

JMU NETS•T Certification Program Overview



Prepared by the
JMU Partnership for 21st Century Skills¹

We have consistently observed in Rockingham County that our teachers admit, more than anything else, that they appreciate the self-evaluation and reflection components of the NETS•T certification process. While teachers surely learn about new technology tools, skills, and resources available to them, they learn even more about their own strengths and weaknesses as teachers as they carefully scrutinize how they're integrating technology into their daily instruction. As they move through the process, they see the bigger picture as the standards ask them to reflect on such things as their goals, teaching strategies, methods for differentiating instruction based on learning styles and various types of diversity present in their populations, assessment of technology, and even the management of their resources. The process is rigorous and fosters thorough examination of all they do in the context of using technology in instruction yet certainly yields a high degree of satisfaction among those who complete.²

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20% of Teachers NETS•T Certified

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² Personal communication (November 8, 2007).

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JMU NETS•T CERTIFICATION PROGRAM

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I've seen what NETS•T certification can do for a teacher. I've seen them reflect on their current practice, understand how technology can improve their instruction, and how this leads to improved student achievement. I've also seen what happens when groups or cohorts of teachers at the same school pursue NETS•T and the excitement and innovation this generates within in a school. We are dealing with 21st century learners who need 21st century skills. Shouldn't these students be taught by teachers who possess these skills?

The refresh of the NETS standards at all levels is being done to address what is needed to be successful in today's world. Infusion of technology into the curriculum in all subject areas is a real-world-today type of thinking. We are not just using technology to learn technology. We're using technology to learn math and science. The only way we will be able to produce 21st century learners is by providing them teachers with 21st century skills themselves. This starts with the teacher, not the student.

The NETS•T SVTC project was one of the most credible, authentic, integrated professional development opportunities I provided while at SCPS [Shenandoah County Public Schools, VA].

Pam Smith
NETS•T Evaluator
NETS•T rubric co-author
February 7, 2008.

Version February 17, 2008

Contents

I.	Executive Summary	5
II.	Overview	7
III.	Elements of the Program	9
	- Background	9
	- The Opportunity	14
	- The Need	16
	- Benefits of the JMU Solution	17
	- Factors Influencing Adoption	20
	- The Deliverables	27
	- NG Certification for Those Already NETS•T Certified	30
IV.	Licensing Options	31
V.	Summary	33
VI.	Appendices³	
	▪ Appendix A: Virginia Technology Standards for Instructional Personnel (TSIPs)	
	▪ Appendix B: Example of Rubric Employed in the Original SVTC NETS•T Certification System.	
	▪ Appendix C: Initial Questions Regarding JMU NETS•T Certification Program Guidelines	
	▪ Appendix D: Example of Standard Rubric Used in Initial JMU NETS•T Certification System	
	▪ Appendix E: Example of Elaborated Rubric Used in Initial JMU NETS•T Certification System	
	▪ Appendix F: Comments from NETS•T certified teachers regarding the JMU NETS•T Certification Program	
	▪ Appendix G: Excerpts from ISTE Review of JMU NETS•T Certification Program Report of June 25, 2007	
	▪ Appendix H: Example of Standard Rubric	

³ For reasons of space, Section VI is not included in the current document but is available upon request as an addendum

JMU NETS•T CERTIFICATION PROGRAM

- Appendix I: Example of Elaborated Rubric
- Appendix J: Example of Evaluator Checklist
- Appendix K: Example of Reflection Template
- Appendix L: ISTE Essential Conditions Survey Items
- Appendix M: Virginia Content Repository

SECTION I: EXECUTIVE SUMMARY

The need for accountability in the purchase and utilization of educational technology has never been greater. Budget battles, calls to cut and even eliminate funding, efforts to dismantle innovative programs such as Virginia's Instructional Technology Resource Teacher (ITRT) initiative - all stem from a lack of awareness of the criticality of technology integration in enhancing teaching and learning.

And with ever increasing competitiveness in the global marketplace, the stakes rise even higher. As reported in a recent survey of public attitudes in the United States, *There is near universal agreement (99 percent) that teaching 21st century skills is important to our country's future economic success.*⁴ Problem-solving, creativity, innovation, collaboration – these are the skills that are vital to our future. And technology enables them all.

The James Madison University (JMU) Partnership for 21st Century Skills offers this proposal as an important step in successfully engaging this future. Beginning in 2003 with the Shenandoah Valley Technology Consortium (SVTC) and now extending beyond the SVTC with the aid of funding from Microsoft Corporation, the JMU NETS•T program is a proven success in leading educators to technology competency. The more than 500 Virginia teachers and ITRTs who have attained their NETS•T certification via this program to date provide powerful witness to the many benefits provided by the program.

As documented in this overview, these educators report increased job satisfaction, confidence, competence, and effectiveness as a result of their involvement in the program. Administrators report that the program promotes a culture of learning not just for those who are involved in the program, but across the entire school, leading to an environment in which learning is *contagious* for teachers and students alike. Further, the JMU program is highly scalable and cost effective, supporting high rates of adoption.

The program supports flexible licensing options, designed to maximize the impact of any division's intervention, particularly those divisions with limited resources. The options include a discount to divisions who license the program as part of a multi-division consortium.

JMU welcomes the opportunity to partner with the Virginia school divisions and consortia in this endeavor and looks forward to the possibility of providing a model not just for Virginia, but one which ultimately may guide the efforts of states across the nation.

⁴ http://www.21stcenturyskills.org/documents/p21_pollreport_2pg.pdf. Retrieved November 29, 2007.

JMU NETS•T CERTIFICATION PROGRAM

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SECTION II: OVERVIEW

This document presents the program developed by James Madison University (JMU) to provide certification services relative to the National Educational Technology Standards for Teachers (NETS•T) for Virginia teachers and Instructional Technology Resource Teachers (ITRTs).

The overall program combines flexibility in service provision with a range of service options to allow Virginia educators to customize an approach that best serves their needs while keeping costs low and cost-benefit high. In so doing, the proposed project delivers a variety of benefits to Virginia educators, including greater job efficacy, confidence, and satisfaction, along with an unequalled foundation for technology-enhanced teaching and learning in the 21st century within a sustainable culture of learning.

Section III of the proposal describes the elements of the program, including the history of the project, the need to be addressed by the proposal and the unprecedented opportunity to do so, as well as a full discussion of benefits and the factors influencing the adoption of the program. The section closes with a description of the deliverables to be provided in support of the program.

Section IV presents the licensing options available to divisions and consortia who wish to implement the program. Options supported include an Annual License – ideal for divisions who want to include as many ITRTs and teachers as possible in the program at the lowest possible cost – and a Fixed Cost option - best for a one-time, short-term, concentrated certification effort, such as quick certification of a division's ITRTs. A substantial price reduction is available to divisions participating as multi-division consortia.

Section V provides a concise summary of the program. Section VI offers a number of appendices, including a variety of materials which elaborate the discussion presented in the body of the proposal. For reasons of space, Section VI is not included in the current document but is available upon request as an addendum.

JMU NETS•T CERTIFICATION PROGRAM

Notes:

SECTION III: ELEMENTS OF THE PROGRAM

BACKGROUND

On December 12, 2002, a representative of the Virginia Department of Education (VDOE) attended a meeting of the Shenandoah Valley Technology Consortium (SVTC) to announce the solicitation of the No Child Left Behind (NCLB) Enhancing Teaching Through Technology (E2T2) funding opportunity available via the U. S. Department of Education. The representative indicated that approximately \$25 million dollars would be allocated among the state's eight so-called Ed Tech consortia⁵, including the Shenandoah Valley Technology Consortium (SVTC), over a five-year period to support the effective use of technology in teaching and learning.

The funding given to each consortium was based on a competitive process, in which the VDOE reviewers assigned points to each proposal. The consortium with the highest rated proposal received the largest amount of funding, with those proposals receiving fewer points resulting in lesser amounts of funding awarded. The full proposal was due January 3, 2003.

The only criterion for the proposal set by the VDOE for the SVTC proposal was to “go beyond the TSIPs.” TSIPs refers to the Technology Standards for Instructional Personnel and consists of minimal guidelines for technology proficiency, comprised of statements such as “Instructional personnel shall be able to demonstrate effective use of a computer system and utilize computer software” (see Appendix A for the complete list of TSIPs). The TSIPs were at that time and remain today the official VDOE standard for technology proficiency. While the official standard, the TSIPs are widely viewed as insufficient for fully describing proficiencies educators must have to use technology effectively in the classroom.

The lead writer on the SVTC proposal team was Rich Ingram, a member of the Ed Tech faculty at JMU. Because of the magnitude of the task and the short timeframe in which it had to be completed, Dr. Ingram drew on knowledge of a program of performance certification he had designed for Xerox Corporation in the late 1980's when he worked as a corporate consultant. The purpose of the Xerox program was to certify mastery of required job skills of technical and sales personnel based on job models developed for that purpose.

Adapting the Xerox model, the SVTC was awarded the state's highest point total and received nearly \$5 million dollars to support the program over a five-year period, almost twice as much funding as was awarded the second-place finisher.

Instead of job models, the focus of the SVTC program was the National Educational Technology Standards for Teachers (NETS•T⁶). The NETS•T standards comprise one of three related sets of standards, with the other two sets addressing students (NETS•S⁷) and administrators (NETS•A⁸). The

⁵ The Ed Tech consortia are Blue Ridge West, Blue Ridge East, Southside, Shenandoah Valley Technology Consortium, CII, Central Virginia, Four Rivers and North Tier. See

<http://www.pen.k12.va.us/VDOE/Technology/EdTech/consortiainfo.shtml>.

⁶ http://cnets.iste.org/teachers/t_stands.html.

⁷ <http://cnets.iste.org/students/index.html>.

⁸ <http://cnets.iste.org/administrators/index.html>.

JMU NETS•T CERTIFICATION PROGRAM

NETS standards are adopted or referenced for K-12 education by 48 of the 50 states and the District of Columbia.⁹ In higher education, the NETS standards form the basis for many Educational Technology master's program (including JMU's) and are viewed by the National Council for Accreditation of Colleges of Teacher Education (NCATE) as an important component of the conceptual framework.¹⁰ The NETS•T standards were developed and published by the International Society for Technology in Education (ISTE).¹¹

Structurally, the NETS•T standards consist of six standards and two or more performance indicators for each. For example, Standard II and its supporting performance indicators are shown in Table 1:

II	Planning and Designing Learning Environments and Experiences
IIA	Teachers design developmentally appropriate learning opportunities that apply technology-enhanced instructional strategies to support the diverse needs of learners.
IIB	Teachers apply current research on teaching and learning with technology when planning learning environments and experiences.
IIC	Teachers identify and locate technology resources and evaluate them for accuracy and suitability.
IID	Teachers plan for the management of technology resources within the context of learning activities.
IIE	Teachers plan strategies to manage student learning in a technology-enhanced environment.

Table 1. NETS•T Standard II and supporting Performance Indicators.

Overall, the six standards are supported by 23 performance indicators.

Typically, ISTE publishes only the standards and performance indicators, leaving the development of supporting rubrics to others. However, in late 2002, ISTE had nearly completed development of a set of rubrics for the NETS•T standards. The rubrics were serviceable and timely, and with ISTE's permission, were adopted for the SVTC proposal. The collected rubrics were published by ISTE in February 2003 as *Resources for Assessment*¹² – one rubric for each of the 23 performance indicators.

The standards and rubrics formed the basis of an online e-portfolio system which became the core of the SVTC NETS•T certification program. The focal point of the program was the NETS•T certification system, a .NET application hosted at JMU on Windows servers. Development of the system began in mid-April 2003 and went live two and one-half months later on June 23. Since that time, the system has demonstrated exceptional availability, having never been off-line unexpectedly, except for an occasional power outage that affected the entire systems environment.

⁹ http://cnets.iste.org/docs/States_using_NETS.pdf.

¹⁰ <http://cnets.iste.org/ncate/>.

¹¹ <http://www.iste.org/>.

¹² http://www.iste.org/source/orders/isteproductdetail.cfm?product_code=nettas.

JMU NETS•T CERTIFICATION PROGRAM

Using this program, teachers first create artifacts (e.g., work products) that demonstrate that the teachers have mastered the skill and knowledge required for a given rubric. This artifact is submitted to the certification system along with a reflection which describes how the evidence demonstrates mastery of the rubric for which it was submitted. A sample rubric used for the initial SVTC NETS•T certification system is shown in Appendix B.

Evaluators trained in the use of the system review the evidence submitted and then, using the rubric developed for that performance indicator, determine the level of mastery reflected by the evidence. Teachers are informed of the results of the evaluation by consulting the status chart located on the home page of their accounts. The four possible levels of rating - Developing, Approaching, Meets, Exceeds – are displayed graphically as dark yellow, light yellow, light green, or dark green, respectively, in the status indicator for the rubric of interest. Accordingly, the teachers can tell their overall status at a glance. Table 2 below shows an example of a status chart:

I	A	B			
II	A	B	C	D	E
III	A	B	C	D	
IV	A	B	C		
V	A	B	C	D	
VI	A	B	C	D	E

Developing
 Approaching
 Meets
 Exceeds

Table 2. NETS•T certification status chart; colors reflect the Evaluator rating for each rubric as shown by the legend. Cells that are not colored have not yet had evidence rated.

Teachers who are rated at Meets or better are commended for their accomplishment by the Evaluators. For those teachers who receive a rating of less than Meets, the Evaluator offers supportive feedback about how the submission can be improved in order to meet the criteria. The teacher then reworks the evidence and resubmits for a second round of evaluation.

In implementing the system, the SVTC found it necessary to address a number of basic questions regarding system usage. For example, is it preferable that the Evaluator and the person being evaluated know one another? What are the advantages and disadvantages? Should Evaluators be skilled in the evaluation of all rubrics or specialized to address only a subset of rubrics, particularly for divisions in which there are multiple Evaluators? The SVTC position on these and a number of other initial questions are shown in Appendix C.

The SVTC teachers embraced the system from the beginning and news of the program spread. In fall 2003, the SVTC team was invited by ISTE to feature the certification system on Capitol Hill as part of a showcase for Congress on educational technology.

In the spring of 2004, JMU was approached by Microsoft Corporation, who was at the time beginning its U. S. Partners in Learning initiative. Following several rounds of discussion, in the spring of 2005, Microsoft funded the newly-created JMU/Microsoft Partnership for 21st Century Skills to extend the SVTC NETS•T Certification Program beyond the Shenandoah Valley and across the Commonwealth.

Since that time, the program has been adopted in six of the eight Ed Tech consortia, and continues to expand.

Given the new Microsoft funding, the original SVTC certification system was refined to take advantage of the experience gained in the previous two years of system operation. The primary refinement implemented addressed the style and structure of the rubrics. Specifically, for the JMU Partnership system, the number of levels of the rubrics was reduced from four to three (omitting Developing, leaving Approaching, Meets, Exceeds). While the Exceeds category was retained for use by Evaluators who encountered truly exceptional submissions, the rating overall was effectively reduced to two choices – Meets or Not Meets (i.e., Approaching). This dichotomous rating was adopted in order to increase inter-rater reliability to the highest degree possible.

Further, the rubrics were redrafted, to provide the Evaluator with more specific information regarding the manner in which evidence was to be judged. Standard rubrics were developed for each performance indicator, and included a checklist to be used by the Evaluator. In addition, elaborated rubrics were created, providing explicit definitions of operational terms, expanded discussion of required criteria, and examples of reflections. Examples of these standard and elaborated rubrics are presented in Appendices D and E, respectively.

The revised system went into service on July 1, 2005. Coincidentally, and fortuitously, a new personnel designation went into effect in Virginia on the very same day – the Instructional Technology Resource Teacher (ITRT).

One key factor in the adoption of the NETS•T certification program, without doubt, has been the implementation in Virginia of the state mandated and funded ITRT position. The role of the ITRT is to consult with regular classroom teachers on using technology effectively to support teaching and learning. It was discovered early on that the coverage of knowledge and skills addressed by the NETS•T standards overlapped greatly with the duties of the ITRT as described in the ITRT Handbook.¹³ Accordingly, teachers applying for the new ITRT positions discovered quickly that those who held their NETS•T certification were favored at hiring time for these positions.

Reaction of teachers and ITRTs to the NETS•T program has been very favorable. Representative comments offered by ITRTs include the following:

- *The learning that goes on through the NETS•T certification process is just amazing.*
- *[NETS•T certification] was very intense but very rewarding....*
- *...my goal, in my district, is to have full NETS•T certified teachers, district-wide.*

Additional comments are included in Appendix F. Other factors that have contributed to the adoption of the system are discussed in the section of this proposal titled “Factors Influencing Adoption.” See also the section of this proposal titled “Benefits of the JMU Solutions.”

¹³ For a comparison of the coverage of the NETS•T standards and the duties described in the ITRT handbook, see http://coe.jmu.edu/netst/Spotlight/Spotlight_NETS_ITRT.htm.

JMU NETS•T CERTIFICATION PROGRAM

In the fall of 2006, as an outgrowth of the Microsoft funding, the NETS•T certification system and related deliverables underwent a review by ISTE pursuant to award of the ISTE Seal of Alignment. The review extended through the academic year, and resulted in the award of the seal to the JMU Partnership NETS•T Certification program in summer of 2007. As noted in the review summary, ISTE “finds the JMU system to be an exceptionally well-designed and robust assessment system.” The complete text of the review is presented in Appendix G.

While all components of the certification program were reviewed, the primary emphasis of the review was directed at the training provided to Evaluators. The role of the Evaluators in the program has always been a central concern of program operation, given the observation that if the evaluations are not seen as fair and consistent by those pursuing their certification, then the credibility and viability of the program will be undermined. As such, in concert with the ISTE review, the Evaluator training was refined and the rubrics revised once again, to reduce any ambiguity in their interpretation to the greatest extent possible.

This newly refined Evaluator training and the associated rubrics form the basis of the program proposed herein. Examples of these new standard and elaborated rubrics, along with the newly created Evaluator checklist and Reflection template, are shown in Appendices H, I, J, and K, respectively.

As of fall 2007, more than 500 teachers and ITRTs have attained their NETS•T certification, with another 900 in process. Requests from educators wanting to become involved in the program are received virtually every day.

THE OPPORTUNITY

On October 10 2007, the VDOE announced that it would fund Year 6 of the NCLB Ed Tech grant. The original cycle covered a five-year period which ends February 29, 2008. The Ed Tech grant year runs from March 1 through February 28. Year 6 then provides funding for the period of March 1, 2008 through February 28, 2009.

Similarly, the VDOE provided an overview of the ATTAIN bill (Achievement Through Technology and Innovation Act of 2007), which is currently under review in the House and Senate.¹⁴ The ATTAIN bill would provide an additional five years of funding for Ed Tech in K-12, possibly at higher levels than the original NCLB Ed Tech bill. Further, the ATTAIN bill would place great emphasis on support for a systemic program of professional development related to effective technology usage such as is provided by the JMU NETS•T program.

The ATTAIN bill and the factors related to its creation have supporters on many fronts, such as the State Educational Technology Directors Association (SETDA)¹⁵, the aforementioned ISTE, and the Partnership for 21st Century Skills.¹⁶ Of particular note is a recent position paper published jointly by these three organizations – “Maximizing the Impact: The Pivotal Role of Technology in a 21st Century Education System”¹⁷ which urges action on three fronts:

- *Use technology comprehensively to develop proficiency in 21st century skills.*
- *Use technology comprehensively to support innovative teaching and learning.*
- *Use technology comprehensively to create robust education support systems.*

Whether or not ATTAIN is passed, and it appears very possible that it will be passed in some approximation of its current form and funding, the issue of professional development will remain at the forefront of technology usage. As such, while the absence of a significant ATTAIN appropriation may slow the spread of the JMU program, the need is too great to leave such an area of need unfunded. In the absence of significant ATTAIN funding, it is anticipated that state departments of education, as well as individual divisions and consortia, may well support the program using existing (non-ATTAIN) funds.

The opportunity is underscored by an important development in the NETS•T standards themselves. Originally developed and adopted in the 1990s, the standards have come to be described as increasingly “stale,” that is, not reflecting an important evolution in thinking that has occurred with regard to technology, pedagogy, and globalization – the so-called 21st Century Skills. To address this deficiency, the NETS•T standards are currently undergoing a “refresh” to better align them with 21st Century Skills and related efforts such as those underway by the national Partnership for 21st Century Skills. These

¹⁴ See http://www.siiia.net/govt/docs/pub/ATTAIN_SenateSummary.pdf for the Senate version of the bill. Retrieved November 19, 2007.

¹⁵ <http://www.setda.org/web/guest/maximizingimpactreport>.

¹⁶ <http://www.21stcenturyskills.org/>.

¹⁷ http://www.setda.org/c/document_library/get_file?folderId=191&name=P21Book_complete.pdf; retrieved November 19, 2007.

JMU NETS•T CERTIFICATION PROGRAM

refreshed NETS•T standards will be referred to as NETS•T Next Generation or NETS•T NG standards.¹⁸

The refreshed or Next Generation NETS•T standards will be announced at the national Educational Computing Conference (NECC) in July 2008. Coincidentally, the JMU Partnership will announce at that same conference the availability of its NETS•T certification program beyond Virginia, in collaboration with Microsoft Corporation and the national Partnership for 21st Century Skills. This announcement will include the reference to coverage of the NETS•T NG standards, beginning with what would be the anticipated start of Year 1 of the ATTAIN program (March 1, 2009). As such, Virginia would be very well positioned to become the recognized leader nationally in performance certification and related professional development for technology-enhanced teaching and learning.

¹⁸ http://www.iste.org/Content/NavigationMenu/NETS/NETS_Refresh_Forum/NETS_Refresh_.htm.

THE NEED

At minimum, the need is for an affordable, high-quality, and highly scalable program of authentic performance certification relative to the NETS•T and NETS•T NG standards that can be used to guide assessment and professional development for teachers across Virginia and perhaps within a national context. The program should be sufficiently flexible to allow bundling and un-bundling of program options in order to provide the best fit to teacher and administrator needs while keeping costs low, but support value-added features that keep cost-benefit high.

Optimally, the program should also be efficient (requiring teachers to take only the training needed in order to complete their NETS•T skill set), flexible (supporting skill development by informal as well as formal means), lend itself to a high degree of adoption and the development of a concomitant community of learning, and leverage the ITRT role, taking advantage of the opportunity NETS•T provides for ITRTs to support their teachers in promoting technology-enhanced teaching and learning.

Ideally, based on the SVTC experience, the program should support the engagement by collaborative cohorts to provide maximal support for those pursuing their certification while also promoting self-directed learning for those learners whose styles lend themselves to focused individual study.

The JMU NETS•T Certification Program was designed with exactly these needs in mind.

BENEFITS OF THE JMU SOLUTION

The JMU NETS•T Certification program was *designed by Virginia teachers and ITRTs for Virginia teachers and ITRTs*. As such, it is uniquely designed to provide benefits to Virginia educators as well as to those who administer and fund such programs. These benefits include:

- **Flexibility.** Users can pursue certification at their own pace, schedule, and location. Since there is no “seat time” associated with the program, users may complete their certification as quickly as their time allows. Further, users may choose to develop their skills in whatever fashion (and budget) suits them best. The NETS•T program itself is completely independent of the training leading to development of NETS•T skills. It can be used in conjunction with any existing professional development program, incorporating both formal and informal activities.
- **Efficiency.** Users engage in only the training they need in order to master NETS•T prerequisite skills. ITRTs/teachers possessing requisite skills progress to certification faster than do ITRTs/teachers who have yet to acquire the skills.
- **Retention.** The development of the learning community promoted by NETS•T adoption may actually assist in retaining teachers who might otherwise leave the division. As noted by the Technology Coordinator of one of the SVTC school divisions in which 20% or more of its teachers have become NETS•T certified (with more currently in process),

*In my opinion, the teachers who have completed NETS•T certification are so excited about being able to utilize the technology in their classroom and the support they have received from Warren County Public Schools and the Shenandoah Valley Technology Consortium that they do not want to leave our school division to look at other job opportunities that are available to them.*¹⁹

- **Rejuvenation of veteran teachers.** Teachers of long-standing are often presumed to be at the back of the technology integration curve. However, as noted by one Technology Coordinator²⁰, the NETS•T program has had an unexpected result:

A side benefit, and somewhat unexpected, is the rejuvenation I've seen of veteran teachers. We have many seasoned teachers who have gone through the NETS•T certification program and have expressed a renewed passion in teaching. For an example of this, visit <http://www.rockingham.k12.va.us/spotlights/algebra.htm>. The enthusiasm expressed by the teachers in this video is typical of what has happened from school to school in [the school division].

- **Impact on achievement.** While the report is anecdotal, the same Technology Coordinator indicates that, in his opinion, the NETS•T certification program has had a positive effect on student achievement, as measured by the Virginia Standards of Learning (SOLs):

...our SOL test scores are quite admirable. When I began working here in 1989, [the school division] would typically score at or a little below the state average on all normed tests. Now, our SOL scores are routinely well in excess of state

¹⁹ Melody Sheppard, personal communication (October 29, 2007).

²⁰ Joe Hill, personal communication (November 13, 2007).

JMU NETS•T CERTIFICATION PROGRAM

scores. For example, I just reviewed all of our math scores for the past four years, grades 3-12, as found on the DOE Division Report Card. There are 24 test scores posted; [the school division] exceeded the state average in all 24 in terms of percentage passing. I strongly believe that the integration of technology into instruction [supported by the NETS•T certification program] has been a major factor in this success.

- **Enhanced pursuit of external funding.** Forty percent of the teachers at Pleasant Valley Elementary School have attained their NETS•T certification. Principal Paula Frazier²¹ notes that she thinks that a grant recently awarded to the school was the result in part of having such a technology-accomplished faculty. See details of the grant at <http://www.rockingham.k12.va.us/spotlights/PVESSmart.htm>.
- **Reinforcement of ITRT role.** The JMU Program supports ITRTs in the role of serving as Evaluators for the teachers with whom they work. As such, these ITRT-teacher certification teams may take advantage of existing relationships and professional development programs to identify the optimal path to certification. Indeed, supporting evaluation by supervisors who have responsibility for the professional development of the teachers pursuing the certification maximizes relevance and engagement by all parties. It is also perhaps the most critical factor in the success of the program.
- **Scalability.** Utilizing the ITRTs as Evaluators provides the potential for great scalability of the program. At the upper end, the JMU Program allows for certification of all 105,000 Virginia teachers over a five-year period by first training and then employing all 1,300 ITRTs as Evaluators.
- **Agility.** The unique design and implementation of the JMU program allows it to be adapted or modified quickly, for example, to accommodate the Next Generation standards currently being developed by ISTE or to address related certifications of interest (e.g., ICT literacy among 8th graders, NETS•A). As described in the background earlier in this proposal, the initial JMU Program was operational within two and one-half months of receipt of funding.
- **Cost-effectiveness.** By uniquely blending the benefits noted above – flexibility, efficiency, utilization of ITRTs, and scalability - the JMU Program can offer certification for a surprisingly small cost. See Section IV of this proposal for details on licensing options.
- **High degree of adoption.** The JMU Program facilitates the development of supportive communities of practice among colleagues and this, along with the involvement of ITRTs, efficiency and program low cost, leads to relative high levels of adoptions among teachers in a division, currently as high as 20% among some divisions, with additional teachers in the NETS•T pipeline. Some individual schools report adoption rates as high as 40% and rising.
- **Sustainability.** Once adopted, the JMU Program is easily sustainable due to its low-cost and reliance on local resources. So, the program may continue even if the funding used to establish the program is cut dramatically. Further, the program provides for collaboration within a supportive virtual community of peers that remains in place even after certification is achieved, thus supporting both established and new generations of tech-enabled teachers.

²¹ Personal communication (January 8, 2008).

JMU NETS•T CERTIFICATION PROGRAM

- **Culture of learning.** The high degree of adoption leads to the development of a critical mass of technology-accomplished teachers which, in turn, has the effect of promoting a culture of learning within the school, division, consortium, or state. This culture affects not only those who have attained their certification but those with whom they work as well. Within this culture, the certified teachers become models of learning and accomplishment.
- **Collaborative cohorts.** The Program places great emphasis on the development of virtual and non-virtual communities of practice, thus making it ideal for supporting cohorts of ITRTs/teachers in working collectively toward their certification. These cohorts may be similarly-skilled (e.g., consisting of veteran ITRTs), team-based (e.g., ITRT-teacher teams), and/or theme-based (e.g., early elementary teachers and their ITRT supports).
- **Training optimization.** The Program supports creation of highly targeted just-in-time-training based on an on-going embedded needs analysis performed by the Evaluator during the evaluation process. Current training may be revised or new training may be developed to address gaps or opportunities in training identified, such as those skills identified during the NETS•T self-assessment.
- **Technology readiness.** The Program includes completion of the Essential Conditions survey as a prerequisite to beginning NETS•T pursuit. Essential Conditions refer to those elements of a school environment that determine its technology readiness. Tracking these data may allow ITRTs or administrators to identify those areas in which the technology readiness of the school/division may be improved, such as through the procurement of needed hardware or software. (See Appendix M for the list of Essential Conditions.)
- **Self-directed learning.** The Program supports self-development of an Individual Development Plan aligned with the NETS•T standards. In conjunction with the NETS•T self-assessment conducted at the beginning of NETS•T pursuit, the Plan allows teachers to take ownership of their own professional development and guide their own development.
- **Content creation and dissemination.** In association with the Virginia Content Repository (see Appendix L), the certification program provides for identification and dissemination of exemplary work products that can be used as model artifacts to guide others and to populate content repositories.

See Appendix F for a fuller consideration of the benefits provided by the JMU program as noted by individual teachers.

FACTORS INFLUENCING ADOPTION

Certainly, as discussed in the previous section of this proposal, the benefits provided by the JMU Program have a significant impact on the degree to which the program is adopted in a given division or consortium. However, in conversation with teachers, ITRTs, and administrators, additional factors appear to have played a role as well. Each of these factors is discussed below.

Before considering these factors, however, it is useful to consider the context for adoption, with particular attention to the phases of adoption. This is important, in that it may be that the factors influencing adoption at one phase of implementation may differ from those influencing adoption at a later phase.

Two aspects of context are considered – SVTC “waves” and the “adopter categories” noted by Rogers.²²

SVTC Waves

In the SVTC, program managers and technology coordinators have long spoken of “waves” of teachers and ITRTs engaged in the program and the differences between these waves. In the first two years of the program, beginning in 2003, the teachers who opted to pursue NETS•T certification (there were not, as yet, ITRTs) tended to be the technology pioneers who had long been involved in technology integration and served as unofficial leaders of technology usage. In most cases, these pioneers already had the requisite skills required for NETS•T mastery and many already had the artifacts needed to document mastery. For these pioneers, the path to NETS•T certification required only the organization of their artifacts and development of reflections describing how these artifacts related to the respective standards. These teachers tended to attain their certification quickly with a relative minimum of support (e.g., informal ad hoc study groups as opposed to formal NETS•T courses).

In the third year of the program (2005), the nature of the population of those engaged in NETS•T pursuit began to change. This second wave of SVTC teachers tended to be less technology-accomplished and, as a result, had neither the requisite skills for NETS•T mastery nor the artifacts to document such mastery. Thus, this second wave of “NETS•T-ers” (as those pursuing certification are sometimes called), tended to require more support and take longer to complete their certification. At least four different school divisions developed NETS•T classes at this time to provide extra support for these subsequent waves of teachers. The courses continue to be offered. Three of these programs are offered for graduate credit through three different universities (JMU, George Mason University, Eastern Mennonite University).

Rogers’ Adopter Categories

A more formal and systematic method of characterizing the SVTC waves of adoption is provided by Rogers’ work on Diffusion of Innovation. In Rogers’ view, individuals and groups involved in adopting

²² Rogers, Everett. (1983). *Diffusion of Innovations* (third edition). New York: the Free Press.

JMU NETS•T CERTIFICATION PROGRAM

an innovation or new program could be described according to different “adopter categories.” The adopter categories and their relative distribution in a normally distributed population are shown in Chart 1.

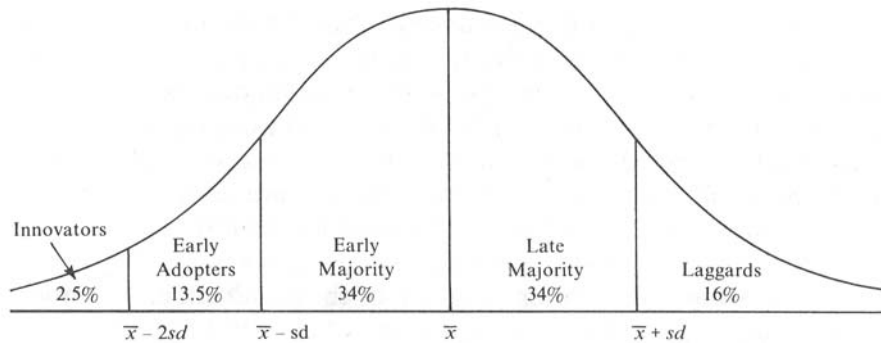


Chart 1. Adopter categories described by Rogers (1983).

Across the entire consortium, approximately 6.25% of SVTC teachers and ITRTs have become NETS•T certified (i.e., approximately 500 NETS•T certified among approximately 8,000 teachers). However, there is significant variation in the adoption of the individual divisions within the SVTC with some divisions producing no NETS•T-certified teachers and others exhibiting adoption rate of 20% or more.

In general, those divisions that have produced no NETS•T certified teachers tend to be small and on the periphery of the SVTC geographically with little opportunity for Evaluators, ITRTs, or teachers to engage in on-going NETS•T-related activities with colleagues. On the other hand, one of the largest divisions in the SVTC (Rockingham County) and those adjoining it (Harrisonburg, Augusta County, Shenandoah County) have seen the greatest rates of adoption. Rockingham’s rate of adoption (20%) is shown in Chart 2. Chart 2 also indicates the relative prevalence of ITRTs (defined officially as 1:1000 students or .1%; this equates to approximately 1% of teachers).

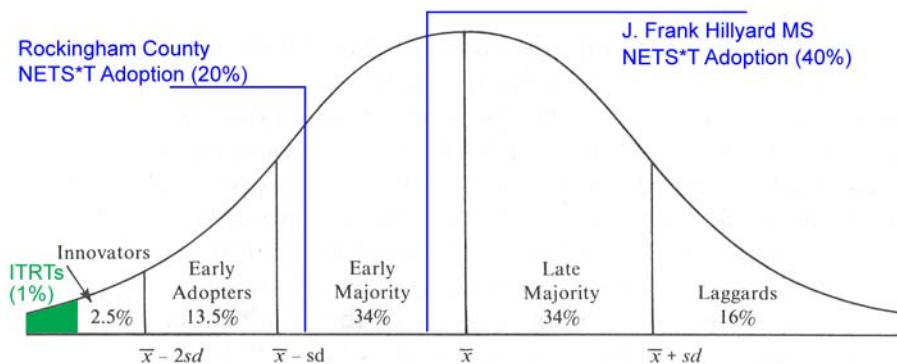


Chart 2. NETS•T Adoption by Rockingham County (as of October 29, 2007) and J. Frank Hillyard Middle School (as of November 19, 2007).

Chart 2 also depicts the unusually high rate of adoption for one particular Rockingham County school – J. Frank Hillyard Middle School – at 40%.

JMU NETS•T CERTIFICATION PROGRAM

The obvious question that arises from this consideration is why different divisions have different rates of adoption. The answer to this and other related questions will be examined during a comprehensive program evaluation to be conducted on the JMU program during the spring of 2008. The results of this evaluation will be studied and the components of the JMU program will be revised accordingly in order to help ensure the highest rate of adoption advised given the conditions identified.

In the meantime, in contrast to factors affecting division-wide adoption, individual teachers who have attained their NETS•T certification have been quite clear as to the factors that influenced their decisions to complete their certification. The factors identified are noted below:

- **Credibility.** *I think that the reason that I really wanted to get this certification was because it gave me credibility with the teachers that I was working with.* (Toni Sheets; Augusta County)
- **Confidence.** *When you finish that [NETS•T] process, you know that you know technology and how to integrate it into your classroom and that can be a very powerful tool.* (Alice Behr; Rockingham County)
- **Impact on students.** *Ultimately, what it allowed me to do was to better prepare students for real world applications and seeing the look on their faces because of the work I've put into it was well worth the whole experience.* (Anita Crawford; Greene County)
- **Impact on teachers.** *I... work with teachers now as they work through the [NETS•T certification process], and it's been exciting to see teachers who were just starting to use technology grow as they go through the process to be technology integrators and to find exciting ways to engage their students through the use of technology.* (Karen Campbell; Harrisonburg City)

I'm now helping to mentor other teachers through the NETS•T process and it's been so exciting not only using technology in my own teaching but seeing other teachers get excited about using technology in their classrooms and NETS•T has made that possible. (Lynn Pike; Rockingham County)
- **Informal study with colleagues.** *...we were able to put together study groups where we were able to work and share and collaborate on ideas for NETS•T and things for their classroom.* (Denise Orndorff; Shenandoah County)
- **Self-evaluation.** *This [NETS•T certification] process helped me in evaluating my current skills and what I needed to work on.* (Deandra Jones; Wise County)
- **Job satisfaction/competence.** *I really enjoyed it and I think it has made a tremendous impact on my job and I think I've become a better ITRT because of it.* (Ferri Lockhart, Roanoke City Schools)
- **Scalability.** *And that's my goal, in my district, is to have full NETS•T certified teachers, district-wide. It's ambitious but that's what I want to do.* (Heather Blanton, Wise County Schools)
- **Reflection.** *I liked to do the [NETS•T certification] also because it caused me to reflect on what I was doing. I was teaching the same content but really working it out and reflecting about how I could do it in new ways.* (Judy Music; Waynesboro City)

JMU NETS•T CERTIFICATION PROGRAM

Additional comments made by teachers regarding their NETS•T certification may be viewed at <http://coe.jmu.edu/netst/Reflections>.

An additional factor adding to the appeal of the NETS•T credential is that the certificate offers a **competitive advantage in hiring**. For example, the ITRT position (noted previously) came into existence on July 1, 2005. Coincidentally, this is also the start date of the JMU/Microsoft Partnership. The ITRT position is state-mandated and funded at a ratio of 1 ITRT to each 1,000 students. It quickly became evident to aspiring ITRTs and to the administrators that hired them that the skills comprising the NETS•T standards addressed very much the skill set expected of ITRTs (as described in the ITRT Handbook).²³ As such, teachers applying to becoming ITRTs come with a certificate of proficiency for the job at hand.

Other logistical factors have come into play as well. These factors include:

- **Program advocacy.** As noted by Kelly Lineweaver, manager of the SVTC NETS•T program, *The divisions that have had the most success with NETS•T are divisions in which there is strong support in the administration (typically at the Director of Technology level, since those folks are the grant contacts). These people, along with their ITRTs, promote the program and draw a lot of interest among teachers.*²⁴ Karen Campbell, who was the first person to attain NETS•T certification via the SVTC program, similarly notes, *I think a lack of an advocate is also a factor. If there's not someone in your division promoting this [NETS•T], it is less likely to happen.*²⁵

Note: It is interesting to compare this factor with conditions addressed in the ISTE Essential Conditions survey included in the JMU NETS•T solution, particularly for the conditions of *Shared Vision and Support Policies*; see Appendix M.

- **Supportive community.** In addition to advocacy, most individuals who complete the program require support in a variety of forms, including a supportive community of peers. As noted by Karen Campbell: *I would think the biggest factor that leads to engagement and completion is the support that is available to the teachers going through the process. This is what I hear from the folks completing in Harrisonburg. Few opt to take this on their own. I think the numbers of folks completing in the consortium are largest in the divisions that offer the classes.*²⁶ Kelly Lineweaver agrees: *[Administrators need to] provide support as the teachers work through the program, which is critical. They either offer classes, or work one-on-one, or get teachers together in groups for NETS•T work sessions. Or all three. I think that support makes all the difference between teachers who forge ahead and those who drop out.... Teachers who go this alone don't always make it. Many do. But having a support group (preferably in-person, with folks they already know) seems pretty important to the process.*²⁷

²³ <http://www.doe.virginia.gov/VDOE/Technology/ITRThandbook.pdf>; retrieved November 19, 2007. See also <https://www.eschoolnews.com/news/top-news/index.cfm?i=42086&CFID=82249&CFTOKEN=49792743> for a description of the program.

²⁴ Personal communication, November 12, 2007.

²⁵ Personal communication, November 12, 2007.

²⁶ Personal communication, November 12, 2007.

²⁷ Personal communication, November 12, 2007.

JMU NETS•T CERTIFICATION PROGRAM

According to Doug Alderfer, principal at J. Frank Hillyard Middle School, which has a NETS•T adoption rate of 40% and rising; *We have such a large percentage of teachers and ITRTs who are NETS•T certified, that it tends to create a culture of learning that affects not only the teachers who are certified, but those who aren't as well.... Because we have so many certified, it becomes contagious to those who are not and they want to participate....*²⁸

Note: Compare this factor with the Essential Conditions of *Access, Skilled Educators, Professional Development, Technical Assistance, Content Standards and Curriculum Resources, Student-Centered Teaching, Assessment, Community Support*; see Appendix M.

- **Time requirement/Structured program.** One factor often noted by NETS•T completers is the rigor of the program and the corresponding amount of time required to fulfill the requirements of the program, including developing the prerequisite skills, creating the artifacts and reflections, organizing the portfolio, submitting the evidence and responding to Evaluator suggestions for improvement, not to mention working collaboratively with colleagues in mutual support of the process. Ferri Lockhart reports: *My initial barrier was time, I knew it was going to be a lot of work and require a lot of time. Luckily I did most of mine in the summer but had to finish once school started and found it hard to work on after putting in a long day at school. I feel that teachers who go through this should not have extra duties such as hall duty, lunch duty, etc., so they could work on their NETS•T.* Melody Sheppard offers a similar observation, and suggests that time management and structuring the program to support teacher progress are useful: *Barriers [to NETS•T completion] would include the amount of time that it takes to complete all of the rubrics. I think creating a schedule to keep all of the NETS•T participants on track helps them keep organized and constantly looking at the NETS•T requirements and keeps them submitting their work. I guess it boils down to time management.*²⁹

Note that the NETS•T certification program itself does not impose specific time limits or schedules for completion. This is left to the organizations (e.g., VCOPs) managing the programs for their respective constituents. For example, the SVTC process is exemplary. In the SVTC, individuals must submit an “Intent to Complete” form prior to the year in which they wish to pursue their certification. The SVTC also sets milestones (e.g. progress “gates”) which require NETS•Ters to fulfill the requirements of a minimum number of rubrics at given points in the year (e.g., achieve a rating of at least Meets on Rubrics IA, IB, IIA, and IIB by May 30). These milestones encourage teachers and ITRTs to stay on track and to provide mutual support for a focused subset of the NETS•T rubrics. Kelly Lineweaver notes: *Last year [grant year 4] we had a 15% drop-out rate, of those who submitted Intent forms. That was our lowest rate yet - years past it had been more.*³⁰ In grant year 4, the SVTC had 168 NETS•T completers.

In addition, a number of explicit incentives have been identified as motivational in completing the program, particularly when made contingent upon program completion. These incentives include:

²⁸ Personal communication, November 19, 2007

²⁹ Personal communication, November 14, 2007.

³⁰ Personal communication, November 12, 2007.

JMU NETS•T CERTIFICATION PROGRAM

- **Receipt of hardware/software.** Since the inception of the program, the SVTC has offered hardware (and some software) incentives to teachers and ITRTs who complete the NETS•T program. There is no question that this incentive has encouraged participation in the program, particularly early in the program. This practice also supports the optimal dissemination of technology resources, as the NETS•T certification ensures that the individuals who receive the equipment are proficient in the use of it.

While this incentive has spurred participation in the program, it is interesting to note that the number of individuals enrolling in the program has increased even though the amount of the incentive available to them has decreased significantly. In the early years of the SVTC program, NETS•T completers received \$2,000 toward the purchase of the hardware of their choosing (from a list provided by the consortium; popular items included SmartBoards, laptops, and data projectors). In year 4, because of cuts in the level of funding to E2T2, the amount of the incentive fell to \$500. In addition, the SVTC reports that an increasing number of teachers and ITRTs are opting into the program even though they receive no explicit incentive.

Note that other VCOPs who sponsor NETS•T certification programs have not opted to provide hardware incentives. This is largely a matter of funding, however, not philosophy. The SVTC received the greatest amount of funding by far of the eight Virginia Ed Tech consortia and have had more latitude in making these provisions for its teachers and ITRTs than have the other consortia. In any event, it is recommended that explicit incentives be included as a contingency for NETS•T completion, whenever possible.

- **Recertification credit.** Of course, not all incentives require fiscal outlay. One readily-available incentive is the award of recertification points to educators who complete their certification. An interesting question in this regard that has arisen is the manner in which recertification credit is assigned, given that the NETS•T program has no provision for “seat time” or direct contact hours as is the case with traditional academic coursework. As the value of the NETS•T certificate and the rigor of the process have become recognized, school divisions have increasingly moved toward award of recertification credit.

As noted by Kelly Lineweaver: Several divisions in the SVTC grant recertification points for [NETS•T certification]. It's a decision that is made within the division, so how it is done varies. Several divisions offer 45 points, and at least one offers 90. I believe one division offers one point per rubric (for a total of 23). I don't think any of them ask for proof of time spent - most just assign a total point value to the project, and completing the certification is what is required in order to earn those points.³¹

- **Pay increase.** Once question that is asked increasingly by NETS•T completers is whether NETS•T certification might lead to a pay increase of the type associated with attainment of Board certification. Numerous educators who have both credentials (NETS•T and Board certification) have observed that the NETS•T requirement is comparable to Board certification in terms of rigor and accomplishment. To date, as far as is known, there is no record of a documented request to a school division for this consideration.

³¹ Personal communication, November 6, 2007.

JMU NETS•T CERTIFICATION PROGRAM

- **Endorsement.** An additional question that is being asked increasingly by those who have attained their NETS•T certification is whether they may be eligible for a corresponding endorsement from the VDOE. This may be a topic of discussion for a later time, once the NETS•T certificate becomes more widely available and achieved across Virginia.

Finally, one key historical obstacle to the implementation of the NETS•T program should be noted – the **availability of Evaluators**. Initially, the program design called for an apprenticeship model of Evaluator training in which an Evaluator gained the necessary skills over the course of a one-year collaboration with an experienced Evaluator. This model was well-suited to a gradual scale-up of the NETS•T program that was initially envisioned. However, as noted previously, the NETS•T program became available outside of the SVTC at the same time as the implementation of the ITRT program. Given the interest in ITRTs in attaining NETS•T certification, the apprenticeship model for developing Evaluators was quickly overwhelmed. In response, a higher-capacity model for Evaluator was designed and piloted in the spring of 2007 in collaboration with ISTE as a part of their Alignment review. On-going classes based on this new model will begin in 2008 in support of existing and newly-developed VCOPs.

DELIVERABLES

The deliverables developed in support of the program include the following:

- NETS•T Rubrics
- NETS•T Reference Portfolios
- NETS•T Handbook
- NETS•T System
- NETS•T Web (large file, wiki)
- NETS•T Evaluator Training
- NETS•T Portfolio Workshop
- NETS•T Course

Each of these deliverables is described below.

- **NETS•T Rubrics.** The NETS•T Rubrics form the core of the certification process, specifying exactly what type of evidence is needed for each of the 23 performance indicators. The rubric includes the regular rubric, the elaborated rubric, the Evaluator checklist, and the Reflection Template. See a sample elaborated rubric at http://coe.jmu.edu/netst/Rubrics/IIE_e_07.htm. The current rubrics reflect the current NETS•T standards. They will be revised as necessary to address the pending NG standards.
- **NETS•T Reference Portfolios.** The NETS•T Reference Portfolios are fully elaborated models of portfolios that teachers can use to guide the development of their own portfolios. Five reference portfolios are in development for the NETS•T standards; these will be updated to address the NG standards once the refresh is complete. These carefully-constructed portfolios also form the basis of the Evaluator Training.
- **NETS•T Handbook.** The NETS•T Handbook describes all aspects of the certification process, including teachers and evaluator roles, and NETS•T System usage. Topics of particular interest include tips for creating and organizing the NETS•T portfolio, for writing reflections, and for writing constructive feedback (Evaluators).
- **NETS•T System.** The NETS•T System consists of two related but separate applications, one to support Teachers and one to support Evaluators. The Teacher component supports evidence uploading, development of an Individual Development Plan, self-rating of Essential Conditions, self-assessment of NETS•T competencies (an informal pre-test), and an evaluation summary which lists the current status of all evidence uploaded and evaluations requested to date. In addition, the Teacher system provides models of artifacts that teachers can use in considering their own artifacts.

The Evaluator component notifies Evaluators when a teacher for whose evaluation they are responsible, submits evidence and requests an evaluation. The notification summary indicates which evaluations are pending, which have been assigned to a particular Evaluator but not completed, which have been completed, and a summary of the status of all evaluations conducted by the Evaluator. The Evaluator component also includes a provision for flagging exemplary content submitted by teachers for consideration of inclusion in the Virginia Content Repository. See Appendix L for a further discussion of this repository.

JMU NETS•T CERTIFICATION PROGRAM

- **NETS•T Web.** The NETS•T Web consists of a collection of applications deployed in support of the virtual community of teachers engaged in certification. The focal point of the web is the project website, a wiki to support asynchronous communication among teachers, and a large file server to accommodate uploads of evidence (e.g., video of lesson implementation) that are too large to be readily accommodated by the certification system itself.

Associated with the deliverables above is a series of professional development offerings tailored to meet the needs of individuals at different stages of the certification process.

- **NETS•T Evaluator Training.** The Evaluator Training is the most critical course for the overall success of the program. In order for the program to be viewed as credible, the evaluation of teacher evidence must be fair and consistent across all Evaluators. This course walks Evaluators-in-training through a series of case-based (portfolio-based) exercises in which they confirm operational definitions, consider critical attributes associated with each rubric, and rate submissions according to the respective rubrics. The Evaluators compare responses and then revisit any variance found in their responses. The training is modeled after the criterial attribute approach to concept learning based on the work of Ingram (1992).³²

A fidelity check is also performed periodically to determine if Evaluators in the field, who have successfully completed Evaluator training, continue to render judgments consistent with those of their peers. If the inter-rater reliabilities are found to be deficient or a pattern of responding is found to be inconsistent, then steps are taken to revise the materials as needed and/or engage the Evaluator(s) in question in further training to remediate the deficiency.

- **NETS•T Portfolio Workshop.** The Portfolio Workshop is designed to assist veteran tech-savvy teachers in creating and organizing their NETS•T portfolios in preparation for submission of evidence. It is assumed that these individuals have mastered the requisite NETS•T skills and in many cases, already have suitable artifacts as a result of their activities in the classroom. As such, they need guidance only in assembling their portfolios.

Note: The materials supporting the portfolio workshop (e.g., instructor guide) will be provided to licensed school divisions without charge, so that the divisions can conduct their own localized training at greatly reduced cost. A corresponding fee-based Train-the-Trainer (TTT) session will be available for divisions who wish guidance in conducting their own portfolio training. The TTT session may also be completed by third-parties who may wish to contract for training services with divisions in support of implementation of the program.

- **NETS•T Course.** The NETS•T Course provides step-by-step consideration of each rubric, highlighting the skills needed relative to each rubric, and focuses on the creation of an Individual Development Plan to guide skill acquisition. The course also provides tips on the types of artifacts required, and instruction in writing reflections. Perhaps most importantly, the course provides a supportive online community to assist teachers and ITRTs in all aspects of their NETS•T pursuit.

³² Ingram, Richard E. (1992). A Comparison of Three Approaches to Teaching of Typicality in Concept Learning. Unpublished Doctoral Dissertation; Indiana University.

JMU NETS•T CERTIFICATION PROGRAM

Note: As with the portfolio workshop, the materials supporting the full NETS•T course will be provided to licensed school divisions without charge. Similarly, a fee-based Train-the-Trainer session will also be offered for those wishing guidance in conducting the full course, as well as third-party who wish to provide these services to divisions.

Academic credit for each course and the Portfolio Workshop will be available as an option. Additional training addressing prerequisite skills required for NETS•T completion (e.g., basic technology concepts) may be available from JMU and/or third-party vendors.

NG CERTIFICATION FOR THOSE ALREADY NETS•T CERTIFIED

As noted earlier in this document, the NETS•T standards are currently undergoing a “refresh” with the updated, so-called Next Generation (NG) standards to be published in summer 2008. The JMU NETS•T certification program will adopt the NG standards as soon as possible, replacing all affected materials such as rubrics.

Obviously, teachers who pursue their NETS•T certification after the NETS•T NG standards are in place will be certified relative to the NG standards. But what does this mean for the over 500 teachers who have already attained their NETS•T certification relative to the original standards? Will these teachers need or want to be re-certified?

At the base of the question is the degree to which the NG standards will differ from the original standards. This will not be known with certainty until the NG standards are published, but one may perhaps get some sense of the magnitude of the change reflected in the NETS•S NG standards relative to the original NETS•S standards, as the NETS•S NG standards were published in summer 2007.

In comparing the original NETS•S standards and the recently published NETS•S NG standards, there appears much overlap, for example, both sets of standards address Basic Operations and Concepts, Communication, Social and Ethical Issues, as well as Problem-Solving and Decision Making. What appears to be new and unique in the NETS•S NG standards are their emphasis on Collaboration, Creativity and Innovation, and a world context. Further, it appears that the original standards focus more on how to use technology tools whereas the NG standards are more focused on how to use the technology tools to promote higher order cognitive skills.³³

If the evolution of the NETS•T standards is commensurate with that of the NETS•S standards, then the move from the original NETS•T standards to the NETS•S NG standards will be incremental, requiring only an incremental certification for those teachers who attained their NETS•T certification under the original standards.

Stated somewhat differently, teachers who attained their certification relative to the original NETS•T standards will find their knowledge and evidence to continue to be relevant to the NETS•T NG standards. The JMU Program will support teachers in their incremental upgrade to NETS•T NG, requiring submission only on those portions of the NG standards that require new artifacts and reflection.

³³ For a cursory comparison of the original NETS•S and the NETS•S NG standards, see <http://coe.jmu.edu/netst/rubrics/NETSSvsNETSsNG.htm>. For a similar comparison of the NETS•T NG and Virginia Computer/Technology SOLs, see: <http://coe.jmu.edu/netst/rubrics/NETSSNGvsVACT.htm>.

SECTION IV: LICENSING OPTIONS

The JMU NETS•T Certification Program has proven to be one of the most rigorous, fulfilling, and effective professional development opportunities available to teachers for learning and demonstrating mastery of those skills necessary for technology-enhanced teaching and learning.

The program may be implemented in a school division via either of two licensing options. The first option – **Annual License** – allows divisions to participate in the program for a low annual fee. This arrangement is ideal for divisions who want to include as many ITRTs and teachers as possible in the program at the lowest possible cost.

The second arrangement – **Fixed Cost** – is best for divisions who want a specified audience, such as all ITRTs in the division, to be certified within a certain timeframe (e.g., as quickly as possible). This option is best for a one-time, short-term, concentrated certification effort.

ANNUAL LICENSE

The Annual License includes a low annual fee per division, as well as provisions for Evaluator training and optional training. Each of these program components is discussed below.

- **Base license fee.** The base license fee is calculated on the basis of the size of the student enrollment for a division. Once the license is in place, divisions may certify as many teachers as they wish at no additional cost. This flexibility in the licensing is a great boon to divisions who have limited resources but are strongly committed to professional development. The license fee includes access to the NETS•T system, associated infrastructure (e.g., large file server, community wiki), and support materials (e.g., rubrics, reference portfolios, program handbook).
- **Evaluator training.** Each division must have at least one trained Evaluator to rate teacher submissions. It is imperative that the Evaluator complete this training in order to ensure that the ratings are done fairly and consistently. Evaluator training is conducted by the JMU Partnership and is offered via an online format.
- **Optional training.** There are three training options available: Training for additional Evaluators, End-user workshops, and Train-the-Trainer sessions.
 - **Training for additional Evaluators.** The number of Evaluators needed in total for a division depends on the circumstances within the division. For example, one key question is the percentage of time the Evaluator devotes to the task. In the case of one division, the Evaluator devoted nearly 100% of her time to evaluation and was able to complete evaluations for more than 190 teachers in one school year. If an Evaluator's time involvement in the program is less, then the number of teachers that the Evaluator can evaluate is correspondingly lower as well. Evaluator training is conducted by the JMU Partnership via an online format.
 - **End-user training.** Two training sessions are offered for end-users – the two-day *Preparing Your NETS•T Portfolio Workshop* and the 45-hour *Completing Your NETS•T Certification*. The

JMU NETS•T CERTIFICATION PROGRAM

portfolio workshop is intended for teachers who have the prerequisite skills underlying NETS•T proficiency and need help only in organizing their portfolios for submission. The full course is designed for teachers who need to learn the prerequisite skills and create the artifacts required before assembling their portfolios. Instructional materials supporting the workshop and the course will be provided to licensed division personnel without charge for their own use.

- **Train-the-Trainer (TTT) workshops.** For those who would like guidance in conducting the end-user training sessions, a Train-the-Trainer (TTT) session is offered to division personnel for both the workshop and course. These TTT sessions are conducted by the JMU Partnership in both online and face-to-face formats.

FIXED PRICE

With a Fixed Price arrangement, the division specifies how many of its teachers it wants to certify over what time period, along with the types of training its teachers need. Factors such as the number of Evaluators required and who will conduct the end-user training are considered, and assembled into a one-time package price. An example of a large-scale fixed price proposal with alternate deployment scenarios, including NETS•T certification of over 100,000 teachers, is available on request.

CONSORTIUM DISCOUNT

Ed Tech consortia³⁴ who license the NETS•T program receive a discount relative to pricing for the individual divisions comprising the consortium.

LICENSING

Licensing examples for school divisions and consortia are available on request.

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³⁴ A consortium is considered to be comprised of at least 10 school divisions.

SECTION V: SUMMARY

The Virginia NETS•T Certification Program, together with other innovative Virginia programs such as the ITRT initiative, positions Virginia to continue its leadership in technology-enhanced teaching and learning. With the move to 21st Century Skills supported by the NETS•T NG and related Next Generation standards, the NETS•T Certification Program provides a solid foundation for exploring and mastering skills increasingly needed in a highly competitive global marketplace.

The features of the Program provide a number of benefits to Virginia teachers, ITRTs, administrators, and funders. Its flexibility lets educators engage in only that training needed for them to be proficient and can accommodate both formal and informal professional development activities. The spirit of *teachers helping teachers* provides most of the supporting courses materials to eligible educators groups without charge, allowing these groups to provide low-cost professional development localized for their unique needs. The sense of accomplishment that comes with certification leads to increased job satisfaction, efficacy, engagement, and confidence, and in the view of at least one division Technology Coordinator, even to improved retention.

In sum, these features and benefits promote a high adoption rate which leads in turn to a sustained community of learning for not only the educators who complete their NETS•T certification, but for everyone in the school. In the words of Doug Alderfer, principal of J. Frank Hillyard Middle School, whose teachers have achieved a 40% NETS•T adoption rate and still climbing, [a high NETS•T adoption rate] *tends to create a culture of learning that affects not only the teachers who are certified, but those who aren't as well. ...it becomes contagious to those who are not and they want to participate.*

Contagious competency. Contagious excellence. What a wonderful context this provides for Virginia students.

The JMU Partnership for 21st Century Skills looks forward to working with the Virginia divisions and consortia in implementing the Virginia NETS•T Certification Program and the dynamism that it will bring to an already world-class system of education.

JMU NETS•T CERTIFICATION PROGRAM

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