, where students use the website for posting and revising their work. At the end of the school year, eight students had participated in this club. These teachers noted that the ARTT project and the VT-MAP grant of equipment had enriched and revitalized their arts curriculum and offerings.

Student presentations
Several teachers wrote about their presentation of student work through various media. One teacher displayed her student's online work at their school exhibit. She commented that many other students became interested in the project after this display. The teacher presented the ARTT project to her school directors and board members in the spring. Another teacher displayed her students' work on their school website.

Revitalization of Arts Curriculum and Course Offerings at Twinfield Union School

More than 75 students in grades 1-12 have posted work and responded to feedback from online mentoring since the beginning of September.

Art Challenge (a new class) requires independent art students in grades 3-8 to create artwork and post online. High school students in painting studio are required to post their work online at least three times, following a process from sketch through finished painting) as part of the curriculum for the class. They are also required to respond back to the mentor or other responding student.

Digital imaging (PhotoShop) and **online posting** are part of a new class for eighth grade students, that meets daily for five weeks throughout the year, as part of the Exploration Program. Every eighth grade student takes this class. The camera is used by art students and teachers to take pictures of student artwork for publication in the school; community newspaper, school website and displays on bulletin boards.

Curriculum changes have included high school photography, craft, design, drawing and painting classes that incorporate the use of online mentoring, digital camera and digital imaging into the course requirements. Students in photography classes use a digital camera and PhotoShop, as well as a 35mm camera. Painting students work with PhotoShop and a blank canvas incorporating many painting and filter techniques into their work.

Online mentoring and digital imaging programs have enriched and revitalized the Twinfield arts program. Student learning has improved through mentoring of student work in progress rather than the completion of a piece. None of this would have happened without the support received from the Vermont Millennium Arts Partnership grant.

Meeting MIDI goals

All of the teachers involved in the MIDI project noted that they have made some progress towards their classroom goals. Throughout the year, progress was made in the area of composing music, learning and providing critique, posting work online, and increasing equipment available for the project. Although all teachers reported experiencing some progress, three commented that their progress had been slow because of snow days, limited time and technology, and working through student learning curves. Even though some teachers did not make the progress they hoped, many noted that they overcame their "computer-techno-phobia". Several of the teachers reported on the Spring Questionnaire that they had made great progress towards their goals that surpassed their expectations.

Music composition

All of the teachers who responded to the Winter and Spring Semester Questionnaires reported that their students had learned notation and were composing. Only one teacher noted that many of her students were not composing using MIDI technology because of lack of equipment. Her students were composing through paper and pen, taking turns to use the available computer work station. Several teachers noted that their students were working in small groups to compose with the choice of harmony, bass, and percussion. At the end of the year, teachers reported on specific achievements

> *"Students have jumped the hurdle of self-doubt and are writing tunes in spite of a belief that they could not!" - MIDI Teacher*

relating to student compositions. In one school, students saved their compositions to a disk to share with fellow classmates and their parents at a school technology night. In another school, a teacher successfully completed a six-week session on music composition through the use of technology. She felt this elective offered her students more opportunities to experience music composition, specifically through working with other students and professionals on the website. A teacher enthusiastically reported that one of their high school students had submitted a composition to be considered for the Opus 3 concert.

> *"The exciting part is that my students are really learning to read by composition and the online mentoring is such a boost for me and very respected by the students." - MIDI teacher*

Critiquing skills

Students developed skills in critique through practicing in the classroom with their own and classmate composition, and following student work online as changes are made through mentor interaction in the request-respond-reply cycle. As students become more proficient with music composition, they are able to make more comments and reflect and learn from online comments. One teacher commented that although her students have worked on critiquing, students have experienced difficulty either accepting critique or finding good and meaningful suggestions to improve other student work online.

Posting of work on the website

By the middle and end of the year, many teachers reported that their students had posted work online. Teachers remarked that posting work and receiving feedback was very exciting for students and the class as a whole. One classroom posted work in small groups, while another

classroom posted work as individual students but provided critique to online work as a class. One teacher noted that she plans to work more with the online exchange in the coming year to further incorporate feedback provide by mentors on the forum into class discussion.

Changes in Classroom Equipment
One teacher reported that her classroom received two more stations (total of four) during the summer of 2000 through the assistance of Sandi McLeod, which has made it much easier for the teacher to keep everyone involved.   Another teacher reported that she is looking into purchasing new software for sequencing.

Meeting VYP Online goals
Several teachers noted that progress towards their classroom goals was slow, mostly due to the learning curve on technical equipment. One teacher noted that her classroom had met their goals and one student had his play produced and acted by professionals.

Students posting work online
Two of the five teachers commented that many of their students posted work on the online forum and received feedback. One teacher commented that her students posted ten first draft plays and then sent two revised drafts based on his comments. However, she expressed disappointment as only a few students actually completed their plays.

Post secondary opportunities for students
One teacher wrote that her students have made contacts with several institutions when they took them to New York City for auditions. Although her class has actively participated in the online exchange, they have developed solid connections with several schools including: CalArts, North Carolina School of the Arts, Boston University, Otterbein, Emerson, Hartt, and SUNY Purchase. Further, several of her students have been placed in these schools for post secondary work.

Addressing Vermont and National Standards

As previously discussed in this report, ARTT, the Vermont MIDI Project, and VYP Online recognize and base their work on many of the Vermont and National Standards. This past year, teachers were asked on the Winter Questionnaire to identify the standards they address in their curriculum under the Vermont Vital Results, Vermont Fields of Knowledge, Vermont Learning Opportunities, and the National Standards for Arts Education. The Tables 1, 2, and 3 depict the standards that teachers in the project are using in their classroom. The number in parenthesis before each standard indicates the number of teachers who follow that standard.

Table 1. ARTT Vermont and National Standards

Vermont Vital Results (n=6)	Vermont Fields of Knowledge (n=6)	Vermont Learning Opportunities (n=4)	National Visual Arts Standards (n=1)
(1) 1.1	(1) 5.1	(1) A.2.2	1
(2) 1.3	(1) 5.2	(1) A.3	2
(2) 1.4	(1) 5.3	(1) A.5	3
(1) 1.5	(3) 5.4	(1) B.2	4
(1) 1.13	(2) 5.5	(2) B.3	5
(1) 1.14	(2) 5.6	(3) B.4	6
(3) 1.15	(2) 5.7	(1) C.1	
(5) 1.16	(1) 5.13	(2) C.2	
(1) 1.18	(3) 5.22	(2) C.3	
(1) 1.21	(3) 5.23	(2) C.4	
(3) 2.1	(3) 5.24	(1) D.1	
(2) 2.2	(1) 5.25	(3) D.2	
(1) 2.6	(1) 5.26	(1) E.1	
(1) 2.7	(1) 5.27		
(1) 2.8	(3) 5.28		
(1) 2.10	(2) 5.29		
(1) 2.11	(1) 5.30		
(1) 2.12	(1) 6.1		
(1) 3.2			
(1) 3.3			
(1) 4.1			

Table 2. MIDI Vermont and National Standards

Vermont Vital Results (n=7)	Vermont Fields of Knowledge (n=7)	Vermont Learning Opportunities (n=5)	National Musical Content Standards (n=4)
(1) 1.1	(1) 5.4	(3) A.2.1	(4) 4
(1) 1.2	(1) 5.5	(1) A.2.2	(4) 5
(1) 1.3	(1) 5.6	(2) A.3	(1) 6
(1) 1.4	(1) 5.7	(2) A.4	(2) 7
(1) 1.5	(1) 5.13	(2) A.5	
(6) 1.13	(2) 5.22	(2) B.1	
(5) 1.14	(3) 5.23	(2) B.2	
(1) 1.15	(2) 5.24	(2) B.3	
(2) 1.16	(2) 5.28	(3) B.4	
(3) 1.17	(1) 5.30	(1) B.5	
(2) 1.18	(4) 5.31	(1) C.2	
(1) 1.21	(7) 5.32	(2) C.4	
(2) 2.1	(1) 6.1		
(3) 2.2			
(2) 2.3			
(2) 2.6			
(2) 2.7			
(2) 2.8			
(2) 2.9			
(1) 2.10			
(1) 2.11			
(2) 2.12			
(1) 3.1			
(1) 3.2			
(1) 3.3			
(4) 3.10			
(2) 3.11			
(2) 3.12			
(2) 3.13			

Table 3. VYP Online Vermont and National Standards

Vital Results (n=2)	Fields of Knowledge (n=3)	Learning Opportunities (n=2)	National Standards (n=0)
(2) 1.1	(2) 5.1	(2) A.3	None
(2) 1.2	(2) 5.2	(1) B.1	
(2) 1.3	(2) 5.3	(2) B.3	
(2) 1.4	(2) 5.4	(1) B.4	
(1) 1.5	(2) 5.5	(1) B.5	
(2) 1.15	(2) 5.6	(1) C.1	
(1) 1.16	(2) 5.7	(1) C.2	
(2) 1.16	(3) 5.12	(1) C.3	
(1) 1.18	(2) 5.16	(1) C.4	
(2) 1.19	(2) 5.17	(1) D.2	
(2) 1.20	(2) 5.18	(2) E.1	
(2) 1.21	(3) 5.22		
(2) 1.22	(3) 5.23		
(2) 2.1	(2) 5.24		
(2) 2.2	(2) 5.25		
(2) 2.3	(2) 5.26		
(2) 2.4	(2) 5.27		
(2) 2.5	(2) 5.28		
(2) 2.10	(2) 5.29		
(2) 2.11	(2) 5.30		
(2) 2.12	(2) 5.31		
(2) 2.13	(2) 5.32		
(2) 2.14	(2) 5.33		
(2) 3.1	(3) 5.34		
(2) 3.2	(2) 5.35		
(2) 3.3	(2) 5.36		
(2) 3.10	(2) 5.37		
(2) 3.11			
(2) 3.12			
(2) 3.13			
(3) 3.14			
(2) 3.15			
(2) 3.16			
(2) 4.5			

In February and July 2001, MIDI, ARTT, and VYPO teachers involved in the VT-MAP were asked to discuss what impact the online exchange has had on student performance and achievement based on the Vermont and National standards that they address in their curriculum. Based on teacher reports, the following highlights different areas in which student have been impacted. Students have shown development in both skills relating to their field and personal development, such as increased motivation to learn, improved work, and self-esteem and confidence. All areas of impact on student performance and achievement are related to the Vermont and National standards, which each project addresses as well as the individual classrooms. Further, the areas of impact are consistent with those seen and reported on last year, as presented in the evaluation report. Consistency in results over the past two years suggests that student improvement in skills and personal development are related to their classrooms involvement in VT-MAP.

MIDI

Students who have participated in the VT-MAP project, through using the technology or the online forum have shown improvement in many skill areas as well as personal development areas. All of these skill and personal development areas are related to the national and Vermont standards on which the MIDI project and music teachers focus. It is important to note that all of these skills are interrelated, overlap, and reinforce one another. They also directly affect a student's personal development as a musician and a person.

Skill Development

🎵 **Listen and evaluate music**
Several teachers wrote that students have increased their ability to listen to and evaluate music through composing their own music, listening to other students work on the website, and reading critique received on the website. Students listen to musical compositions of their peers and classmates and then critique their own and others work. In doing this practice, teachers note that students have expanded their musical vocabulary in order to appropriately respond to evaluate music. (Standards achieved include: 1.13, 1.18, 3.10, 5.5, National Music Content Standard (NMCS) 6 and 7)

🎵 **Skills of critique**
Students have learned the art of critiquing music through working with the website. This forum exposes students to different types of critique and language used by mentors as well as offers them an opportunity to practice giving feedback as an individual, group, or a class. They have also developed the skills to critique appropriately through listening to others music and learning to evaluate their music. Students have shown the improved ability to critique their own work, the work of their classmates, and other students. (Standards achieved include: 1.14, 1.18, 2.6, 5.5, 5.6, 5.7, 5.22, 5.23, 5.27, B.4, NMCS 6 and 7)

🎵 **Learn to ask more specific questions for feedback**
A few teachers noted that over the course of the year, students have begun to ask more specific questions concerning their piece when requesting feedback. Students have shown an increased ability to think critically about their piece and on what they would like to have mentors comment. This skill has developed through practice in the classroom as well as viewing others

questions on the online forum. (<u>Standards achieved include</u>: 1.16c, 1.21, 2.11, 5.4, 5.7, 5.22, 5.23, 5.27, 5.28, B.4, NMCS 6)

♫ Improved musical vocabulary

All of the teachers commented that their students have developed an extensive musical vocabulary through exposure to different terms and their context online, learning words in the classroom, and practicing the use of the word in describing their piece, asking questions for feedback, and providing feedback to others. One teacher commented that the online forum requires students to grasp this language in order to comprehend the online dialogue and respond to music appropriately with higher level questions based on the Generic Rubric. (<u>Standards achieved include</u>: 1.13, 1.14, 1.15, 1.16b,c, 5.4, 5.12, NMCS 6, 7)

♫ Notation skills and understanding of musical elements

In learning to compose, many teachers noted that student improved on their notation skills because of the MIDI technology as well as their understanding of musical elements. Students enjoyed working with the technology because it provided a direct, hands-on application of their skills to which they saw an end product. (<u>Standards achieved include</u>: 1.16a, 5.31, 5.32, NMCS 4, 5, 6, 7)

♫ Increased ability to sight-read music

One teacher commented her students worked on composition with sight singing in her elementary classes. Practicing this skill in this manner has positively reinforced student's skills. This teacher cited that one high school student experienced success at her all state singing audition because of her improvement in her sight reading skills from composing. (<u>Standards achieved include</u>: 1.16a, c)

♫ Composing Music

Several teachers discussed how students, regardless of their musical background were able to compose music because they enjoyed working with the MIDI technology and had support from the online forum.   One teacher remarked that students with no experience in music are amazed with their ability to compose and the quality of the feedback they receive to revise their work. (<u>Standards achieved include</u>: : 1.18, 1.16a, d, 1.21, 3.10, 5.31, 5.32, NMCS 4, 5, 6, 7)

♫ Process and apply the criticism they receive

Many of the MIDI teachers also noted that students have shown an improved ability to process and apply the criticism that they receive from mentors and other students. Because of their enhanced vocabulary and knowledge about musical elements, students are able to improve their compositions with feedback. One teacher commented that even if students choose to not use the suggestions of online mentors, they have at least been exposed to other musical possibilities and are challenged to think critically about their work. (<u>Standards achieved include</u>: 1.13, 1.15, 1.21, 2.2, 2.9, 2.10, 2.11, 2.12, 3.3, 5.22, 5.23, 5.24, 5.27, B.4, NMCS 4, 5, 6, 7)

Personal Development

♫ **Increased motivation to learn – direct application of skills and positive feedback**

All of the teachers noted that students have shown an increased motivation to attend class, learn, use the technology, and produce a high quality finished product. Several teachers noted that students are motivated to learn because they see the skills they develop as relevant and have a tangible and specific task to accomplish with them. All the skills they have learned both in their music class and in viewing the online forum apply to their own compositions and playing. Another teacher noted that students are more motivated to learn music theory and composition rules (typically a difficult lesson to teach) because they enjoy the MIDI process and put the skills directly to use. This teacher commented that band students are motivated to write music that they can play with their instruments and non-band students love the challenge of writing a composition for their friends to play.

Students also have a vested interest in learning and challenging themselves, especially if their piece will be shown on the website for others to view and comment. Teachers quote that students become more and more motivated to work and learn with every composition completed and feedback received. When students post work and receive feedback, they are eager to continue and become further invested in their piece. (Standards achieved include: 1.13, 1.15, 1.16a, b, c, d, 1.18, 1.21, NMCS 4, 5, 6, 7, 2.2, 2.9, 2.10, 2.11, 2.12, 3.3, 3.10)

♫ **Increased self-esteem and confidence**

Teachers have also noticed that students in their classes involved with the Partnership through the use of technology and the website show an increase in self-esteem and self-confidence. Students show an increased confidence in themselves and each other as learners, creators, and individuals. Also, this project is validating for students who have disabilities, social problems, or language barriers. Teachers have cited different examples where students with different or special abilities have excelled in composing music and have benefited from the praise received from other students. Overall, all of the teachers comment that every child experiences success with this project to some level. This success reinforces their abilities and skills and encourages them to continue to achieve in music and other facets of life. (Standards achieved include: 2.9, 3.3, 3.10, 3.11, B.5)

Student Performance and Achievement

♫ **Increased quality of student work**

All of teachers reported that the quality of student work has improved since their participation in the VT-MAP partnership and online forum. Quality of work has improved because students are learning skills, have a direct application of their skills through the use of technology, and receive feedback and support from professional musicians and composers and other students outside of their school. One teacher noted that she is very pleased when a student takes their work in a different direction that she would have recommended because of feedback from the mentors. Most students surprise themselves with their musical ability and the final outcome of their work. (Standards achieved include: 1.13, 1.15, 1.16a, b, c, d, 1.18, 1.21, 2.6, 2.9, 5.24, 5.28, NMCS 4, 5, 6, 7, 2.2, 2.9, 2.10, 2.11, 2.12, 3.3, B.1, B.3)

ARTT
Teachers involved in the ARTT program reported similar impacts on student skill, personal development, performance and achievement to those of the MIDI teachers. The impact areas are related to Vermont and National standards to which ARTT and individual classrooms focus in their teaching.

Skill Development

🔥 **Use of mixed media**
Through the introduction of technology, such as digital imaging and Adobe Photoshop, teachers have introduced students to a variety of mixed media in the arts, to combine digital and traditional media. Students respond positively to the use of this new media because they enjoy working with computer and creating through technology. (Standards achieved: 1.15, 1.16b, d, 1.18, 1.21, 5.29, 5.30, National Visual Arts Standard (NVAS) 5)

🔥 **Critique and reflect**
Through viewing online work and feedback through the request-respond-reply cycle, students have gained skills in the art of critique and reflection towards their own work and others. Through practicing their critique, both in the classroom and online, students have developed skills in creative problem solving with curiosity and imagination. (Standards achieved include: 1.1, 1.2, 1.14, 1.16b, 2.10, 5.4, 5.6, 5.7, 5.22, 5.23, 5.24, NVAS 5)

🔥 **Analytical skills to improve work**
Several teachers commented that students have become more productive in assessing their own. Students are able to analyze their work with regard to the elements and principles of design to determine of to improve both their skills and expression through art. (Standards achieved include: 1.13, 1.16c, 1.21, 2.1, 2.2, 2.3, 2.9, 2.10, 2.11, 2.12, 5.4, 5.6, 5.7, 5.22, 5.23, 5.24)

🔥 **Clear communication of ideas, critical thinking, and asking appropriate questions**
Through working online and learning the critique process, students have learned to clearly communicate their ideas and think critically about their work. Several teachers noted that students are more able to articulate what they are thinking and feeling about their artwork and thus are able to ask more specific and appropriate questions for requesting feedback. (Standards achieved include: 1.16b, 2.1, 2.1, 2.3, 2.3, 2.9, 5.5, 5.6, 5.7, 5.27, 5.28, NVAS 5)

🔥 **Improved arts vocabulary**
ARTT teachers note that students have shown improvement in their visual arts vocabulary and have woven the use of these words into both their common language and critique. One teacher commented that student improved vocabulary through working with online mentors helps to support and validate what she teaches. Improved vocabulary skills enable students to ask more informed and specific questions for feedback, as they are familiar with and comfortable using the terms. (Standards achieved include: 1.15, 1.16a, b, c, d, 5.4, 5.12, 5.22, NVAS 5)

Personal Development

🔥 **Increased motivation to learn**

All of the teachers commented that students have shown an increased motivation to learn, create, and post work. Several teachers reported that students who post work tend to push themselves to a higher level of understanding of their artwork. Posting work is an incentive for better performance and achievement because students know that their work may be publicly on display. Also, students recognize that artist mentors give serious and helpful comments, thus students take their work more seriously. Two teachers noted that they often allow students to post work that they created outside of the classroom, in which students are particularly interested. This allows the teacher to recognize the student's interests outside of their curriculum and helps students to develop their personal interests. (<u>Standards achieved include</u>: 1.16a, b, c, d, 2.9, 3.3, NVAS 5)

🔥 **Increase in self-confidence – all students excel**

Several teachers noted that student work with the technology, classroom project, and online support enables all students to achieve. Through this achievement teachers have seen an increase in student self-confidence as artists and people. One teacher commented that she works with students who have learning disabilities. Creating artwork and working online makes students feel special, specifically when other children commend them for their accomplishment. This achievement and increase in self-confidence motivates all students to continue learning. (<u>Standards achieved include</u>: 1.16b, 2.9, 3.3, 3.4, 5.5, B.5, NVAS 5)

Student development and achievement

🔥 **Demonstrated learning**

Many teachers noted that students have demonstrated learning, and some beyond their grade level. This project validates both the teacher's curriculum and the value of student work, allowing all students to learn and experience success. (<u>Standards achieved include</u>: 1.16b, 2.2, 2.3, 3.3, 5.28, B.1, B.3, NVAS 5)

🔥 **Higher quality of work**

Overall, as students have gained skills in art and design and have learned to think critically about their work, students have shown an increase in the quality of work produced. One teacher commented that the suggestions from mentors help to strengthen student work. Students are aware of this through their own work, the work of their classmates, and work posted online, which motivates them to work harder. (<u>Standards achieved include</u>: 1.16a, b, c, d, 5.28, 5.29, B.1, NVAS 5)

VYP Online

Most of the teachers in VYPO reported that it is too early in their involvement of the partnership to notice impact on students. However a few teachers provided specific comments relating to impact on students skill development and personal achievement. Several of the standards that which VYP Online and individual teachers address have been achieved this past year.

Skill Development

✪ Enhanced writing skills

Teachers note that students have shown improvement in their writing skills. Although only a handful of students complete a play, all are involved in the development of drafts, posting them online, and revising their work. Teachers comment that work with online mentors has improved the quality of student work. (Standards achieved include: writing 1.5 and 1.6, 1.16a,c,d, 5.4, 5.5, 5.12, 5.18, 5.28)

> *"The online program not only facilitates better communication in the Young Playwrights program and reinforces computer skills, but is has the potential to meet the rubric of theater critiquing skills." – VYPO teacher*

✪ Enhanced critique skills

Working online has facilitated better communication and critical thinking skills among students in one classroom. Students have learned how to critique a play and are more receptive to constructive feedback that they receive. (Standards Reading 1.3, 1.16a,b,c,d, 5.6, 5.22, 5.23, 5.24)

> *"The online exchange seems to have piqued student interest in looking at more plays and made some more open to criticism." – VYPO teacher*

Student achievement

✪ Post-secondary education

Through one program, students have been able to make college appointments and clarify portfolio requirements. This program took four students to New York City to audition and show technical portfolios to several substantial college programs. Excellent results were achieved as 100% of technical students and 80% of actors were placed in post secondary programs. (Standards achieved include: 1.16a,b,c,d, 5.7)

Integrating Technology into Classroom Curriculum

A major goal of all teachers and one of the most challenging aspects of the project is to successfully integrate the online forum and use of the technology into their current art and music curriculum. Activities and projects related to the online forum that take place off-line within the classroom is a major component of the project. This is the component where students become familiar with computers, software such as Sibelius and Adobe Photoshop, and equipment such as keyboards, digital cameras, and scanners. This is also the place where students learn arts vocabulary and theory in order to participate in both online and in-classroom dialogue of asking questions, providing feedback, and responding to the feedback.

Classroom participation in the online forum is another component of this project. Students, teachers, and artist mentors (musicians, composers, painters, printmakers, sculptors, and poets) exchange ideas and constructive critique on student artwork in this online forum. This is a unique experience for the thirty-four grant schools and the eighty-four schools who are a part of the partnership that provides expertise and resources of mentors and other professionals to students throughout the state of Vermont.

Classroom activities related to the online forum

Many students in the Vermont MIDI Project, ARTT, and VYP Online have participated in the online forum. Students work in small groups or as individuals, depending on the number of available workstations. In engaging in the online forum, students and teachers agree to the protocol for sharing files on the Vermont ARTT/MIDI website (p. 30). One important aspect in communicating is the "request-response-reply" cycle. This cycle creates a dialog that helps mentors know how their

> *"When the request-respond-reply cycle is completed the results in student work are very impressive." – ARTT teacher*

suggestions were received. Students are expected to revise their piece at least one more time and tell how they used or chose not to use the responses they received. One teacher noted, "When the request-respond-reply cycle is completed the results in student work are very impressive." Completion of the request-respond-reply cycle is often inherent in classroom activities related to the online forum. Student activities include:

- Viewing and exploring the website – students gain ideas for their own works
- Critiquing work posted on the website – students develop appropriate arts vocabulary to interact with online mentors
- Posting their work for review
- Reviewing and processing constructive criticism they have received
- Improvement of student artwork based on mentors comments – sometimes students choose not to incorporate the advice of mentors, however teachers comment that the experience is still beneficial as it introduces students to different ideas for creating.

The following are examples of specific project and activities in which music, art, and playwright/theater students have engaged, utilizing the technology and the online forum. Teachers have noted that use of technology in the classroom compliments the regular curriculum, motivates students to learn, and often enhances students ability to express themselves in ways other than words. All the teachers comment that the use of technology and support of the online forum has enabled students to develop more creative projects with a higher quality of work. Most of the activities that take place in the music classroom include learning software, music composition (notation, sequencing), posting work online, and critiquing other students work both online and in the classroom. Here are some examples of projects music classrooms have worked on this past year:

♫ Several music teachers wrote that students have been using computer software to notate, read, and create musical compositions. Students choose the melody, harmony, bass, and percussion.

♫ A fifth grade class was learning about music and culture and wrote a pentatonic Chinese song for a visiting Chinese teacher at their school.

♫ A third grade class is learning to play the recorder. To compliment this learning, the students have used the technology to create a composition using the recorder as a final project. Students are composing using the notes of G, A, B, quarter, half, and eighth notes in 4/4 meter as a final project.

♫ Band students in one school have written short pieces, which they will perform solo at the school's annual band concert.

♫ One teacher is combining composition with sight singing/reading to enhance student ability to do this as well as understand the elements of music, including melody, rhythm patterns, harmony, and form.

♫ One classroom was on a unit where they studied different composer's work and presented their research to the class with examples of their compositions. The students then developed their own compositions based on what they have learned. The teacher commented that the use of MIDI technology had enhanced this curriculum, which had been in place for several years.

♫ At one school that has been involved with the project for two years, seventh and eighth grade students composed at least one three part twelve measure piece. The teacher remarked that because these students have been using MIDI technology and the online forum for two years, their quality of work has increased tremendously with students writing more intricate compositions.

Art teachers have used the digital camera and Adobe Photoshop to create and enrich projects, such as development of self-portraits or using digital photos of a collage project to manipulate some of the elements in their design. Here are some specific examples of projects art classes have worked on using technology and the online forum:

🔥 Third and fourth graders at one school used color blending and shading techniques for a project.

🔥 One teacher wrote that her art students have worked on marker drawings, paper mache, clay chairs, and pencil drawings. Students who worked on the pencil drawings posted their work online. They then incorporated the artists' suggestions into their work by adding color and texture.

🔥 A high school class developed digital portfolios with Adobe Photoshop. Students then wrote reflections on their artwork. Students stored this portfolio on a CD as well as pasting printed images into their sketchbooks.

🔥 Students in a photography class use a digital camera and Adobe Photoshop as well as a 35mm camera to create work.

🔥 Students in a painting class work with Adobe Photoshop and a blank canvas and incorporate many painting and filter techniques into their work.

Online Dialogue Incorporated in the Classroom
At the end of the first year of the project, in June 2000, the teachers were asked to rate the extent that the ideas raised in discussion about student projects on the online forum are incorporated in the classroom. They were given a scale from one to four, with one being "no extent", two being "slight extent", three being "moderate extent", and four being "great extent". The majority of the MIDI teachers (6) noted that they incorporated discussion about student projects into the classroom to a "slight extent". Three ARTT teachers noted that they integrate ideas from the online forum into class discussion to a "moderate extent", two to a "slight extent", and two to "no extent". Two people did not respond to this question. One teacher who indicated that ideas are brought into the classroom to a "slight extent" commented that most of her students have not been directly involved with the website. Three VYP teachers who responded to the Spring Questionnaire responded to this question. One indicated that ideas from the online forum are raised into the classroom to "no extent", one reported that this occurs to a "slight extent" and one to a "moderate extent".

> *"Each middle school student is required to write a description of his or her piece and specific question he or she would ask if posting the composition. This is a great springboard for discussion how the critique process works." - MIDI teacher*

Use of the forum as a teaching tool
The main use of the online forum is as a teaching tool. Classes view the website and feedback received by other students and develop a class discussion based on the theme or ideas from that work. One teacher uses terms from the online forum with which students are not familiar, such as "melodic expression" and explores this topic further. One teacher commented that she chooses to share work posted online with the class that exemplifies a topic area on which they are working to support and facilitate learning. Another teacher remarked that online sharing gives her ideas for teaching. Students look forward to hearing responses about others music.

Explore the composition process
Several teachers noted that they use the online dialogue to teach students how listen to music, discuss the composition process, and ultimately write and critique their own and others compositions. Students read ideas that mentors suggest and incorporate their own work. Teachers note that viewing the online exchange helps students to improve their compositions.

> *"Online sharing gives me ideas for teaching. Students look forward to hearing responses about others music. This forum requires that students learn an extensive music vocabulary." - MIDI teacher*

Examining the critique process
Teachers also note that they integrate discussion about the critique process into class work when viewing the website as a class. Students view examples of critique online in feedback provided by mentors and other students. This teaches them to learn how to develop their own critique as well as ask specific questions to receive desired feedback.

Develop musical vocabulary
Most teachers commented that students are required to learn an extensive musical vocabulary in order to fully participate in the online forum and develop their own critiques. Teachers have used terms on the forum with which students are not familiar to explore topics, expand their vocabulary, and ability to express their ideas and thoughts.

Review feedback and critique process
Several teachers noted that they share the online forum and feedback the students receive with the class as a whole or in small groups. One teacher specifically shows the website to the class to review the request-respond-reply cycle. A teacher noted that she would either print online threads into a book for all students to read or post them on her classroom walls. This is an alternative method to share the forum with students if equipment is not available for all students to view online work.

> *"We often share a student's feedback during individual or group discussion or look at other students work and feedback received. This form of communication has become a valuable tool in helping student learn how to describe, analyze, and interpret art work." - ARTT teacher*

Develop critique skills
In addition to reviewing the feedback and critique process, the online forum is used as a teaching tool for students to develop their own critique process. Teachers note that this is a valuable tool to help students learn how to describe, analyze, and interpret work. Students learn how to organize their thoughts to ask questions later when they are able to post work. Students also reflect on mentor comments and revise their work in response to the comments.

Read plays and improve work

Students read plays posted online and used ideas from the discussion in their playwriting class to improve their own work. One teacher commented

> *"Students read plays and discuss how they are constructed and how they differ from other forms of writing such as novels." - VYPO teacher*

that students would read plays form the online forum and then discuss their construction, such as how they differ from other forms of writing (i.e. novels). One teacher noted that students did this project on an extracurricular basis. Students had access to the computer and website and used it to review the online forum and communicate with mentors.

Posting Student Work Online

Posting student artwork or compositions is only one component to participation in the project. As indicated previously in this report, posting student artwork is a classroom goal of most teachers in the project. Based on self-reported data collected at the end of the school year on the Spring Semester Questionnaire, seven out of the nine art teachers had posted work on the website. Two art teachers noted that their classroom had posted a critique to other students. Ten out of the eleven MIDI teachers who responded to this questionnaire posted student compositions on the website. All of the teachers reported that they had posted a critique to other students. Three out of the five VYP Online teachers noted that they had posted student work. None of the teachers had posted a critique to the website.

The number of postings by each classroom is not an appropriate measure of success or quality in the project. This is specifically not appropriate at this time for VT-MAP teachers as fourteen schools are in their first year of activity and ten are in their second year of activity. In discussion with program coordinators Sandi McLeod and Penny Nolte, based on the five years experience of online activity (prior to the development of VT-MAP) oftentimes, the initial use of the website and posting work is high while the teachers and students learn

> *Based on the five years experience of online activity (prior to the development of VT-MAP) oftentimes, the initial use of the website and posting work is high while the teachers and students learn the critique process and practice their digitizing and uploading skills. Many of these postings are not 'need' driven but are practice for students and teachers, with level I questions being asked. As teachers become confident that they are able use the online forum when a student has a real question to ask the online mentors about a work in progress, classroom activity drops off.*
> - *Penny Nolte, ARTT Coordinator*
> - *Sandi McLeod, Vermont MIDI Coordinator*

the critique process and practice their digitizing and uploading skills. Many of these postings are not 'need' driven but are practice for students and teachers, with level I questions being asked (see p. 34 the "Generic Rubric"). As teachers become confident that they are able to use the online forum when a student has a real question to ask the online mentors about a work in progress, classroom activity drops off. Many teachers also use the online dialogs to introduce arts critique in their classrooms without any students going online themselves during those lessons.

There are also technical issues (as discussed in the *Barriers* section of this report), such as limited time, workstations and hardware, and network failures that impede a classroom's online activity. Aside from technical issues, the teachers are faced with the challenge of incorporating a new way of teaching and new lessons into the current curriculum and time schedule. In the learning process, first both teachers and students need to learn how to use the technology and become comfortable with the technology and sharing their work. Students also need to learn arts vocabulary and skills of critique, including how to accept constructive criticism, in order to engage in meaningful dialogue with mentors. This learning must take place before a classroom is ready to practice posting work with level I questions. With continued practice and learning students then begin to post work out of "need" (i.e. questions on a work in progress) with level II and III questions (see p. 34). Thus, the number of active threads per month are examined as a simple measure of online activity in the first and second year this project is in place in the schools.

Website activity data

CRS obtained the following data on website usage through collection by the ARTT and MIDI project coordinators. The first set of data examines the number of active threads from September 2000-August 2001 by three categories of grade level for participants in the VT MIDI Project. This data also examines the number of posts by project and details on posting activity as well as the percentage of total posts that completed the request-respond-reply cycle (see p. 31).

MIDI Website Usage

Table 4 depicts the number of active threads by three grade levels, K-5, 6-8, and 9-12 for all participants in the Vermont MIDI Project, for the time period of September 2000 to August 2001. New VT-MAP grant recipients posted 113 pieces for the Vermont MIDI Project from seven schools with an average of request-reply respond at 36%. However the coordinator noted that this response rate is particularly low because a few schools, in their initial learning experience of the online communication, either posted many pieces and with a low percentage of cycle completion or only posted one piece with high percentage the cycle completion. Thus the coordinator feels that the rate of completion of the cycle is not an accurate measure of performance during a schools' initial phase of the learning curve. Experienced VT-MAP grant recipients from the 1999-2000 year posted 35 pieces from seven schools, with a cycle completion rate of 59%. Schools new to the online forum that are not grant recipients of VT-MAP posted with a 24% completion of the cycle, while experienced non-VT-MAP schools posted at 51%. Excluding schools that experienced technical difficulties, schools from the Vermont MIDI project completed the request-respond-reply cycle at a rate of 58%.

Table 4. Website Usage of the Vermont MIDI Project participants, September 00-August 01

Month/Year	K-5	6-8	9-12
September 2000	4	5	10
October 2000	5	13	7
November 2000	6	42	21
December 2000	5	9	15
January 2001	8	22	22
February 2001	26	28	18
March 2001	22	17	18
April 2001	13	9	7
May 2001	34	30	11
June 2001	9	6	4
July 2001*	0	0	0
August 2001*	0	0	0

*Drop in activity due to training programs and online summer school sessions. Regular school is not in session. Teachers and mentors use the site in the summer for professional development workshops and courses where they post their own compositions for critique by mentors and colleagues.

ARTT website usage

A total of 300 pieces of artwork were posted between September 2000 and August 2001. Forty-nine percent (148) were posted in the Traditional Arts category, twenty-one percent (62) were in 3-D, twenty-eight percent (83) were in Digital Arts, one percent were in photography (2), and 2 percent (5) were in the new 'Portfolio' category -- which was added for a few students who wanted to develop portfolios of work but not necessarily for critique of individual pieces. (it is interesting that even with this expression of need, four of the five works posted in the 'portfolio' thread were revised by the students after mentors commented on them). Detailed information on website activity per month is depicted in Table 5.

The total reply rate by students for the entire ARTT project was 60%. This is an increase compared to last year's completion rate of 47%. New VT-MAP granted schools posted the most work, over 1/3 of the total, but replied only 51% of the time. Continuing VT-MAP granted schools posted 1/6 of the total and responded 72% of the time. New non-map schools posted less than 1/6 of the total pieces and responded 71% of the time. Continuing non-map schools posted 1/3 of the pieces and responded 56% of the time. It must be noted that two very active participants whose reply rates were extremely low skew this data. One was a new MAP granted participant, and the other a continuing non-MAP participant. When those two schools post and reply rates are not figured in, the total reply rate of the project is 73% for 211 works posted.

Table 5. Website Usage of ARTT participants, September 00-August 01

Month/Year	Number of posts	Number of schools online	Number of students who completed the RRR cycle
September 2000	11	3	5
October 2000	24	6	11
November 2000	34	13	26
December 2000	43	11	20
January 2001	23	8	18
February 2001	38	13	19
March 2001	36	11	23
April 2001	30	14	18
May 2001	17	11	11
June 2001	34	11	29
July 2001*	0	0	0
August 2001*	0	0	0

*Drop in activity due to training programs and online summer school sessions. Regular school is not in session. Teachers and mentors use the site in the summer for professional development workshops and courses where they post their own compositions for critique by mentors and colleagues.

VYP Online website usage
The VYP Online project posted a total of 69 pieces on the website with 27% (19) of the total posts completing the request-respond-reply cycle. Table 6 provides detailed information of VYP Online website usage on a monthly basis, including the number of posts, number of schools online and number of students who completed the cycle.

Table 6. Website Usage of VYP Online participants, September 00-August 01

Month/Year	Number of posts	Number of schools online	Number of students who completed the RRR cycle
September 2000	3	1	1
October 2000	12	3	3
November 2000	5	1	1
December 2000	0	0	0
January 2001	14	3	1
February 2001	8	4	4
March 2001	16	4	3
April 2001	11	3	6
May 2001	0	0	0
June 2001	0	0	0
July 2001	0	0	0
August 2001	0	0	0

Completion of the Request-Respond-Reply Cycle
On the Winter and Spring Semester Questionnaires, teachers were asked to estimate what percentage of their students who posted completed the "request-respond-reply" cycle. With respect to ARTT, five of the six teachers who completed the Winter Questionnaire responded to this question. Responses were as follows: 17%, 35% (elementary) and 80% (high school), 70%, 80%, and 100%. Teachers estimated that more students completed the cycle in the spring as they responded: 60%, 80%, 85-90%, 90%, 100%, and 100% (three of the nine teachers did not respond). Of the six MIDI teachers who responded to this question (three of the nine did not respond) on the Winter Questionnaire, responses included: 40%, 50%, 50%, 90%, and 100%. Again, teachers noted that percentages were higher in the spring as responses included: 25%, 75%, 90%, 90%, 100%, and 100% (five of the eleven did not respond). Of the VYPO teachers who responded to this question on the Winter Questionnaire, one teacher indicted that 22% had completed the cycle. All other respondents (3) noted that none of their students had completed the cycle yet. Results to the Spring Questionnaire show that this percentage increased for VYPO students. Results included: 2%, between 50-75%, and 75%. Several teachers noted that the cycle was not yet complete with their posts as they were waiting for feedback. Once this feedback was received, the student would complete the cycle.

Examples of online dialogue
Examples of online dialogue are displayed throughout this report at the beginning of each major section. These examples have been abstracted from the public section of the ARTT (www.vtartt.org) and Vermont MIDI Project (www.vtmidi.org) websites with permission from parents, students, and teachers.

The Digital Audio Initiative
This past year, the Digital Audio Initiative continued to build its base through training and posting of student work online. The following is an excerpt from the Digital Audio coordinator's report about their online activities and impact on students. Six schools were involved in the Digital Audio Initiative with two schools receiving equipment through VT-MAP funding. Four of the schools posted work online for a total of twelve posts. Schools that were involved in this project were members of the initial Vermont MIDI Project outside of the VT-MAP grant and received equipment because of a high level of expertise in the digital audio field.

The primary purpose of the Digital Audio Initiative is to assist schools in the investigation and eventual implementation of incorporating live sound (digital audio) into student projects on the World Wide Web. The reasoning behind the initiative including digital audio is to enhance and even make up for shortcomings of the standard MIDI file format currently being using. While MIDI does allow for small file sizes suitable for quick downloads, composer creativity is stifled by the limited sound set and quality of the MIDI specifications. Moreover, compositions demanding vocals or sounds and instruments outside the MIDI sound set are excluded from the online sharing and mentoring features of the Vermont MIDI Project website.

To help jump-start the online efforts for digital audio, two schools were outfitted with the necessary equipment to record audio and were provided with technical support and instruction. It is important to note that while two schools were granted equipment, no other schools were excluded from participating in the digital audio forum. It was decided that these two "funded"

schools would act as "control" in looking at how level of experience and training would affect the learning curve for using digital audio in student projects. In all, there were six schools that were participating in the initial effort.

The coordinator found things started out much slower than anticipated. However, he soon recognized that this was because public school teachers are extremely busy with many duties and events throughout the year and needed time to become familiar with the new equipment. In the interim, the coordinator made contact with other teachers around the state, fielding questions and offering technical support for those who were beginning to use digital audio. Based on this experience and contact with various schools, there is clearly a growing interest in involving digital audio with student work. Further, he noted that interest does not necessarily equate instant progress!

Based on advice from Sandi MacLeod, project coordinator of the Vermont MIDI Project, the coordinator decided to keep in light contact with the two schools and focus on the near-daily email tech support and correspondence.

Activity in the digital audio forum did eventually pick up as one school began to post work online. Throughout the school year two more schools would join in bringing the participating school count up to five. By the end of the school year, the forum boasted 12 different projects posted with many that did not make it online due to time constraints at the schools. The coordinator noted that more time is needed to determine if the program is successful in meeting its goals, as neither of the two "funded" schools posted work. The schools that did post work online were led by teachers with previous experience - with one having several years of experience – in digital audio. It turns out that the "course" has more of a steep learning curve than initially anticipated. As proof of this, one school that received a mini disk recorder through VT-MAP funds finished a series of projects involving digital audio. Unfortunately they were cut short of posting them online due to technical difficulties and, more notably, the end of the school year. Here are examples of teacher comments relating to this project.

🎧 A teacher at one of the schools wrote that, "For the projects, students created commercials with the mini disk recorder. Each student created a soundtrack to provide a background under narrative, singing or both and generated an advertisement for some local business. They were great fun, highly creative, and demonstrated a good grasp of the tools. Several were good enough for the local radio station and (the teachers) may pursue that or not."

🎧 This teacher has also added spoken dialogue to several of her earlier fairy/folk tales that the students had created completely in MIDI. Another project involved students playing instruments into the mini disk recorder. Because of the ending of the school year and the end of the MIDI Project's former site archive, these works were not posted online by the end of the school year. This report is clearly an indication of growth and potential for future progress!!

An indicator of success of this project was that the coordinator as able to develop a set on standards to share work online, as all schools used the same type of equipment and programs. The coordinator of the Digital Audio Initiative strongly believes that the project needs to continue with present efforts and even extend the reach to include more schools in the Initiative. The evidence of the work posted online and communication with music teachers indicates that students are ready, willing and eager to expand MIDI classroom instruction to include elements of digital audio. With continued technical and in some cases financial support, teachers will be able to provide those students an even more diverse and rewarding education in music with tangible results of which the students can be proud.

Examples of the project impact on student lives
Quotes from teachers on Winter and Spring Questionnaires

> *I have seen students with severe handicaps, emotionally and physically, excel at composing a singable simple melody to which other students respond very enthusiastically.*

> *I have a student who just moved here from Russia who speaks with her composition what she has trouble saying in English.*

> *I find that students who are very successful academically work hard at their compositions and do well. Students who struggle academically surprise us all, including themselves, with interesting and creative melodies and musical ideas.*

> *Most of my students have learning disabilities. One online student wrote, "It's pretty cool. I liked the comments that the people wrote back. I feel pretty special." That was a wonderful experience for a 4th grader who starts work in the classroom over and over again because he is not satisfied.*

> *I had one student who was a "misfit" socially. He really wanted to work by himself and excelled. His particular piece was selected for the latest CD and it was neat to see his self-esteem shoot up like a rocket!*

Project impact on curriculum
Teachers involved in VT-MAP are thrilled and excited about the online exchange and to be a part of this new step in arts education. Teachers are appreciative of the hardware, software, and other technology they have received through the grant. Teachers feel that this project enhances their curriculum and validates their teaching. They are also excited by the leaning that takes place as students work online and hear/see other students work and work through their own piece.

Benefits to curriculum
Several teachers noted that they have seen an increase in student engagement and enthusiasm for the different arts subjects in their classroom since the onset of the project. Teachers also feel the online exchange enhances what is already taught in the classroom and is a valuable tool for teaching the basics of arts education and beyond. Teachers also commented that they enjoy the challenge of integrating the technology into the classroom and are finding that it fits nicely with their current work. The online forum has also opened up new avenues to both students and teachers. Teachers are able to learn a lot about what other teachers are doing by reading both the description of student work and comments from teachers and mentors. This has given many teachers ideas for lessons in their own classroom. One teacher commented that this connection has established relationships with a world outside of their classroom and school that was needed. This is a vital connection because often art teachers are isolated in they are the sole teacher for the entire school. The online forum also validates the work teachers.

Enhancement of student learning
Teachers also discussed the benefits of their class participation in the online forum to students. Through this project, learning takes place at all levels depending on the child's development. Students learn how to communicate more effectively, improve their arts literacy skills, and learn how to process information and improve their work. The online exchange provides a wonderful opportunity for students to exchange ideas and validates student work. One teacher commented that it is beneficial to students to have the opinion of another adult who respects

> *Sandi MacLeod introduced me to a technique to facilitate our preparation process for posting work. She recommended that students ask themselves specific question to keep in mind before and during the composition process, such as "what am I trying to achieve?" and "how do I want someone to help me make this better?". Using this approach, students were more clear on what feedback they wanted and our posting and request process became more productive.*
> *– MIDI teacher*

their work. Further, the teachers are pleased with the enthusiasm and increased motivation to learn that the technology has encouraged in their students. The teachers are also pleased with the way the project has been presented and managed.

Changes in the Curriculum and Approach to Teaching
Based on this past years experience in working with technology in the arts classroom, most of the teachers have changed some aspect of their curriculum to integrate the technology and online community into the classroom. Several teachers in interviews and questionnaires stressed that ARTT, MIDI, and VYP Online have revitalized their arts curriculum, opening up new opportunities to students that were never before available. In interviews with teachers who had

been involved in the project for two years, several commented that their teaching approach changed as they became more comfortable and competent with the technology.

Change in teaching strategy
In a focus group with teachers in August 2001, they reported having changed their teaching form and approach with students. Many have become more clear and structured in their assignments. This includes providing students with more specific composition guidelines or questions to answer before posting work in order to receive helpful feedback. One teacher commented that she has done more creative problem solving and less "entertainment" as an enrichment teacher. This project is about continual problem solving, such as what works, what does not work, how to improve work or more effectively get a thought across. Students are interested in learning because it is more than traditional arts, writing, or math. However students are developing the same skill base. Her curriculum is continually changing to further enable students to develop intuitive, creative, and other life skills. Another teacher reported that her focus in class has shifted towards looking more at student artwork before putting it online. The online process has slowed down the art process, allowing for more students to develop more communication skills.

> *My work as an enrichment teacher has changed from "entertainment" to creative problem solving. This project is about continual problem solving, such as what works, what does not work, how to improve work or more effectively get a thought across. Students are interested in learning because it is more than traditional arts, writing, or math. However students are developing the same skill base. Her curriculum is continually changing to further enable students to develop intuitive, creative, and other life skills.*
> *- Enrichment teacher*

> *The online process has slowed down the art process, allowing for more students to develop more communication skills. – ARTT teacher*

> *This project has been extremely beneficial to our visual arts program. Communication skills have expanded dramatically and camaraderie between teachers in the project has increased. Thee has been a revival of dynamics in our arts curriculum.*

> *This project has given new life to the music program at our school. In the four years I have been teaching here, general music education has gone way beyond singing songs for forty-five minutes. The composition work fits extremely well with the curriculum that I have been developing. I'm not sure I would continue teaching music if I were not involved in this project! I certainly would feel out in left field if my students did not have this opportunity.*

> *The integration of music and writing has completed the hierarchy of listening, performing, and writing. Students have another reason to learn music skills – notation and understanding musical elements to compose songs.*

Community Response to VT-MAP and Support for Arts Education

Student Response to Online Forum and Mentors

The teachers in ARTT, MIDI, and VYP Online reported that the general response from students is very positive. Most students are enthusiastic about the project and are excited to share their work and get back responses. Students are also excited to hear or see other student's work online. One teacher commented that her students are intrigued by the whole process and appreciate the feedback. Feedback encourages students to really think about their work. All of the students and teachers are very impressed and appreciative of the respect that mentors show towards students and their work. Several teachers mentioned that feedback provides an important stimulus for students to reflect and explore new directions artistically. The idea of receiving feedback also motivates students to continue composing with more attention to detail. One teacher noted that her students do not respond as well when she provide feedback to their work, however they listen to mentors, generally incorporate suggestions into their work and remember what was said.

> *The students are very excited about the online exchange. I could never get students to get serious about composition or reading notation when just done with pencil and paper. Now they are thrilled to do it knowing that once it is on paper they can have a turn on the computer. It is a great incentive. And the technology piece is their thing…they are so comfortable with it. – MIDI teacher*

Most teachers noted that students who are comfortable in their reading and writing abilities have few problems participating in the exchange. However students who have difficulty in those areas or have a reading or writing disability need more help in responding to online comments. In response to the follow-up interview with teachers in October 2001, several mentioned that students continue to learn how to dialogue appropriately with online mentors, as they become more familiar with vocabulary words and learn to be more specific and descriptive through the use of these terms. Most of the teachers who were interviewed noted that students do not have a difficulty digesting the constructive criticism that mentors offer. One teacher commented that approximately 75% of all suggestions are followed in her classroom. However, two teachers noted that occasionally mentors write too much information for students to absorb at one time or the information is too technical for students to grasp. Overall, students, in general are excited to have a professional artist respond to them and improve their work more so than they would have without the online exchange.

> *Mentors are very kind to students offering positive criticism and often respond very quickly within two days. Students are appreciative of feedback and have begun to ask more specific questions to receive feedback. –Enrichment teacher*

The MIDI Project
Most of the MIDI teachers who responded to the Spring Questionnaire noted they their curriculum had changed in some way in response to their involvement in the online mentoring activity. In music classrooms, changes included teaching composition, critique, and music reading and writing skills as either a new topic or more often than before. One teacher noted that their band class had changed the most as teaching shifted from strictly reading music to ear training, composing, and music theory study. Another teacher reported that a six-week unit on notation and music reading skills was added to her schools current offerings.

Composition
Five of the nine MIDI teachers who commented on changes in their curriculum noted that more class time is spent on composing music since the introduction of this project into the classroom.

For some teachers, music composition was a new topic to offer students altogether. Teachers comment that the MIDI technology and online forum are successful tools for teaching notation and expanding music reading skills. One

> *Yes! I am now able to have my students compose. Two years ago this was not happening. The critiquing process is not something new to my students but the online forum has enhanced this topic. –MIDI teacher*

teacher said that she had never concentrated on the skill of writing four beat measures before as it takes a lot of time.

Critique
Several teachers are focusing their instruction on the skill of critique. Students are learning to write more specific question for online feedback and then process the feedback received. One teacher noted that her students are becoming aware of in depth listening and offering descriptive constructive feedback to other student's composition.

Reading and writing
A few teachers reported that they have incorporated more reading and writing activities for reflection and to build their musical vocabulary and skills in critique.

ARTT
Many teachers involved in ARTT discussed changes in their curriculum related to using technology, posting work, and mentoring in response to their participation in the online forum and related activities.

Use of technology in the curriculum
Through VT-MAP and their work with ARTT, several teachers have introduced digital imaging, digital cameras, and the use of Photoshop as new mediums for creating art in their classes. One high school teacher had her students create digital portfolios as a part of their reflections and students in a photography class are using a digital camera in addition to a 35mm camera. One teacher was able to offer a digital imaging course in her school as a direct result of participating in the project and learning about ARTT and digital imaging.

Posting and mentoring
Most grant schools did not previously have the opportunity to post work on the Internet for comment by mentors. This is new to this curriculum. One teacher has set aside time to facilitate student reflection on their work in preparation for posting. Students also have more time to decide how to incorporate the response into their art piece. In some classes, participation in the online mentoring piece is required, specifically if students are working more independently. Online mentoring stimulates and motivates students to work and take their work seriously. In one school, because of the ARTT online mentoring process, one school realized the benefits and value of online mentoring.   Their school created a "student-mentor writing circle" where students are partnered with community members who agree to critique their writing. This is a new addition to the art, music, and language arts curriculum and will be continued next year.

VYP Online
Teachers in VYP Online did not report any changes in their curriculum; however one indicated that they would like to include writing plays for the online process in their curriculum next year.

Principal and School Board Response
The majority of the art, music, and theater/writing teachers reported a positive response from the school principal and School Board. The teachers report that these key people have shown great support and interest in the project and are aware of student work and the new learning that is taking place. Teachers report that the general response of the principal and school board is positive, supportive, enthusiastic, and impressed. One teacher reported a negative experience with her principal stating that the administration was not supportive and not interested at all in the program. She noted that the school board and parents were supportive of the program. Another teacher commented that she had not received any particular feedback from her principal, thus was not clear on their view of the project. During an interview with another teacher in October 2001, she noted that her principal is not active in the project, but does not prevent her from attending workshops or the Opus 3 concert. She noted that her own follow-up with the principal is key to maintain his support. Although most receive a positive response from their principal and school board, several teachers recognize that the project and the benefits to students needs to become more visible to their school administration and board. This will promote future sustainability of the project in the future.

> *Parents and administrators have been thrilled to see what's going on with our students. They like to try composing when we have demonstrations set up at school report nights and open houses.*
> *– MIDI teacher*

One teacher discussed a success story through project advocacy during an interview in October 2001. Her school principal and board were very supportive of the project and offered regular positive feedback to their work. The teachers informed the principle that time and scheduling was making it difficult to effectively teach students to participate in the project. Thus, the principle offered her and another teacher one hour of "common time" to their day for planning, posting work, and working with students, etc. This will increase the flexibility in their schedules greatly!

Parent and Community Response

ARTT, MIDI, and VYP Online teachers also report a positive response from parents and the community. Parents are enthusiastic and supportive about the work their children are doing in the arts. Several teachers note that it is important to share this work with parents so they understand the process and what their child is doing, as well as allowing them to see their child's creativity. Parents learn about the use of technology to create and the online process and exchange mostly at open houses and school report nights. Parents are amazed at the accomplishments of their children. Two teachers noted that parents have donated equipment, such as computer and printers to the classroom.

> *There has been enthusiastic support especially from parents for the online mentoring and digital imaging programs in the art room. The school board and administrators have responded very favorably to the integration of technology in the art program. We have been fortunate to add new classes and new curriculums this year, utilizing the technology and online exchange.*
> *– ARTT teacher*

Most of the teachers reported that they have not yet shared the project with their entire community, as the majority has reached mostly parents and their internal school community. However a few have sent press releases to local newspapers about events and achievements, posted work on their school website, and written articles for their school newsletter. One VYP Online teacher noted that they presented two plays written by students at the University of Vermont. Parents and the community were very excited and impressed with the quality of student work.

> *The general public has become more aware of the project because of press release that have been created on the computer about the project and emailed directly to area newspapers.*

Statewide Response

In March 2000, The Center for Rural Studies conducted the "Vermonter Poll", an annual statewide opinion poll about issues important to the state. Five questions on the Vermonter Poll were asked related to public funding for the arts and awareness of Internet-based arts education in Vermont, specifically the Vermont MIDI Project, ARTT, and VYP Online. A total of 720 Vermonters responded to the poll. A complete report of the findings of this section is available in Appendix K of this report. The following summarizes the highlights of the findings and conclusions.

Regardless of education, geographic location, having children at home under 18, and income, 80% of respondents feel that it is either important or very important for state government to provide funding to support arts programs such as arts education in schools, community arts organization, and arts programs provided through social services agencies. Females and people who are younger (mean age 47.9) are significantly more likely to feel that this funding is either important or very important. Recall that last year, the 2000 Vermonter Poll showed that almost 90% of Vermont residents support arts education regardless of demographics.

The mean dollar amount that respondents would be willing to spend to provide additional support for the arts is $128. The median amount is $100 and the mode is also $100. Highest percentages were received in the dollar range of $51-100 (32%) and $1-25 (31%). Those who do

not have children under 18 living at home and those living in the Northeast Kingdom are significantly more likely to spend $51-100 in tax dollars. Recall that in 2000, almost 83% of Vermont residents support expanding the Internet-based arts programs to all of the schools in the state.

More than half of respondents (59%) selected arts education programs in schools as their top priority to receive funding from this pool of money, followed by local organizations (25%) and local social service agencies (15%). Respondents who have some college education or more are more likely to support local organizations, however respondents with a high school diploma or less education are more likely to support arts programs provided by local social service agencies. Almost equal percentages of these two education categories supported arts education programs in schools.

Twenty-six percent of respondents reported that they were aware of Internet based arts education programs in Vermont, while almost three quarters were not aware. This is higher than the results from 2000 as approximately 22% of Vermonters' have heard about VT-MAP or any other Internet-based arts programs at that time. In 2001, 9% reported having heard of the Vermont MIDI Project, 14% ARTT, and 13% VYPO. Respondents with a high school diploma or less education (36%) are more likely to be aware that Internet based arts education programs exist in VT and to have heard of VYPO. However, people with some college or more are more likely to have heard of the Vermont MIDI project. Respondents who are at or above the median income in Vermont are more likely to have heard of ARTT and female respondents are more likely to have heard of VYPO.

Facilitators and Barriers to Success

The online experience and related activities that occur in the classroom through the Vermont MIDI Project, ARTT, and VYP Online are influenced both positively and negatively by internal and external factors, at the classroom, administrative, and community level. There have been many facilitators and barriers to the integration of MIDI, ARTT, and VYP Online into the classroom.

Facilitators
Through self-reported data, several factors at the organizational level of the project, specifically administrative support for technology and professional development, have facilitated the process of introducing the project into the classrooms.

Administrative and technical support
The teachers involved in MIDI, ARTT, and VYP Online cited that the administrative support from Sandi MacLeod, coordinator of the Vermont MIDI Project, Penny Nolte, coordinator of ARTT, Dana Yeaton, coordinator of VYP Online, and William Hays, manager of VT-MAP, have facilitated the introduction of the project into the classroom. Their commitment to the project, technological skills, and time and effort to be available for assistance has ensured that the classrooms are connected to the Internet, technical problems are dealt with, and that teachers have the appropriate administrative support from their school technicians, principals, and school boards. Teachers comment that they are always available by telephone, email, or to make a site visit to assist with technological problems and observe classroom instruction. Mentors and other instructors, including Carolyn Keck, Marty Leech, Joanne Owen, Ethan Bowen, Chuck Meese, Jeff Perrin, and Bill Moulton have also been facilitators of the project for several teachers. Several teachers have also acknowledged the support from other teachers at conferences to learn about ideas they have for teaching and integrating the technology into the curriculum.

Community support
Furthermore, the technical support person within several schools has assisted with getting computers functioning, online, and troubleshooting as problems arise. Most teachers also acknowledged their own commitment, time, and effort put forth to integrate this project into the classroom. Support from school principals, school board members, parents, and other teachers within the school is also recognized by the grant teachers as influential in the success of the first year of the project. One teacher commented that a parent had donated a computer to her classroom.

Professional development
Teachers involved in VT-MAP reported that professional development through the Summer Institute in July 2000, follow-up workshops held locally, and *The Gathering* in November of each grant year helped participants learn, network, and share their strategies and experiences with one another. One teacher commented that attending the training and learning how to work with Adobe Photoshop allowed her to become familiar enough with the software to teach it to her students. This has integrated this new media with which art students can create.

Computer equipment

Several teachers noted that they would not have been able to participate in this project without having received the grant and equipment from VT-MAP. One teacher commented that receiving this grant last year pushed their administration to connect her side of the school building to the Internet. One school also received a computer through a donation from a parent.

Barriers

In February and June 2001, teachers were asked to rate the extent to which a list of factors impeded their classroom's online dialogue. Teachers were then asked to provide any additional comments on the barriers. The list of barriers was developed based on common barriers teachers reported experiencing last year. The results show that whether or not a classroom is new or experienced to the partnership, most are faced with the same barriers relating to lack of time, computer stations, limited access to the Internet, and limited availability of technical support in their school. These are consistent with barriers that teachers reported experiencing last year.

Table 7, 8, and 9 depicts the aggregate responses given by ARTT, MIDI, and VYP Online teachers, respectively, to each barrier. A more detailed discussion of barriers follows the tables.

Table 7. Extent of barriers impeding on online dialogue in ARTT classrooms (n=7 W, 9 S)

Barrier	No extent		Slight extent		Moderate extent		Great extent	
	W	S	W	S	W	S	W	S
Lack of time	0	0	1	1	2	2	4	5
Teacher comfort with hardware and software	3	4	4	3	0	1	0	0
Integrating the technology into the classroom	1	1	3	2	2	4	1	2
Student apprehension about written communication abilities	1	2	1	2	4	2	1	2
Limited access to the Internet	6	3	1	2	0	1	0	0
Limited availability of technical support	1	2	5	4	2	3	0	0
Administrative support	4	5	3	0	0	1	0	3
Lack of computer stations for students	1	1	2	0	2	3	2	5

W = Winter Semester Questionnaire; S = Spring Semester Questionnaire

Table 7 indicates that major barriers ("great extent") include lack of time, and lack of computer stations for students. Barriers that affect teacher to a slight to moderate extent include integrating the technology into the classroom student apprehension about written capabilities, and limited availability of technical support. Barriers that do not affect teachers or affect them only slightly include teacher comfort with hardware and software, access to the Internet, and administrative support. There was little difference between reports in the winter and spring. The highlighted numbers above indicates these results.

Table 8. Extent of barriers impeding on online dialogue in MIDI classrooms (n=12W, 11S)

Barrier	No extent		Slight extent		Moderate extent		Great extent	
	W	S	W	S	W	S	W	S
Lack of time	1	3	3	1	1	1	7	6
Teacher comfort with hardware and software	7	5	2	2	2	2	1	1
Integrating the technology into the classroom	5	6	6	2	1	1	0	1
Student apprehension about written communication abilities	6	6	5	4	0	1	1	0
Limited access to the Internet	7	6	1	2	2	0	2	3
Limited availability of technical support	5	4	2	3	1	2	2	2
Administrative support	6	7	2	2	1	2	1	0
Lack of computer stations for students	2	1	2	4	4	3	4	3

W = Winter Semester Questionnaire; S = Spring Semester Questionnaire

Most of the barriers identified by teachers last year do not appear to greatly affect teachers in the Vermont MIDI Project, as indicated by the highlighted area above (Table 8). Areas that did pose a barrier to a great extent in some classrooms included lack of time, limited access to the Internet, limited availability of technical support, and lack of computer stations. Areas that posed less of a barrier (slight extent) or did not affect classrooms (no extent) included lack of time, teacher comfort, integrating the technology into the classroom, student apprehension, limited access to the Internet and technology support, administrative support, and lack of computer stations. Surprisingly, three teachers reported that lack of time was not a problem, one reported it was a problem to a slight extent, and one to a moderate extent.

Table 9. Extent of barriers impeding on online dialogue in VYP Online classrooms (n=2W,3S)

Barrier	No extent		Slight extent		Moderate extent		Great extent	
	W	S	W	S	W	S	W	S
Lack of time	0	1	1	0	0	2	1	1
Teacher comfort with hardware and software	1	2	1	2	0	0	0	0
Integrating the technology into the classroom	0	1	2	0	0	1	0	2
Student apprehension about written communication abilities	2	1	0	2	0	0	0	0
Limited access to the Internet	2	1	0	1	0	0	0	1
Limited availability of technical support	2	3	0	0	0	0	0	0
Administrative support	1	3	0	0	1	0	0	0
Lack of computer stations for students	2	2	0	1	0	0	0	0

W = Winter Semester Questionnaire; S = Spring Semester Questionnaire

It is difficult to draw conclusions from the Table 9 because there were so few responses. However several generalizations may be drawn specific to the teachers who did respond, as indicated by the highlighted areas. Barriers that impeded to a great extent for some teachers

included lack of time and integrating the technology into the classroom. Barriers that imposed a moderate extent for some included lack of time, integrating the technology into the classroom, and administrative support. In general, barriers that imposed from no extent to slight extent included teacher comfort, integrating the technology into the classroom, student apprehension, limited access to the Internet, limited technical support, administrative support, and lack of computer stations.

Time Limitations
One of the main barriers discussed by music, art, and writing/theater teachers included several aspects of time. Limited classroom time is available for the arts in education for students and teachers to learn and practice using the new technology in the arts (i.e. short class periods). Further, students' schedules are often not flexible (rotating classes or classes meeting only once a week), thus there is limited time for them follow-up with suggestions made by online participants. One teacher mentioned that a lot of momentum is lost from week to week because her class only meets once a week. With restricted classroom time, there is limited availability for students to work on the computer and post work. When students do post work, one teacher noted that there is often limited time for her to read the mentors response and prepare a reply with students. Teachers also discussed how limited time in their schedule does not allow them to efficiently plan for instruction with the technology, or review and experiment with technology.

Technology
This past year, few teachers noted frustration in working with technology and integrating it into the classroom compared to several last year. This year, teacher frustrations with technology surround issues of poor equipment, such as slow server speed, small monitors, and unreliable dial-up connection. These barriers make it difficult for teachers to share the website with the class as a whole. Further precious time is wasted in waiting for pieces to either upload or download.

Another issue relating to technology for a few teachers was the limited number of computer stations available. One teacher noted that with only two computers available, time is very limited for students to go online, which is frustrating for both teachers and students.

Lack of Support
Two teachers mentioned that they have limited technological support within their school, which is a barrier if technological issues arise. Two teachers in art and music also noted that they have had non-existent support from their school administrator. In one school, the teachers are advocating their administration to allow their schedule flexibility to spend more time working on this project. In another school, a teacher's budget and salary was decreased, so she was not able to purchase a needed site license for Adobe Photoshop or offer a digital imaging course.

Financial Limitations
Two of the teachers noted that financial limitations for software, hardware, and replacement of other equipment at the local level are a barrier to the implementation of the project in the classroom.

Student turnover
During interviews and focus groups, most teachers commented that this consistent "renewal" of the learning curve, due to high student turnover rate, has allowed teachers to continually practice using the equipment and different teaching strategies. Many note that each time they start over with a new group of students that they are a little better at the project than before. Many teachers who were interviewed remarked that this project would be more beneficial to students if it were offered continuously throughout their primary education. One teacher stated that there are no composition opportunities for students at the high school level, which is disturbing because student's skills have improved greatly over the past two years. However, consistent exposure to the project is available in several schools where students use the technology and participate in the online exchange from third through fifth grade. Teachers who have worked with experienced students note that they show tremendous progress and learning and effectively use the online exchange, as they are familiar and comfortable with the process, vocabulary, and mentors. However, one teacher remarked that none of her students have had difficulty with the technology after one forty-five minute period. Students pick up technological skills quickly and many teacher note that students often know more than the teacher does about computers and programs!

Conclusions

This evaluation report highlights the process of VT-MAP school involvement in the online forum and related activities and the outcomes of their involvement during the past the three years of funding. Throughout this project, all of the grant schools experienced success and achievement. New and experienced teachers alike initiated and continued to surpass the challenge of learning new technology and integrating it into the curriculum and classroom to improve opportunities in arts education in rural and geographically isolated schools. This project has had a great impact on students who are involved in both the in class and online components of the project. Teachers report that students have demonstrated improvement in various skill areas, such as composing, using Adobe Photoshop, use of appropriate arts vocabulary, and critiquing their an others work. Teachers also report that students have shown improved performance and achievement by an increase in the quality of their work. Finally, teachers report that students have developed personally, through increased motivation to learn, improved self-esteem, and increase confidence in themselves as people and as artists. Student improvement and development are in line with the Vermont and National Standards for Arts Education to which the three organizations subscribe in their practice.

Progress has not only been made at the classroom level, progress has also been made towards the grant goals, as most of the grant goals have been met. Evidence also shows local and statewide support for arts education and the continuance of this project in schools. This support has the potential to grow through increased advocacy of the project and arts education and through the growth of the virtual arts community.   This is the final year of funding for the Vermont Millennium Arts Partnership from the current sources. However, the Vermont MIDI Project and ARTT have recently established their independent identities through the formation of the non-profit Vermont MIDI/ARTT Project, Inc. This non-profit will continue the online mentoring forum and continue to work towards sustainability of the online forum and related activities.

The following provides a highlight of the major findings presented in this report.

Meeting Grant Goals

Goal I: Increase Vermont public awareness of and support for Arts education.
Data collected through CRS's representative statewide public opinion poll shows that VT-MAP has increased community support for the arts and introduced new audiences to the arts (N=720; 95% confidence level, +/- 5% margin of error). Community support for the arts is evident as 80% of respondents rated that it is important or very important for state government to provide funding to support arts programs such as arts education in schools, community arts organization, and arts programs provided through social services agencies. Respondents indicated a willingness to spend a mean of $128 of their personal tax dollars to provide additional support for the arts, with 32% willing to spend between $51-100 and 31% willing to spend between $1-25. More than half of respondents (59%) selected arts education programs in schools as their top priority to receive funding from this pool of money. Twenty-six percent of respondents were aware of Internet based arts education programs in Vermont and 9% were able to identify the Vermont MIDI Project, 14% identified ARTT, and 13% identified VYP Online.

Sixty-four percent (22) of the 34 schools presented student artwork, music compositions, and dramaturge developed as a result of VT-MAP funding during the 2000-2001 school year. These presentations and showcases publicized the project and results to school communities. Students demonstrated how they use technology in their classrooms to compose music and create digital works of art through computers and software such as Sibelius and Adobe Photoshop. They also demonstrated the process of posting their work online and the online exchange between their peers, other teachers and professional mentors. To show the learning and end result of this process, students presented visual and audio examples of initial, revised and final works completed through in-class technology and the online exchange. The target audiences of these presentations included parents, school principals, the school board, and the public. All teachers who coordinated presentations and exhibits reported that they received a positive response from their audience.

VT-MAP made significant progress towards improvement in arts programs at the school level, however due to limited additional funds goals related to increased teacher FTE were not met. Over the past two years, 24% (8) of teachers from the 34 participating schools reported an increase in their FTE and one school or 3% added one full time arts teacher position. A quarter (24%, 8) of participating schools reported an increase in their arts budget for the 2001-2002 school year. Regarding school action plans, most school officials noted that the arts were a part of their total program but that the arts were not specifically included in the school action plan. However, 9% (3) schools plan to improve their arts program through their school action plan. Additionally, 44% (15) of grant funded schools received additional hardware from their school budget and one or 3% received budget funds for improvement of an art related workstation.

Goal II: Improve opportunities for students to learn the Arts.

VT-MAP met the following objectives within to the goal of improving opportunities for learning in the arts. Over the course of three years, the available pool of artists skilled in on-line mentoring grew to 37 artists and 23 actively mentor students on-line. Ten of these mentors work with ARTT, eight with MIDI, and five with VYP Online. Approximately 10,000 students have been exposed to the online mentoring forum through the 34 grant schools and an additional 85 schools that participate at their own expense. VT-MAP has maintained online arts learning opportunities in 12 of the 14 counties in Vermont with the online network at large present in all 14 counties. All students who have participated in the project have shown improvement in performance, achievement, and related areas based on Vermont and National Standards. VT-MAP has held three annual conferences and five showcases of student work, two of which were presented at annual conferences.

VT-MAP did not meet the objective of assisting 7 Local Area Arts Organizations (LASO) with connectivity and computer technology through training and provision of hardware. A total of four LASO's applied for and received assistance through this grant; however only two programs remained by the end of the grant as two LASO programs withdrew from the project in year two.

Goal III: Increase use of computers and Internet technology in arts education.

All of the objectives under the goal of increasing computer and Internet technology in arts education were met by VT-MAP. A total of 54 teachers from the 34 grant schools have integrated the use of computers, software, and the Internet into their art, theater and music curriculum. An additional 84 schools joined the online network without financial assistance. All grant schools posted at least one piece of work to the online forum; however project coordinators emphasized the importance of posting quality over quantity of posting. Throughout the project, coordinators observed a common trend in posting, beginning with a spike in online activity at the project's onset and when new teachers joined the project. After this initial peak in usage, coordinators observed a decrease in activity that correlated with increased experience in teaching and using technology.

Student In-Class and Online Activities

Students participate in the Vermont MIDI Project, ARTT, and VYP Online through in-class activities that take place off-line and in the online forum. Working in the classroom, students become familiar with computers, software such as Sibelius and Adobe Photoshop, and equipment such as keyboards, digital cameras, and scanners. Classroom instruction is also where students learn appropriate vocabulary and theory within their field so that they may participate in the online and in-class dialogue of asking questions and providing and responding to feedback.

Student activities in the online website include:

- Viewing and exploring the website – students gain ideas for their own works
- Critiquing work posted on the website – students develop appropriate arts vocabulary to interact with online mentors
- Posting their work for review

- Reviewing and processing constructive criticism they have received
- Improvement of student artwork based on mentors comments – sometimes students choose not to incorporate the advice of mentors, however teachers comment that the experience is still beneficial as it introduces students to different ideas for creating.

Examples of student projects

♫ MIDI students studied different composers' work and presented their research to the class by listening to examples of compositions. Students then developed their own compositions using computer software that were inspired by the composers' work. The teacher commented that using MIDI technology enhanced this classroom activity and student learning, which had been in place for several years.

♫ One MIDI teacher, whose classroom has been involved with the project for two years, noted significant improvement in the compositions produced by seventh and eighth grade students. The teacher remarked that since her students have used MIDI technology and the online, their quality of work has increased tremendously with students writing more intricate "three part, twelve measure piece" compositions.

♫ A teacher involved in the Digital Audio Initiative through the MIDI Project wrote that students created commercials using the technology of a "mini disk recorder." Each student created a background sound track that was layered under narration, song or both, to create an audio advertisement for local business. The teacher noted, "The students had great fun, were highly creative, and demonstrated a good grasp of the tools. Several commercials were good enough for the local radio station!"

🎨 In an ARTT classroom, art students draw with mediums such as markers and pencils and make creations with paper mache and clay. Students who made pencil drawings posted their work to the online forum to receive feedback. They then incorporated the artists' suggestions into their work by adding color and texture.

🎨 High school ARTT students developed digital portfolios with Adobe Photoshop and wrote reflections on their artwork. Students stored this portfolio on a CD and printed and pasted images into their sketchbooks. Photography students took images with digital and 35mm cameras and then manipulated them using Adobe Photoshop to create new images. Students in a painting class used Adobe Photoshop alongside their painter's canvas to create a work of art that incorporated painting and digital filter techniques.

Website activity

Posting student artwork or compositions is only one component to participation in the project. The coordinators of ARTT, MIDI, and VYP Online stress that the number of postings by each classroom is not an appropriate measure of success or quality in the project. Oftentimes, the initial use of the website and posting work is high while the teachers and students learn the critique process and practice their digitizing and uploading skills. Many of these postings are not "need" driven but are practice for students and teachers. As teachers become confident that they

are able to use the online forum when a student has a real question to ask the online mentors about a work in progress, classroom activity drops off. The following presents the website activity data of the three online organizations. The project coordinators note that several schools experienced technical difficulties that prevented them from either posting work or replying to mentor comments. Further, several new schools that were learning to use the online process had posted work numerous times yet few students engaged in dialogue. This occurrence tended to lower the percentage of student replies to mentor comments.

A total of 148 musical compositions were posted between September 2000 and August 2001 for VT-MAP schools involved in the Vermont MIDI Project, with a total reply rate of 41% (61). Four of the six schools involved in the Digital Audio Initiative posted twelve pieces online. A total of 150 pieces of artwork were posted between September 2000 and August 2001 by VT-MAP grant recipients in ARTT, with a total reply rate of 58% (87). The VYP Online project posted a total of 69 pieces on the website between September 2000 and August 2001 with 27% (19) of the total posts completing the request-respond-reply cycle.

Project Impact on Student Achievement and Performance

Teacher reported data indicates that participation in VT-MAP positively impacts student achievement and performance, based on Vermont and National Standards of Education, through revitalizing arts curriculum and learning opportunities in schools.

> *"I have seen students with severe handicaps, emotionally and physically, excel at composing a singable simple melody to which other students respond very enthusiastically."*

Teachers have used the online forum as a teaching tool to facilitate student learning of creative development, the critique process, use of hardware and software relating to the arts, and arts vocabulary. As a result of their online participation, students are encouraged to challenge their creative abilities and improve their work. Teachers comment that the online forum has had a positive impact on their curriculum as it supports and enhances their current curriculum and student learning.

The Vermont MIDI Project

Teachers of the Vermont MIDI Project reported that students developed skills in listening and evaluating music, notation skills and understanding musical elements, composing music, critiquing work, asking more specific question for feedback, and processing and applying constructive criticism received. Students also demonstrated personal growth and development, including an increased motivation to learn and increased self-esteem and self-confidence in as individuals and musicians. Overall, teachers have observed an increase in the quality of student work because of their classrooms participation in VT-MAP. As the Digital Audio Initiative joined the project more recently in 2000, the project coordinator commented that students have developed skills in creating digital audio projects although it is premature to determine actual impact on

> *"This project has given new life to the music program at our school. In the four years I have been teaching here, general music education has gone way beyond singing songs for forty-five minutes. The composition work fits extremely well with the curriculum that I have been developing. I'm not sure I would continue teaching music if I were not involved in this project! I certainly would feel out in left field if my students did not have this opportunity."*

performance and achievement. The coordinator was able to develop a set of standards to share online work, which engaged several schools to post work online.

ARTT
ARTT teachers reported that students have developed skills in the use of mixed media, critical thinking, critique and reflection, asking appropriate questions for feedback, improved arts vocabulary, and analytical skills to improve work. Students have also

> *"This project has been extremely beneficial to our visual arts program. Communication skills have expanded dramatically and camaraderie between teachers in the project has increased. There has been a revival of dynamics in our arts curriculum."*

shown an increased motivation to learn as well as an increase in student self-confidence. Overall, students who have participated in the project have demonstrated learning, some beyond their grade level, and have shown a higher quality of work.

> *"Online experience brings out the "special" in all kids. One student I had was an outcast. One of his pieces was selected to be presented at the Gathering. It was a very rewarding experience for him to meet the artist mentors. This validated his feeling that it is ok to not be like everyone else. He showed the ability to follow through with a project, talk with artists, and participate in a show. This was a very empowering experience for him."*

VYP Online
Since VYP Online is a new addition to the online community, most of the teachers involved in this project reported that it is too early in their involvement to notice impact on students. However a few teachers reported that students have developed enhanced writing and critiquing skills. Further, in one Career Center involved in the partnership, several students have been placed in post-secondary intuitions.

> *"The online exchange seems to have piqued student interest in looking at more plays and made some more open to criticism."*

Community Response and Support for Arts Education

Students, teachers, school principals, school boards, parents, and local communities of the grant schools have given a positive response to VT-MAP. Most students are enthusiastic about the project and are excited to share their work and get back responses. Students are also excited to hear or see other student's work online. Several teachers mentioned that feedback provides an important stimulus for students to reflect and explore new directions artistically. Teachers involved in VT-MAP are thrilled and excited about the online exchange and to be a part of this new step in arts education. Teachers are appreciative of the hardware, software, and other technology they have received through the grant. Teachers feel that this project enhances their curriculum and validates their teaching. They are also excited by the learning that takes place as students work online and hear/see other students work and work through their own pieces. Teachers report that the general response of the principal and school board is positive, supportive, enthusiastic, and impressed. Parents are also enthusiastic and supportive about the work their children are doing in the arts. Several teachers note that it is important to share this work with parents so they understand the process and what their child is doing, as well as allowing them to see their child's creativity. Although most teachers have shared the project

only with their school community, a few teachers have sent press releases to local newspapers about events and achievements, posted work on their school website, and written articles for their school newsletter. One VYP Online teacher noted that they presented two plays written by students at the University of Vermont. Parents and the community were very excited and impressed with the quality of student work.

Strengths and Challenges Faced

Teachers reported that support system in place, from VT-MAP administration, project coordinators, mentors, and other teachers, is crucial to the introduction of the online forum and technology into the classroom. Teachers stress that the commitment, technological skills, and time and effort made available by project administrators has ensured that classrooms are connected to the Internet, technical difficulties are resolved, and teachers have administrative support from school technicians, principals, and the school board. School technical support staff has assisted with getting setting up and troubleshooting computers and other technological difficulties as they arise. Support from school principals, school board members, parents, and other teachers within the school has also been critical to the project's success. One teacher commented that a parent had donated a computer to her classroom. Teachers commented that professional development offered through the VT-MAP sponsored *Summer Institutes,* local workshops, and the annual *Gathering* in November of each grant year helped participants learn, network, and share their strategies and experiences with one another.

The two major barriers reported by many teachers included lack of classroom and professional development time to fully integrate technology into their teaching and a lack of computer stations for each student. Several teachers also had difficulty maintaining access to the Internet and with the limited availability of technical support within their school. A few teachers reported frustration related to slow server speed, small monitors, financial limitations within school budgets, and a lack of support from school administration.

Recommendations

This is the final year of funding for the Vermont Millennium Arts Partnership from the current sources. Thus, the evaluators have made the following recommendations for the Vermont MIDI/ARTT Project, Inc for sustainability of the online forum and related activities. The evaluators recommend that this organization continue to use of online mentoring programs as planned, implemented the use of online protocols. The evaluators recommend that that the project coordinators continue to identify project impact on students and arts learning opportunities based on the Vermont and National Standards of Education. Interviews with teachers show that there is a strong sense of dedication and belonging to the online community, which should continue to be fostered through annual conferences, workshops, student showcases, and online support.

At the current time, funding is not available for future evaluation. However if this situation were to change, the evaluators would like to continue working with the Vermont MIDI/ARTT Project, Inc. to document project process and outcome. The evaluators propose to introduce the use of a case study approach for evaluation in addition to methods employed over the past two year.

Through the case study approach, the evaluators would closely follow several teachers over time through interviews, site visits, and student focus groups and interviews. This approach will provide a more in-depth review of project process and impact on students. The evaluators would work with the new project administrators to determine the best possible evaluation approach based on the needs of the project, perspectives of this past evaluation, and new grant and classroom goals for the future.

Appendices

(Available upon request)

Appendix A: Expectations Assessment
Appendix B: Winter Mentor Report
Appendix C: Spring Mentor Report
Appendix D: Winter Semester Questionnaire
Appendix E: Spring Semester Questionnaire
Appendix F: Follow-Up Teacher Focus Group and Interviews
Appendix G: Summer Institute Evaluation
Appendix H: The Gathering Evaluation
Appendix I: Summer Institute Evaluation Report
Appendix J: The Gathering Evaluation Report
Appendix K: Analysis of the 2001 Vermonter Poll
Appendix L: Vermont and National Standards of Art Education followed by VT-MAP organizations