
VALLEY CITY STATE UNIVERSITY
HIGHER EDUCATION COMMITTEE
AUGUST 23, 2017
Tisa Mason, Ed.D., CAE
President
VALLEY CITY
STATE UNIVERSITY
BEST
COLLEGES
U.S.News
REGIONAL COLLEGES
MIDWEST
2017

A handout on our Defining Commitments is included in your information packet.

VCSU Defining Commitments

Background

Defining Commitments

The defining commitments document captures our mission, vision, values, and purposes. The principles outlined in this document are essential for defining and achieving institutional alignment and organizational clarity.

The current defining commitments document was adopted in 2004. While Cabinet supported the current version, we believed to be an effective leadership team we need to engage in thoughtful dialogue around critical questions about leading VCSU. Utilizing the Six Critical Questions model from *The Advantage: Why Organizational Health Trumps Everything Else in Business* (Lencioni, P., San Francisco: Jossey-Bass, 2012) we explored these questions: Why do we exist? How do we behave? What do we do? How will we succeed? What is most important, right now? Who must do what?

Our conversations around these questions were supplemented by the situational analysis provided by the strategic enrollment planning team; strategic planning team SWOT analysis, gap analysis, and survey; campus vision town hall meetings, as well as additional campus-wide and community informal listening sessions.

Adoption of the Updated Defining Commitment and 2017-2022 Strategic Plan

- Draft Strategic Plan document was "finalized" at the June 28 cabinet meeting.
- The draft defining commitments and 2017-2022 strategic plan were shared with senate presidents during the July shared governance meeting.
- The proposed defining commitments and 2017-2022 strategic plan will be distributed during the all faculty and staff welcome back event and the general open comment period will begin with feedback to any member of cabinet due by August 25.
- Cabinet will consider all feedback at the August 28 Cabinet meeting.
- Both documents will be sent to all three senates by September 1. During September, Senates will review the Defining Commitments and Strategic Plan, present any concerns to Tisa, and, when ready to do so, vote to endorse the two items.

VCSU Defining Commitments

MISSION

A mission statement describes what an organization does. Below is our SBHE approved mission statement. It defines what we offer in terms of baccalaureate and master's programs. It also maps to our simpler core mission: VCSU exists because we believe the world needs educators, leaders, and engaged citizens.

Valley City State University is a public, regional university offering exceptional programs in an active, learner-centered community that promotes meaningful scholarship, ethical service, and the skilled use of technology. As an important knowledge resource, the university offers programs and outreach that enrich the quality of life in North Dakota and beyond. Through flexible, accessible, and innovative baccalaureate and master's programs, VCSU prepares students to succeed as educators, leaders, and engaged citizens in an increasingly complex and diverse society

VISION

A vision statement is what an organization aspires to be. It should help drive decisions and goals.

As an innovative university, we deliver distinctive, learner-centered experiences.

VALUES

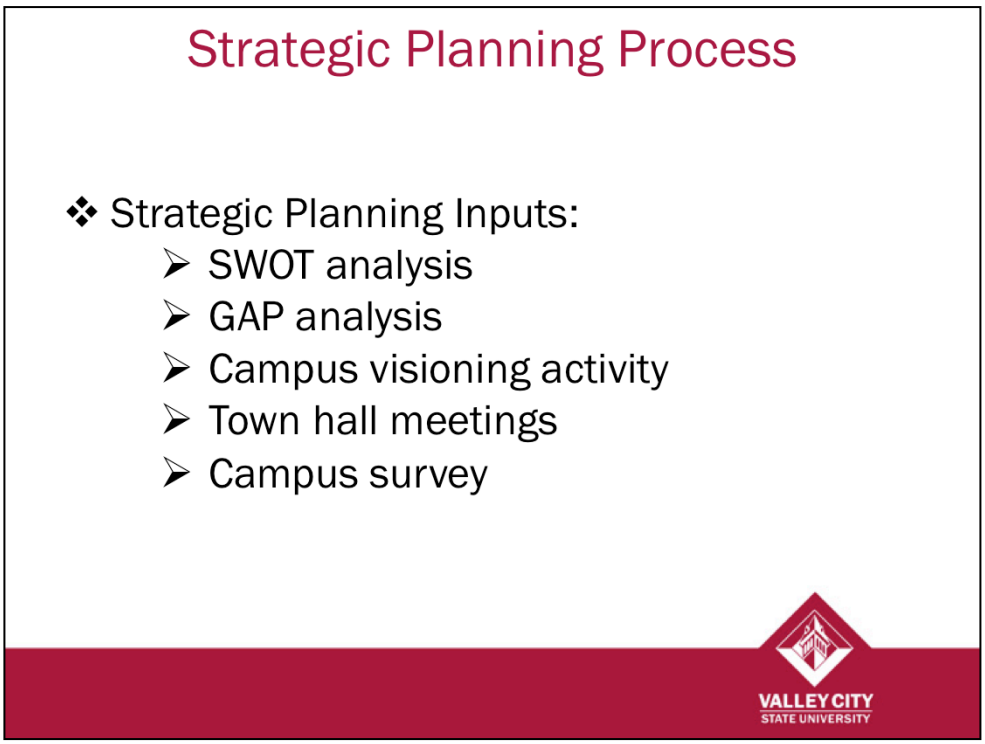
We have agreed to two core values (behavioral traits that are inherent in an organization; lie at the heart of the organization's identity and already exist) and three aspirational values (characteristics that an organization wants to have and believes they must be developed in order to maximize its success in its current market environment).
** Denotes core value; ** denotes aspirational value*

Student-focused: We place students at the center of all decisions. *
Innovative: We try new things to help create the future. *
Learning-Centered: We develop and sustain a culture of lifelong learning. **
Collaborative: We work synergistically to advance our mission. **
Engaged: We actively participate in the work of the university. **

PURPOSES

A purpose statement describes the organization's function and utility.

1. Deliver a quality educational experience in an engaging, innovative culture and a technology-enhanced environment.
2. Serve the best interests of our students, region, and society.
3. Lead effectively in applying information media technologies for learning. (*Prescribed to VCSU by the SBHE in the 1990s)*
4. Promote the appreciation of diversity and inclusion to enrich the quality of thought, discussion, and learning.
5. Award degrees in education, business, and the liberal arts and sciences.



As the presidential transition between Dr. Steve Shirley and Dr. Tisa Mason occurred as the previous strategic plan, Success 2015, was concluding, Interim President and Vice President for Academic Affairs Dr. Margaret Dahlberg, led a strategic planning process to provide for a two-year plan (2015-2017) to bridge the presidential transition while maintain institutional momentum and aligning with the North Dakota University System strategic plan "*Daring to be Great: The NDUS Edge.*"

During the past academic year, Dr. Dahlberg lead a campus-wide 2017-2022 strategic planning process with the goal of developing a five-year plan with a biennial rolling horizon.

A handout on our strategic plan is included in your packet.

VCSU 2017-2022 Strategic Plan

Strategic Plan

NDUS Policy 303.2.3 reads as follows:

> "Each institution shall adopt a strategic plan and implement a strategic planning process that involves faculty and staff and institution constituents. Institution strategic plans shall define institutional priorities to carry out the institution's mission and be aligned with the NDUS strategic plan and SBHE policies."

As the presidential transition between Dr. Steve Shirley and Dr. Tisa Mason occurred as the previous strategic plan, Success 2015, was concluding, Interim President and Vice President for Academic Affairs Dr. Margaret Dahlberg, led a strategic planning process to provide for a two-year plan (2015-2017) to bridge the presidential transition while maintain institutional momentum and aligning with the North Dakota University System strategic plan "Daring to be Great: The NDUS Edge."

During the past academic year, Dr. Dahlberg lead a campus-wide 2017-2022 strategic planning process with the goal of developing a five-year plan with a biennial rolling horizon. The guiding principles of the process were as follows:

- Include as many people as possible in the development of strategies.
- Promote strategic thought and action.
- The strategic plan must be mission driven and amplify the institutional defining commitments.
- The strategic plan must intersect and align with the following processes and documents:
  - The North Dakota University System strategic plan
  - VCSU 2016-2017 Presidential Goals
  - VCSU 2015-2017 Strategic Plan
  - VCSU Strategic Enrollment Plan
  - VCSU Master Plan
- The strategic plan must ensure the processes utilized guide the university to:
  - Build on our strengths;
  - Concentrate resources on strengths and mission-driven growth areas;
  - Integrate programs and services to complement and reinforce one another; and
  - Adopt lean practices while letting go of obsolete or marginally performing programs and activities.

Components of the strategic planning process included a SWOT analysis, gap analysis, campus visioning activity, town hall meetings, and campus survey.

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Strategic Plan DRAFT

1. Goal 1 (**Growth**): Grow the university to meet the needs of North Dakota and beyond. This goal includes strategies for marketing, strategic student recruitment, retention and persistence, and program development to increase opportunities for growth.

    1.1. Marketing: Focus marketing activity to increase VCSU's accessibility/interest to potential students and shape external recognition and support of VCSU.

    1.2. Strategic Enrollment Planning: Use the Strategic Enrollment Planning process to involve key university department and stakeholders in planning university growth through student recruitment and program optimization.

    1.3. Retention and Completion: Implement engagement strategies to increase student retention and completion.

2. Goal 2 (**Quality and Engagement**): Provide distinctive learning opportunities. This goal focuses on promoting high-impact teaching and learning practices that promote academic and cocurricular student success; supporting continued growth through professional development for faculty and staff; and utilizing resources that foster supportive learning environments for all.

    2.1. Engaging, High-Impact Practices: Increase the educational quality and impact of our academic and cocurricular programs through research and application of best practices in teaching and learning, in partnership with private-sector employers and public entities in target job markets.

    2.2. Professional Development: Provide opportunities and support for faculty and staff to improve student engagement and program quality.

    2.3. Resources: Improve and support curricular, assessment, facility, and technology resources to increase the quality of teaching and learning experiences.

3. Goal 3 (**Student Experience**): Implement cocurricular experiences to positively impact the learning and growth of students. This goal speaks to the breadth of experiences students have on campus, online, and in their communities, and to the importance of delivering quality student experiences, including student life, access to services, financial support, work experiences, and campus interactions.

    3.1. Access: Ensure students have access to the resources, activities, and opportunities for meaningful student experiences at VCSU.

    3.2. Student Engagement: Promote involvement through service learning, athletics, cocurricular programs, student employment, community building, and career development.

3.3. Environment: Ensure university environments are safe, accessible, and intentionally designed to maximize student learning and experiences.

4. Goal 4 (**Optimization**): Increase efficiencies through innovation, collaboration, streamlining, and reallocation. This goal includes strategies for strengthening collaboration with stakeholders, streamlining services and implementing innovative solutions, and strategically allocating resources to provide the highest quality VCSU experience.

   4.1. Efficiency: Eliminate duplication and ineffective practices.

   4.2. Streamlining and Reallocation: Develop long-term strategies to help inform and prioritize budget decisions; explore additional cost-saving measures; and work with partners across the state to reduce costs and increase student access.

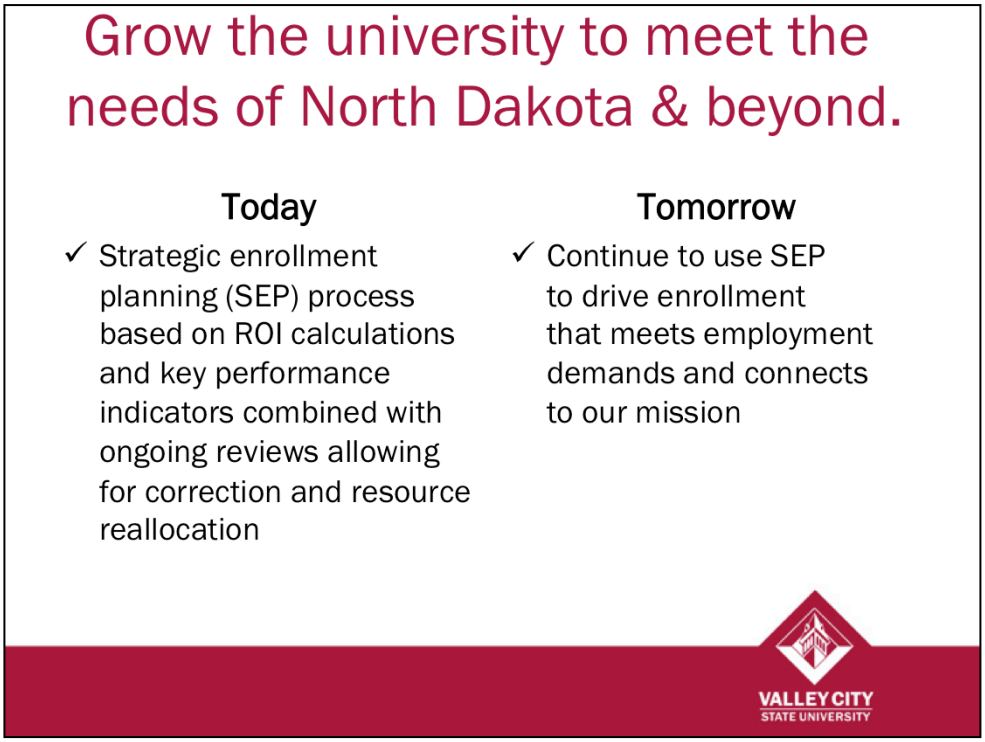
   4.3. Innovative Solutions: Implement new processes, systems, and services to improve the VCSU experience.

Goal 1 (Growth): Grow the university to meet the needs of North Dakota and beyond. This goal includes strategies for marketing, strategic student recruitment, retention and persistence, and program development to increase opportunities for growth.

Marketing: Focus marketing activity to increase VCSU's accessibility/interest to potential students and shape external recognition and support of VCSU.

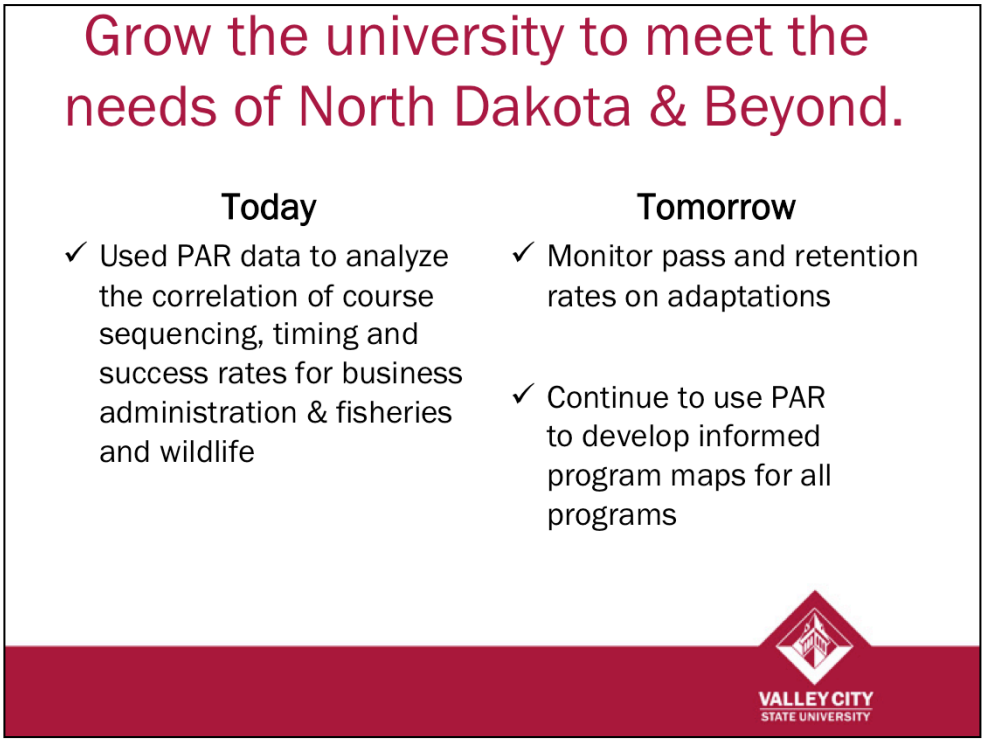
Strategic Enrollment Planning: Use the Strategic Enrollment Planning process to involve key university department and stakeholders in planning university growth through student recruitment and program optimization.

Retention and Completion: Implement engagement strategies to increase student retention and completion.



1.2 Strategic Enrollment Planning: Use the Strategic Enrollment Planning process to involve key university department and stakeholders in planning university growth through student recruitment and program optimization.

We have a strategic enrollment plan (developed last year) that provides for systematic, data-informed decisions about proposed new programs and other potential growth initiatives. This plan helps us identify which proposals will have a negative financial impact and which will bring growth and additional opportunity.



1.3 Retention and Completion: Implement engagement strategies to increase student retention and completion.

We have been using Starfish for about three years, and PAR for one year, and have identified ways that these tools may be used to enhance advising and retention. In this area, we are building on trial program mapping in Business Administration and Fisheries and Wildlife Science, where we were able to identify road block courses in each major that made students more prone to drop out by the end of their first year.

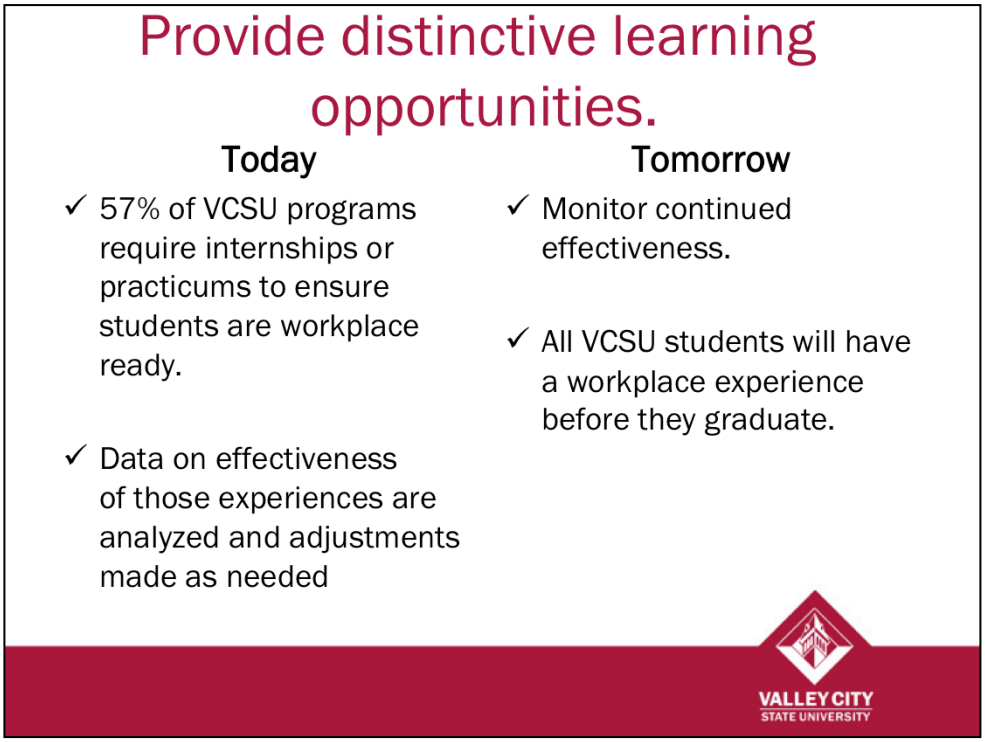
Both programs have revised their program maps to move these courses to the second year, to give students more time to mature and complete their transition to being University students before they take these more challenging courses.

1.3 Retention and Completion: Implement engagement strategies to increase student retention and completion.

Cohorts were developed in Starfish for each academic department and for each athletic team. We piloted a cohort-specific flag in the spring term for students from our baseball team. The Baseball Gradebook Concern flag is raised anytime a student's grade fell below 70% in a given course and cleared only when the grade went back above 70%. This provides an earlier intervention than gradebook flags used for the student body at large (60% threshold).

There were 38 members of the baseball team tracked using this cohort. Six baseball team members named 2017 Daktronics-NAIA Scholar-Athletes – most in the program history! Fifteen baseball team members named to President's or Dean's Lists for Spring. Twenty-three baseball team members were at or above a 3.0 GPA for Spring.

Goal 2 (Quality and Engagement): Provide distinctive learning opportunities. This goal focuses on promoting high-impact teaching and learning practices that promote academic and cocurricular student success; supporting continued growth through professional development for faculty and staff; and utilizing resources that foster supportive learning environments for all.

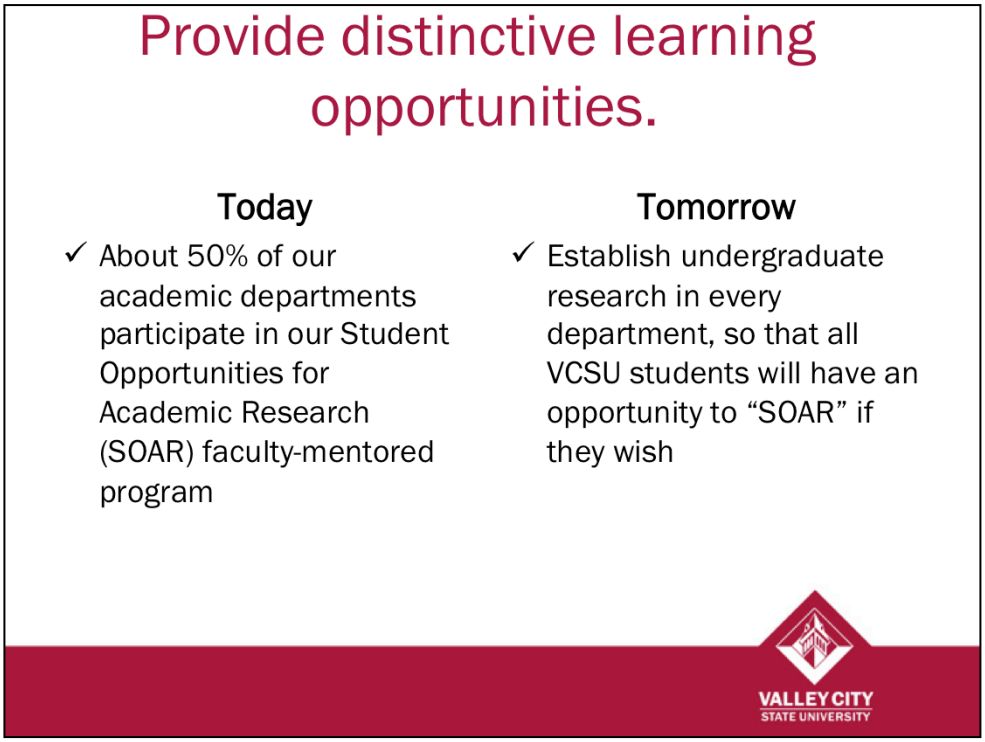


2.1 Engaging, High-Impact Practices: Increase the educational quality and impact of our academic and cocurricular programs through research and application of best practices in teaching and learning, in partnership with private-sector employers and public entities in target job markets.

Completing practicums and internships has been identified as a high impact practice (AAC&U), so we have identified this as an area where we want to grow.

Education currently requires several practicums, including one in the first education class students take, and then student teaching. By the time students complete this program, they are **workplace ready**; we would like each of students, regardless of major, to have this same kind of experience.

Some of our non-education students currently complete internships or practicums; we are planning to develop internships and practicums in every major so that all VCSU students will have a workplace experience before they graduate.



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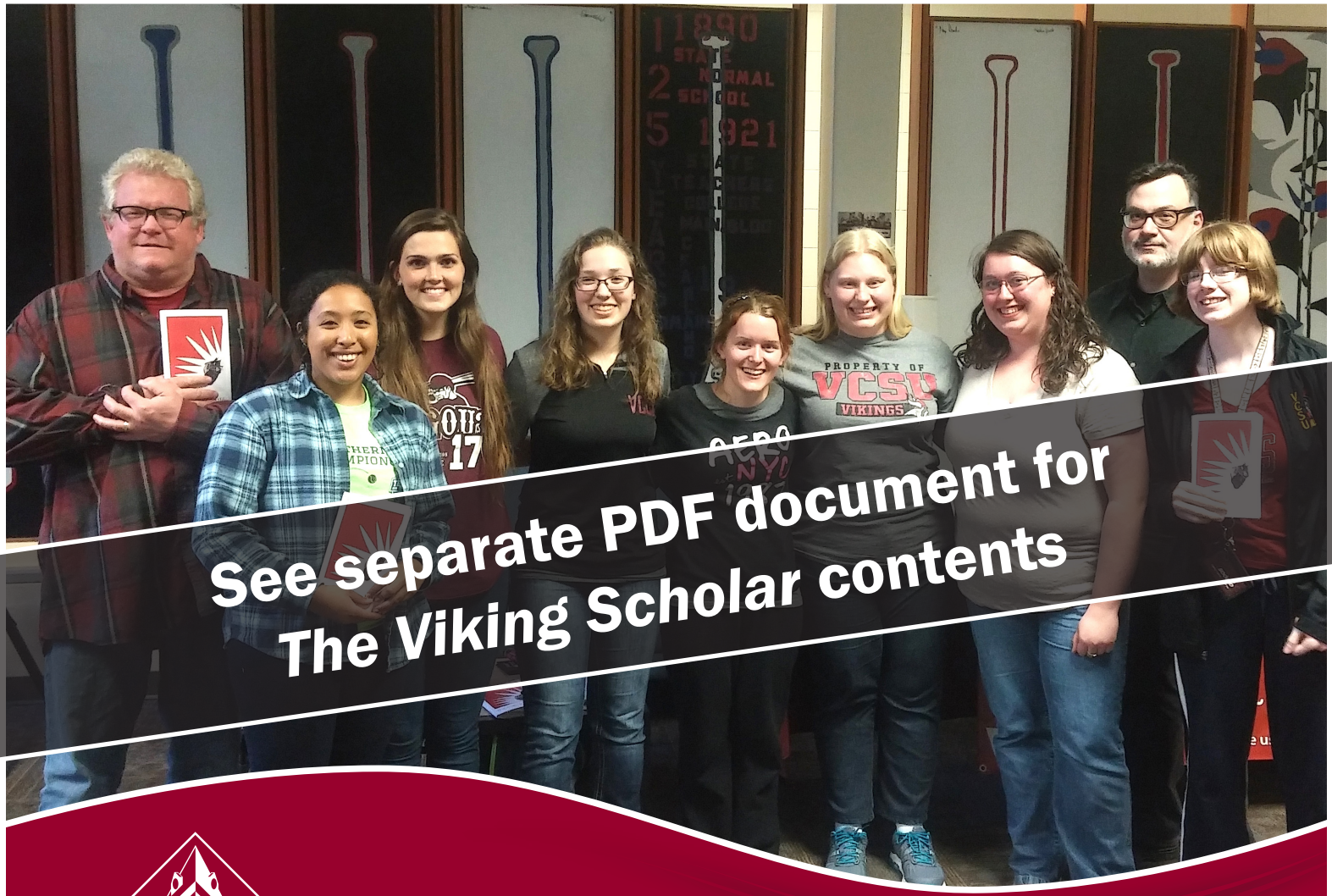
Undergraduate research is another high impact practice identified by AA&U. Over the past ten years, faculty groups have developed an annual student-scholar symposium that allows students to showcase their best work, and an undergraduate research program, Student Opportunities for Academic Research (SOAR), which funds 8-10 students annually who propose individual research projects with a faculty member. While about half the departments participate in these undergraduate research activities, we intend to establish undergraduate research in every department, so all students will have the opportunity to "soar" if they wish.

The Viking Scholar: A Research Publication of Valley City State University, describes this program in further detail and is included in your information packet.

The Viking SCHOLAR

October 2016

A Research Publication of
Valley City State University

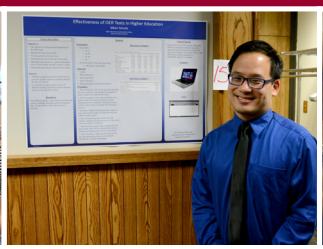
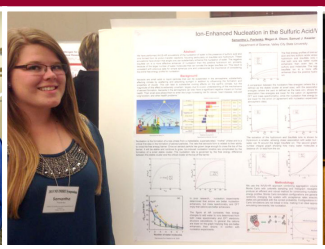


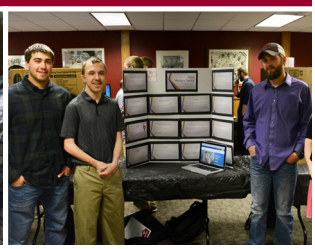
See separate PDF document for The Viking Scholar contents

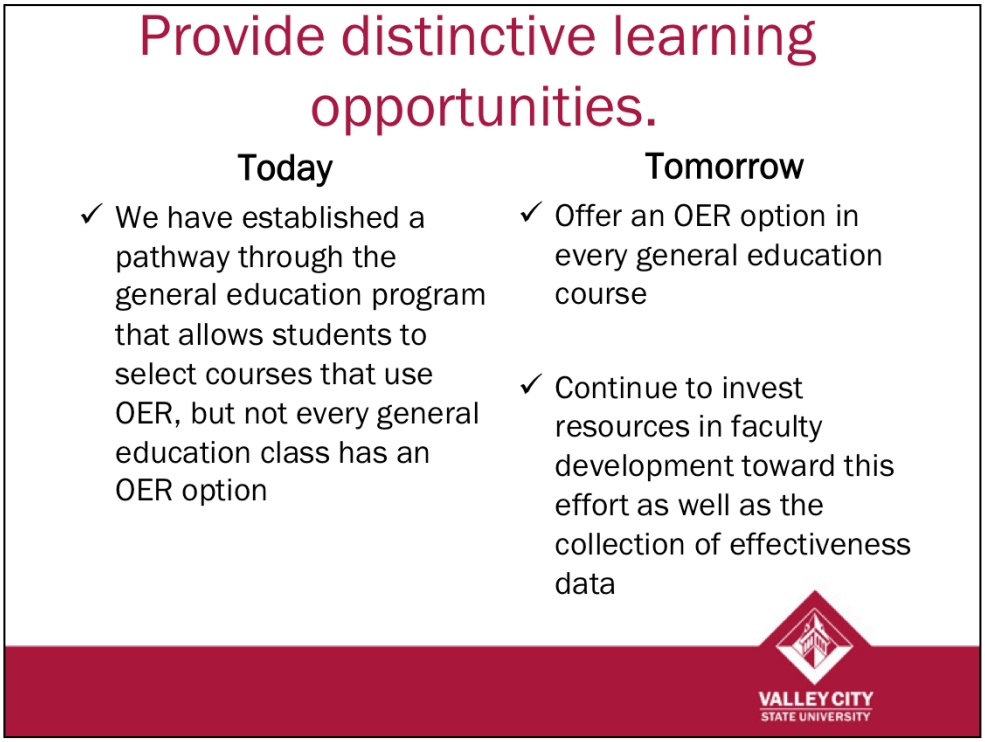
VALLEY CITY STATE UNIVERSITY

www.vcsu.edu

SOAR ◆ Scholar Symposium
The Forge ◆ INBRE ◆ Graduate Studies
Student Presentations ◆ Faculty Presentations



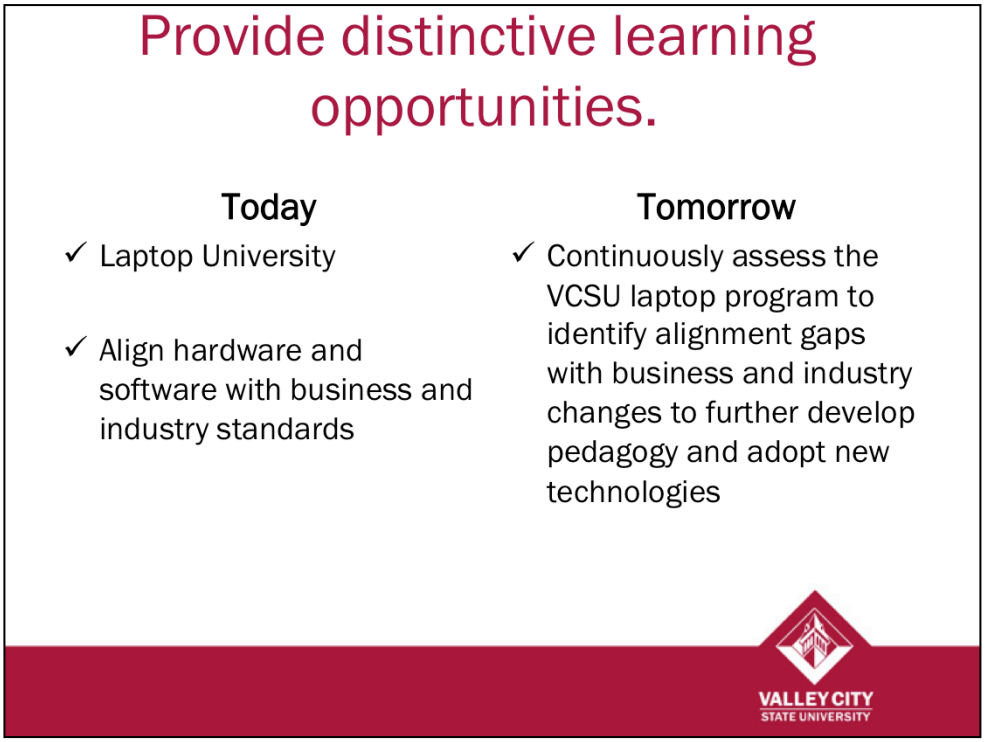


2.2 Professional Development: Provide opportunities and support for faculty and staff to improve student engagement and program quality.

During the past three semesters 58% of our faculty have taught at least one class using Open Educational Resources (OER) or no/low cost resources and have saved our students nearly $450,000.

We currently have a pathway through the general education program that allows students to select courses that use OER, but not every general education course uses an OER. We plan to build on the successful implementation of OER across campus to establish a standard for no/low cost texts in every General Education course.

OER provide equal access for all students, regardless of their financial status; they also inspire faculty to improve their instruction, develop tools and materials that connect meaningfully with the workplace, and get away from "teaching the textbook."



2.3 Resources: Improve and support curricular, assessment, facility, and technology resources to increase the quality of teaching and learning experiences.

We have been a "laptop" campus for the past 21 years. Such a program must be continuously evaluated, to be certain we are providing the best preparation for the workplace. Some examples of ways we have "grown" over the years:

- Added the Mac option for students who plan to teach or work in the fields of Art, Music, and Communication, since this is the industry standard for the workplace in these areas.
- Progressively increased the use of Blackboard in every course, whether face to face or online, so students received their syllabi, reading materials, and grades online, and they submitted assignments and took tests online. This matches the increased use of digital materials and software in every workplace, and helped our campus move to one that uses less and less paper.

The value of laptops is really in the ability to facilitate engaged learning, implement software specific to a field of study, and implement OER.

As more and more K-12 schools add 1:1 technologies (an iPad or laptop for every student), our preservice teachers must be well-prepared to enter classrooms that look very different from when they were in elementary school. Continuous review of the workplace and updates to match these changes allows us to teach our students how to use these devices for work, not just for personal activities.

20 Years of Laptops (September 12, 2016 Presidential Column) is included in your information packet.

President's Corner

A bi-weekly column from the Office of the President

20 Years of Laptops

By: Tisa Mason, Ed.D., CAE

Date: Sep. 12th, 2016

President Tisa Mason

(http://www.vcsu.edu/cmsfiles/192

In 1990 the North Dakota State Board of Higher Education gave Valley City State University a mission designation to be a leader in the application of instructional technology.

In 1996 VCSU leaped into the 21st century as the first laptop computer university in the state—and one of just three universities nationwide—that provided laptop computers for all students and faculty. This fall, therefore, marks an important milestone for VCSU: 20 years as a laptop university!

It must have been very exciting to be on campus in the fall of 1996 when all students and faculty were issued laptop computers complemented by networked campus facilities and renovated classrooms equipped to promote maximum use of the laptops as tools for learning.

Here is a timeline of a few of the exciting accomplishments tied to our laptop initiative:

- 1996: VCSU became the first university in North Dakota, as well as the first teacher preparation institution in the United States, to implement a universal laptop initiative. Then we had eight “modernized classrooms” with large-screen projection systems. Today we have 53 classrooms and nine meeting rooms with permanent audio and video projection equipment— encompassing almost every laboratory and classroom, and many of our meeting spaces. Data storage available to each user has increased over 1,250 fold since 1996!
- 1997: VCSU was recognized by the National Council for the Accreditation of Teacher Education (NCATE) as one of the nation’s leaders in preparing future teachers for the 21st century classroom.
- 2002: VCSU received the Distinguished Achievement Award from the International Society for Technology in Education in recognition of exemplary models of integration of National Educational Technology Standards (NETS) into the VCSU elementary education programs.
- 2009: VCSU began providing Apple MacBooks for education to augment our PC environment because teachers in local school districts were using Macs.
- 2013: The university adopted two platforms—PC and Mac—based on major, with departments largely selecting either the PC or Mac based on industry use in the respective postgraduate fields. Because we provide the laptop, a student who changes majors and therefore needs different technology can take a quick walk over to our Technology Service Desk to swap machines rather than make a call home to mom and dad to discuss an expensive computer switch.
- 2015: Faculty undertook a collective, concerted effort to replace textbooks with free online resources for general education classes, a task easier to accomplish with the support of the universal laptop initiative. This past year those efforts collectively saved students more than $82,000 and provided for the use of dynamic, interactive hands-on-learning tools as well as an increase in student satisfaction, teaching, and learning.

We are very proud of our laptop initiative. The use of technology transforms the traditional classroom into a vibrant multisensory learning environment through use of on-demand Internet resources, rich audio-visual presentations, threaded discussions, and much more.

Our students experience higher productivity and reduced technical problems. If a student has an issue, it is likely that another student can quickly and easily help since everyone has a standard set of hardware and software. And students never need to go to class without a working computer. If there is a problem, our outstanding tech staff can help immediately. If the laptop cannot be fixed on the spot, a different laptop is issued immediately; the student’s academic journey is not slowed down one bit.

Jodi Shorma, assistant professor in VCSU’s Language and Literature Department, shares these thoughts:

“My students highly ranked ‘access’ as a benefit of VCSU’s laptop initiative: access to information, access to industry-specific workplace tools and software programs, and access to personal learning tools. VCSU’s technology infrastructure provides and supports laptop Internet connections allowing students access to unlimited information for completing their learning projects. VCSU’s academic programs maintain close relationships with

professional experts so that classroom and online learning opportunities with workplace tools and software programs—such as SAP applications, Microsoft Project, and lesson-plan builders—model current business, industry, and education trends and practices. Access to personal learning tools, such as text-to-voice readers, text-highlighting features, and citation engines, allows students to independently support their learning needs."

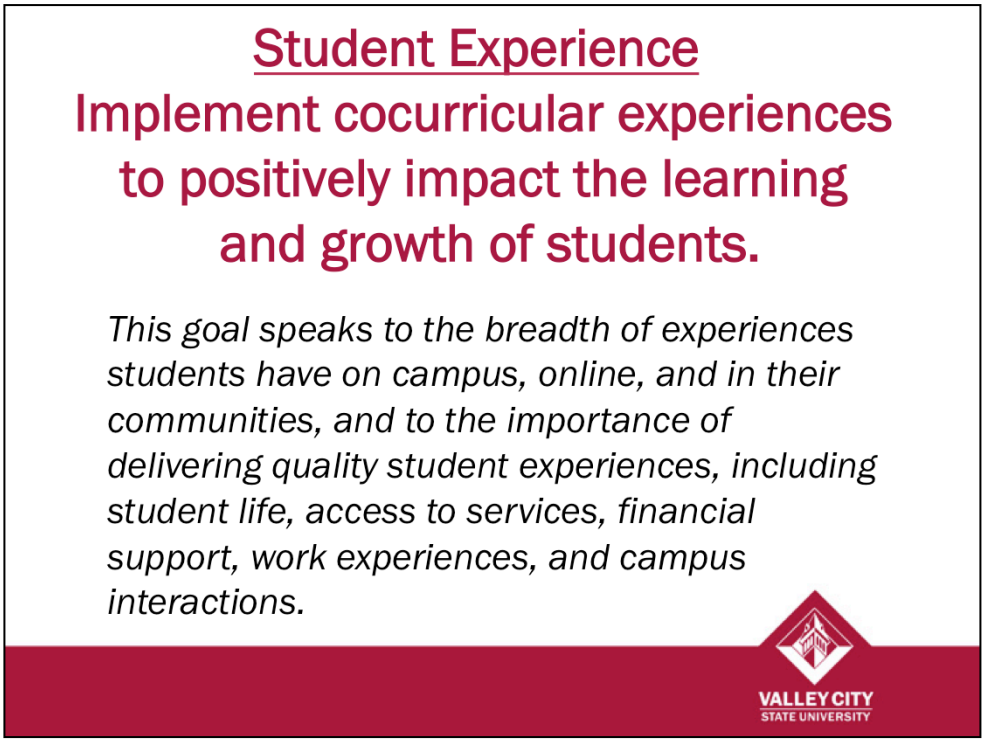
Some people have told me they believe that with the easy access students have to computers today, the VCSU laptop program is no longer needed. I strongly disagree. Can you imagine running a business where everyone brought their personal computer to work?

When all are working with the same technology, teaching and learning can be accelerated. Faculty can depend on every student having a functioning laptop with the right software (and the same version of the software). Security is better with everyone served by professional security tools.

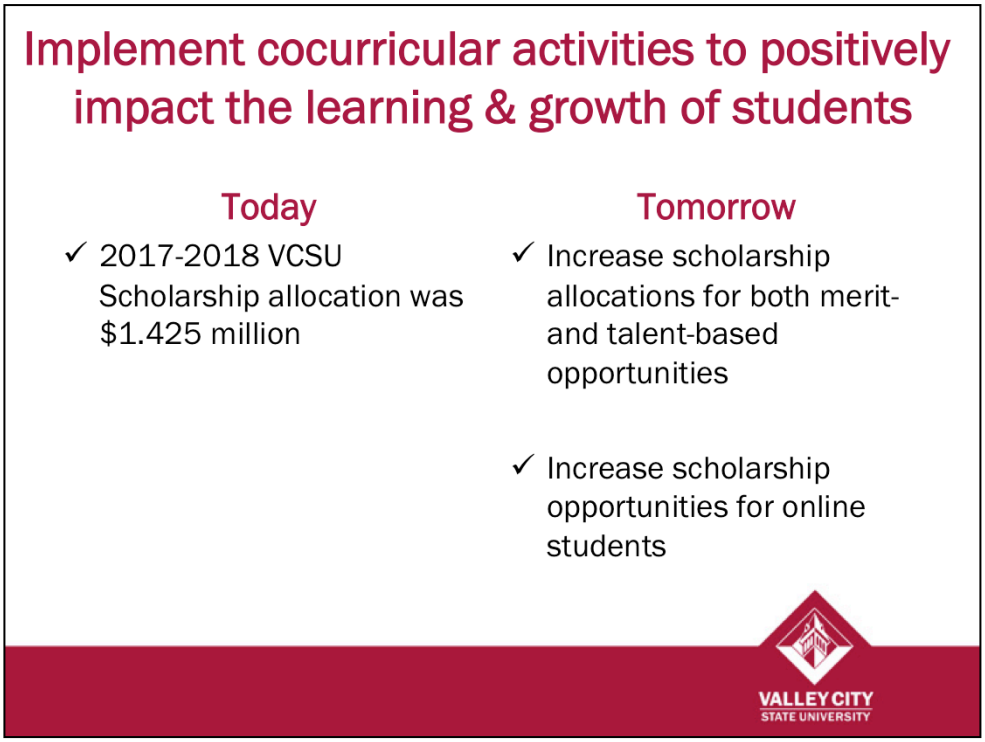
The laptop program also provides equitable computing access—no "haves" and "have nots." Professor Shorma weighs in again:

"My professional writing class this fall ranked 'equality' as the greatest benefit of VCSU's laptop initiative. Their reasoning was simple. VCSU-issued laptops provide students equal opportunities to learn. My students' access to technology in their high schools varied from a one-room PC computer lab of 25 desktop computers for 200 students to a school-issued tablet for all 600 students. My students inherently recognized how gaps in technology opportunities among high school students could easily translate into the same gaps among college students. My students viewed these technology gaps as a significant challenge for students and teachers in college learning situations. However, VCSU-issued laptops close the technology gap among students, providing equal opportunities for them to learn."

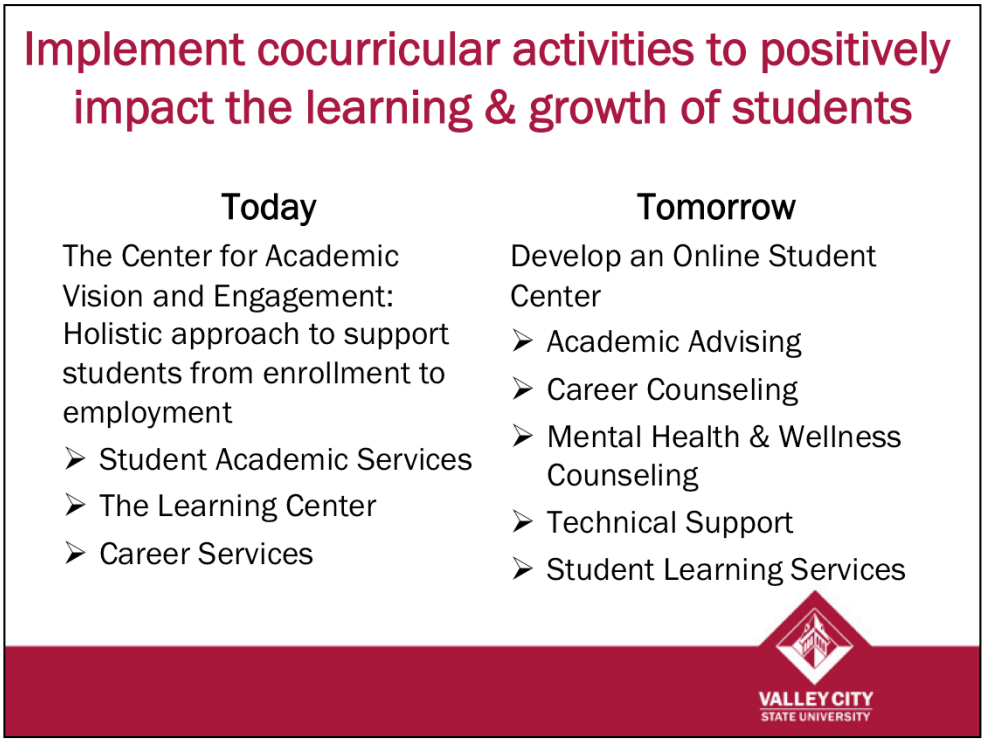
At VCSU we offer exceptional programs in an active, learner-centered community that promotes meaningful scholarship, ethical service, and skilled use of technology. That is another reason why I love VCSU and why it is a great day to be a Viking!



Goal 3 (Student Experience): Implement cocurricular experiences to positively impact the learning and growth of students. This goal speaks to the breadth of experiences students have on campus, online, and in their communities, and to the importance of delivering quality student experiences, including student life, access to services, financial support, work experiences, and campus interactions.



3.1 Access: Ensure students have access to the resources, activities, and opportunities for meaningful student experiences at VCSU.



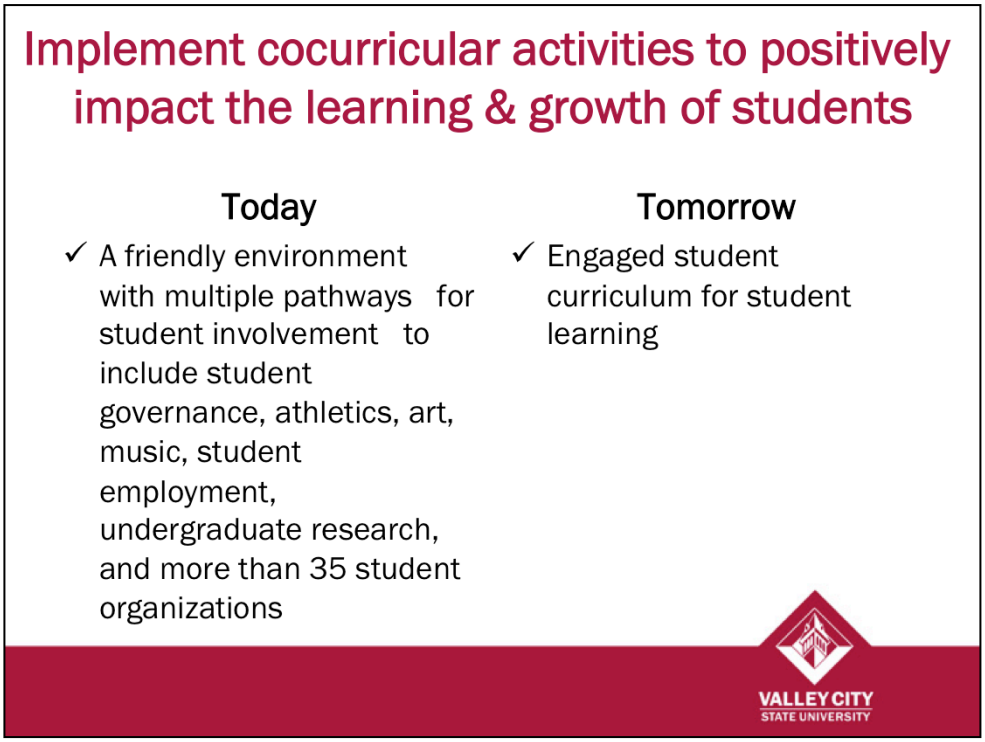
3.1 Access: Ensure students have access to the resources, activities, and opportunities for meaningful student experiences at VCSU.

Develop an Online Student Center that provides one-stop access to academic and student services, help documents, student organizations and social media.

Designed to provide integrated one-stop services to our distance education students inclusive of academic advising, career counseling, counseling services, technical support, and student learning services.

Extended hours to accommodate time zone differences, work schedules, and personal needs.

Cross office training for VCSU staff to be able to answers all questions from users. Use multiple platforms to provide services…including phone, video conferencing, instant messaging systems, and email.



3.2 Student Engagement: Promote involvement through service learning, athletics, cocurricular programs, student employment, community building, and career development.

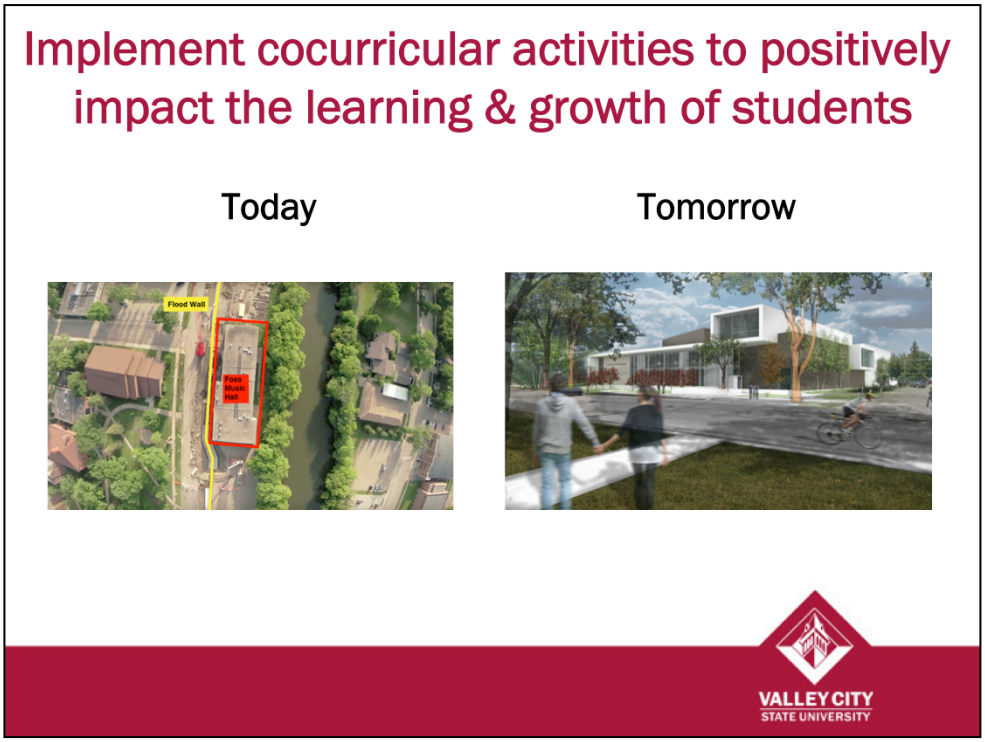
Student affairs will develop an "Engaged Student Curriculum" that will be inclusive of student learning outcomes and will provide focus and direction to areas providing programing (Student Activities, Residence Life, Career Services, Health Services, and Counseling Services).

Students will be able to choose from a menu of meaningful learning activities that will support previous knowledge and experience, highlight the value of new activities and opportunities, and allow students to gain personal growth and leadership development skills.

The curriculum will be designed to strengthen students' sense of competence, intended to positively impact their career goals.

Collaborative learning will be the centerpiece of the curriculum that fosters student – teacher relationships. By doing so, the curriculum encourages students' feelings of belongingness, thus increasing retention and ensuring persistence.

The curriculum will be inclusive of living/learning communities within the residence halls, leadership development programming and activities, student activities, health and wellness support, and counseling and mentorship activities.



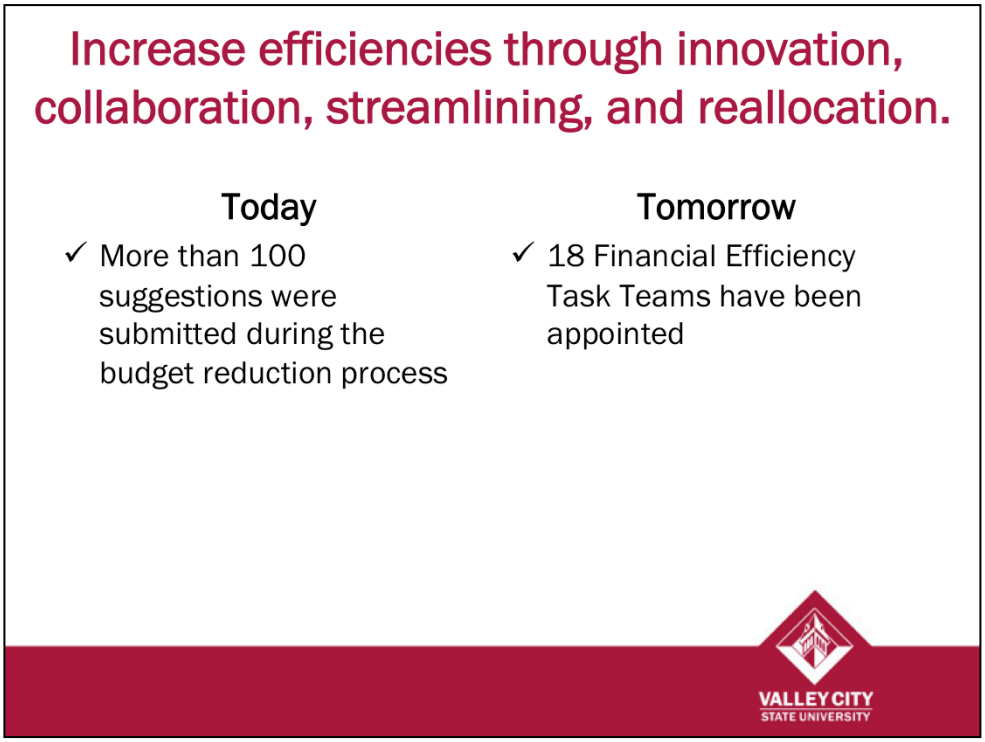
3.3 Environment: Ensure university environments are safe, accessible, and intentionally designed to maximize student learning and experiences.

Communication and Fine Arts Building. The new building will replace two buildings—Foss Hall and McCarthy Hall—and allow us to retire more than $6.9 million in deferred maintenance. The urgency comes from the fact that Foss Hall is on the wrong side of the flood wall—which was unavoidable given the building's proximity to the Sheyenne River.

Other benefits include:

- The new facility will allow VCSU's music program—one of six programs in North Dakota accredited by the National Associations of Schools of Music (NASM)—to meet NASM standards for proper climate control to preserve expensive instruments and appropriate acoustics in performance and practice areas.
- Organizational efficiency achieved through a common box office and shared administrative support, enhancement of space efficiency through multi-use workrooms and performance areas, and consolidation of nine majors and seven minors.
- Five of VCSU's required general education courses will be housed in the building, giving all freshmen on campus access to modern classroom facilities and increased exposure to the arts.
- An elevator, currently lacking in Foss Hall, will provide ADA accessibility.
- Combining the fine arts with communication arts programs in one building will foster an atmosphere of collaboration and inspiration, an interdisciplinary approach to creative problem-solving and innovation, and embodying the VCSU core values of innovation and community.

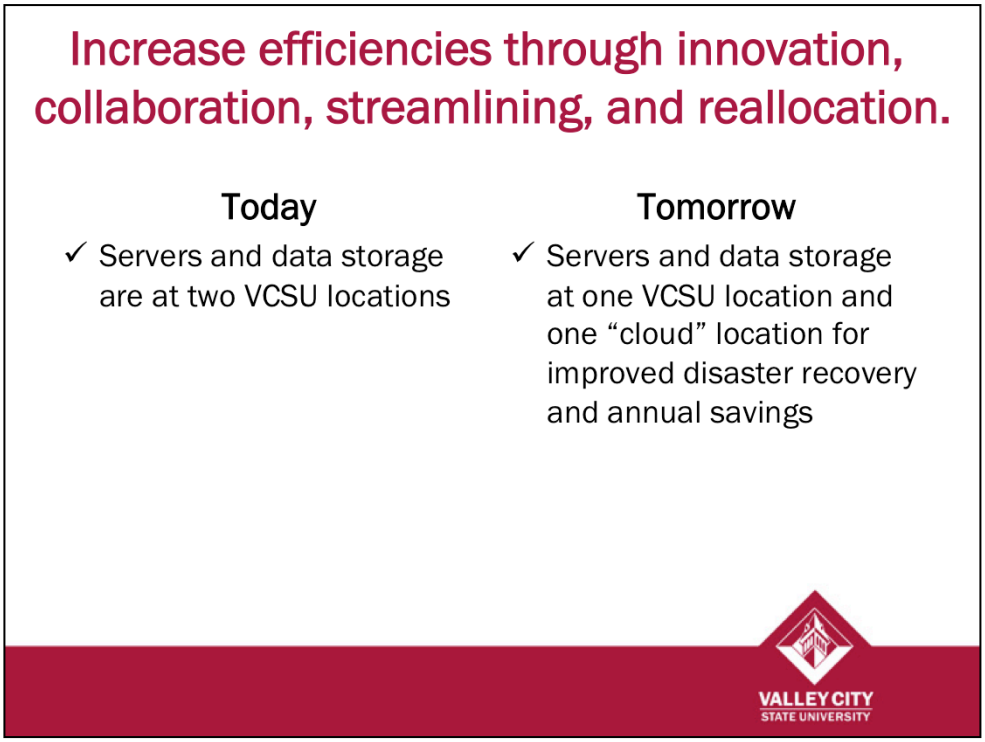
Goal 4 (Optimization): Increase efficiencies through innovation, collaboration, streamlining, and reallocation. This goal includes strategies for strengthening collaboration with stakeholders, streamlining services and implementing innovative solutions, and strategically allocating resources to provide the highest quality VCSU experience.



4.1 Efficiency: Eliminate duplication and ineffective practices.

More than 100 suggestions were submitted during the budget reduction process. Some ideas were adopted, some did not achieve desired ends within the principles established, and some had potential but needed further study.

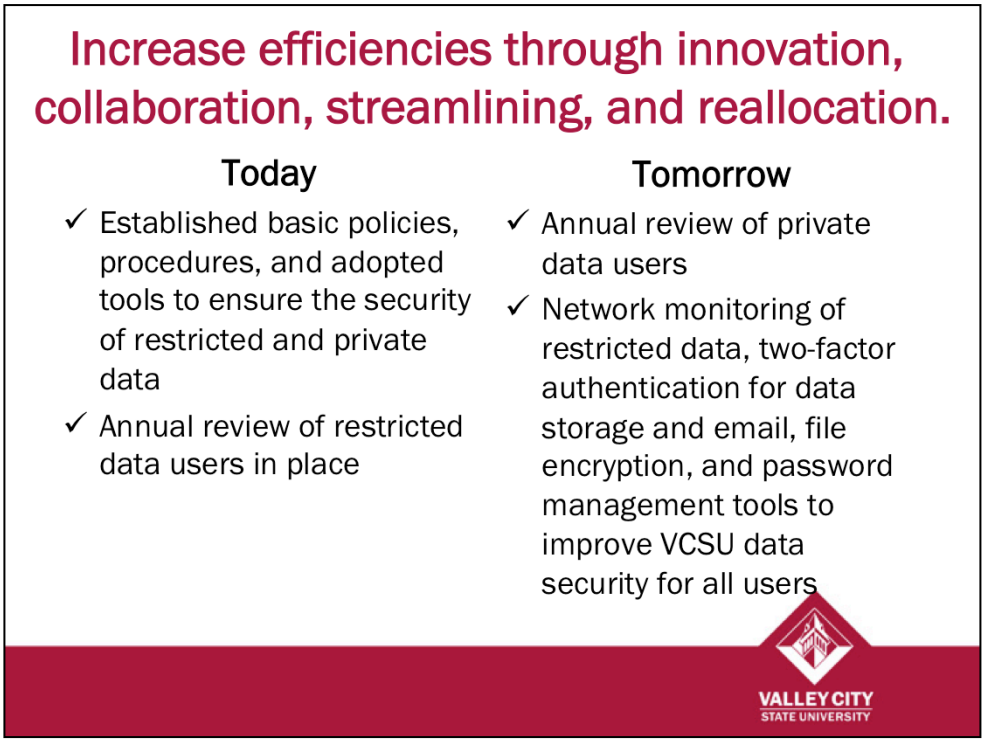
Eighteen teams have been appointed to continue to explore those ideas. People have been assigned and the scope of the study, expected outcomes, and timelines are established.



4.3 Innovative Solutions: Implement new processes, systems, and services to improve the VCSU experience.

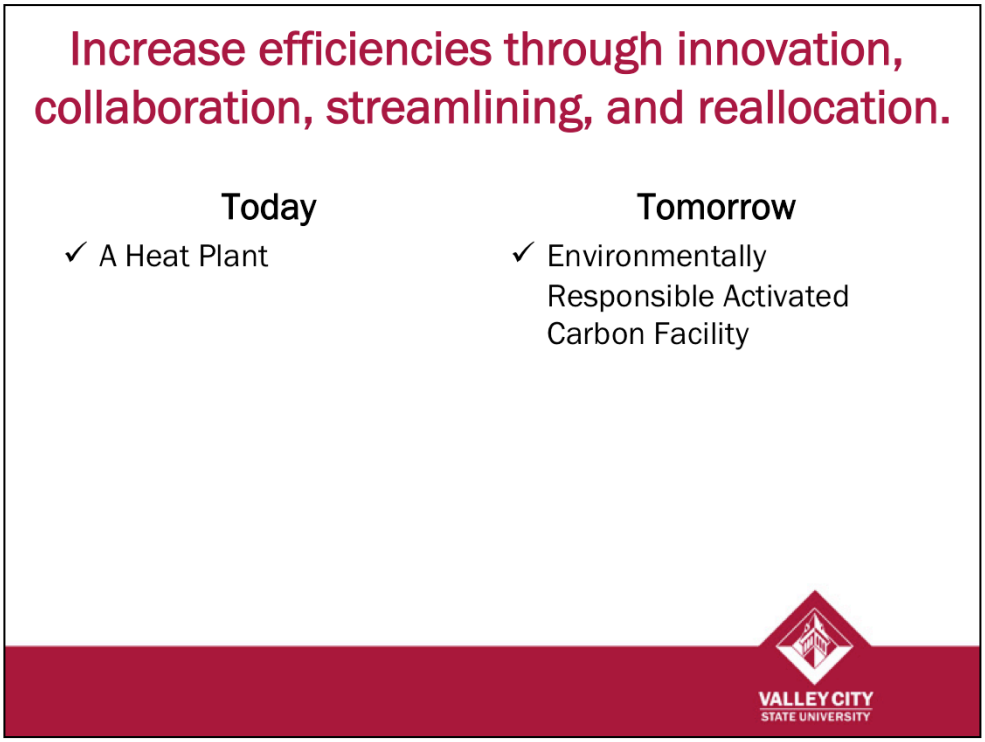
This idea required much research and involved legal council, core technology services, as well as the office of management and budget risk management. We have recently been approved to proceed.

This innovative solution will improve disaster recovery and is estimated to produce approximately $20,000 in annual savings.



4.3 Innovative Solutions: Implement new processes, systems, and services to improve the VCSU experience.

We have an established plan and have reallocated approximately $7,000 annually toward this initiative.



This initiative involves the construction of a new-age, environmentally responsible activated carbon facility.

The goal of this new enterprise is multifaceted:

- ❖ The development of environmentally responsible activated carbons;
- ❖ Production of heat energy for the VCSU campus;
- ❖ Development of research and educational opportunities in activated carbon and related carbon-based materials; and
- ❖ The creation of a new stream of revenue to support the campus infrastructure and further enable us to amplify our success in delivering high quality teaching and learning experiences.

A handout on Activated Carbon Plant/Heat Plant Integration is included in your information packet.

[EXCERPT FROM]

ACTIVATED CARBON PLANT / HEAT PLANT INTEGRATION: VCSU & UND
Pro Forma

Prepared by:

University of North Dakota
Institute for Energy Studies
Energy & Environmental Research Center

Valley City State University

January 3, 2017

ACTIVATED CARBON PLANT / HEAT PLANT INTEGRATION: VCSU & UND
PRO FORMA SUMMARY

Introduction

Valley City State University and the University of North Dakota (VCSU/UND) intend to partner with a private sector business to produce and sell Activated Carbon (AC). VCSU will manufacture AC at lower costs than traditional methods by leveraging their approved new steam heating system to offset necessary capex required for manufacturing AC. Distribution and sales will be conducted by the private sector partner. The efficiencies provide a significant source of revenue (*annual cash flow of $2.5 million in years 1 – 10, $4.3 million after initial debt retired)* which can fully liquidate the capital procurement debt within a few years, after which revenues will build reserves for other needs. The model can be replicated at other NDUS campuses.

AC Market Values

- Current market value of $2400 per ton to end user with future projections of $4000/ton.
- VCSU plans to sell at $1400 per ton F.O.B under contract to private sector distribution.
- $1000 per ton mark-up covers transportation and marketing costs for re-seller. VSCU profit of $325/ton.

AC Market Demand

- VCSU production planned at 6,000 tons per year. We are exploring partnerships with Midwest Energy Emissions Corporation (ME2C) and Calgon Corporation.
- ND market alone exceeds 100,000 tons per year, with a global market projected to grow to more than 2 million tons by 2022.
- VCSU production 0.25% of current demand - will have no identifiable impact on market demand.

Self-liquidating Capital Construction Debt

- Total capital investment of $22.5M including working capital during construction.
- Gross revenue from annual production of 6,000 tons @ $1400 per ton = $9.4M.
- Annual cash flow of $2.5 million in years 1 – 10, $4.3 million after initial debt retired.
- Debt liquidation in 3.5 years.
- Model remains viable at $1000 per ton, with debt liquidation in 10 years or less.

Market Risks

- China may flood market with AC
    - Unlikely, but North Dakota – Regional market will have some insulation based on local demand and shipping costs to this area.
- Technology will displace AC usage
    - Currently not on the horizon, with debt liquidation occurring well before any anticipated reduction in demand.
- Other Market Variables
    - Increase in transportation costs would have minimal impact.
    - Feed stock (lignite) costs increases would have a minimal impact.
    - EPA regulations promulgated in next ten years may reduce overall functional life of plant, but impact on debt liquidation unlikely.

Primary benefit: New sources of revenue promote self-sufficiency in higher education.

ACTIVATED CARBON PLANT / HEAT PLANT INTEGRATION: VCSU & UND
PRIMER

Key Point – What is activated carbon?

- Activated carbon is produced from carbon-containing natural resources such as biomass and coal using well developed technology.
- Activated carbon is valuable as it absorbs contaminates from air, water, and other media.
- Activated carbon is mainly used for gas cleanup in coal fired power plants and water purification in municipal water treatment plants. It has many other uses as well.

Key Point – Activated carbon markets:

- Activated carbon sale is a growth market. Marketing surveys from eight different sources estimate a CAGR ranging from 11 to 13%.
- Activated carbon sale is a stable market, with no practical substitute on the horizon.
- Activated carbon is valuable, and typically sells from $1500 to $3,000 per ton.
- High purity specialty carbons (a potential future market) can sell for $15,000 per ton.

Key Point – Activated carbon manufacturing:

- Activated carbon is a straight-forward manufacturing process using proven methods.
- Current US production levels are approximately 435 tons annually from seven major producers.
- Activated carbon manufacturing requires steam to “activate” the carbon.
- Standard activated carbon manufacturing wastes significant amounts of volatile gasses which are released from coal feed stocks.

Key Point – Why lignite coal?

- Lignite is mined locally, and produces the best activated carbon as it is already a porous feed stock.
- Costs for shipping lignite for local production of activated carbon is low.
- Costs for shipping lignite-sourced activated carbon to regional users is low.

Key Point – Why combine steam plants with activated carbon plants?

- Activated carbon plants release fuel during production and require steam for activation.
- Steam plants produce steam and can use the fuel.
- Together, the two plants become much more efficient than if standing alone.

Key Point – How do the financials play out?

- Manufacturing efficiencies by combining the plant result in increased profits.
- Profits are sufficient to repay the capital investment in the carbon plant within 5 years.
- New boilers and/or steam plants can be installed and payed for in an additional 5 years.

Key Point – Win-Win

- Activated carbon is a stable market with sales generating revenue to meet the deferred maintenance needs.
- This is a model for campus self-sufficiency that reduces the need for appropriations.
- Institutions can use this model for research and education to strengthen their mission.
- This model and be replicated at other sites across North Dakota.

Activated Carbon Project Advisory Team

- Steve Benson, Associate VP for Research, Energy and Environmental Research Center, UND
- Nick Hacker, State Board of Higher Education
- Lonnie Laffen, CEO, JLG Architects
- Michael Mann, Executive Director, Institute for Energy Studies, UND
- Tisa Mason, President, VCSU
- Larry Robinson, Executive Director, VCSU Foundation
- Ed Schafer, 30th Governor of North Dakota
- Mike Seifert, CEO, Aurora Borealis Dakota
- Delton Steele, Regional President, U.S. Bank
- Greg Stemen, State Board of Higher Education
- Rick Tonder, Facility Planning Director, NDUS
- Wesley Wintch, VP for Business Affairs, VCSU

VALLEY CITY STATE UNIVERSITY

VCSU: Flexible, Innovative and Engaged

VCSU prepares students to be successful, innovative practitioners in the workforce.

Our students are often looked to as the instructional technology experts as they enter into their jobs. One student, during an interview, was asked if she could fix an issue in the school's computer lab. She did so and was hired as the technology specialist instead of the teaching position for which she was interviewing. In general, our students move seamlessly into K-12 teaching positions, often providing leadership in using technology to support student learning. One alumnus writes,

> "The familiarity gained from technology integration while attending VCSU allowed me to instinctively utilize a variety of mediums in my own classroom. I felt prepared and ready to teach with technology."

Our grad students conduct action research instead of a traditional master's thesis. In action research, they define a problem they see in their classes, and try out a solution, usually involving instructional technology. Simultaneously, they conduct research through pre-tests, post-tests, surveys, focus groups, ethnographies, and individual interviews to determine if their innovative ideas are working or not. One alumnus writes,

> "Studying how specific technology tools create necessary connections between learning types and the real world gave me huge insight into improving my teaching style."

Preservice teachers bring theory into practice through authentic learning experiences. Almost every upper level education course includes an embedded field experience. In addition, VCSU students in elementary education are involved in a weekly substitute teacher program that allows all the teachers in a specific school building to engage in professional development while the preservice teachers manage their classrooms (under the oversight of a university supervisor). Students then return to the university classroom, where they make strong connections to course content because of their practical experiences.

BEST COLLEGES U.S.News & WORLD REPORT REGIONAL COLLEGES MIDWEST 2017

Students are involved in field work, practicums and internships, experiences which polish their preparation by developing skills outside the traditional academic setting. Students in Fisheries and Wildlife band ducks, conduct water testing, count fish and mussels, and complete summer jobs with a variety of game and fish organizations. Students in Health Science, Human Services, Communication, Psychology, Business, Athletic Training, Exercise Science, Fisheries and Wildlife, English and History all pursue various internships and practicums that allow them to make real-world application of their classroom knowledge.

STEM Education promotes integrative study and problem-solving skills. This program has completely overhauled curriculum and mindset to help shape STEM teachers. Instead of a silo approach to fields of study, STEM Ed addresses the content as interrelated and interdependent, in ways that allow students to be innovative and solve problems. Preservice teachers prepared in this way will take this approach in their future classrooms; VCSU also provides multiple in-service workshops annually to help experienced teachers reimagine their curriculum to engage students in ways that support innovative thought and inquiry.

VCSU offers flexible, high-quality programs, both on campus and online.

VCSU's success during the 2009 flood documents our flexibility and technology-based culture. Threatened by flood and a collapsed city sewer system, VCSU sent students home with their laptops and continued the semester online. This was a challenge for a few

courses—band, choir, physical education activity classes, and some lab sciences—and spring athletics, but most programs were able to successfully maintain continuity of instruction. In everyday terms, this means that whenever faculty or students must be absent, course materials and assignments are available online, and teaching and learning continue: If bad weather keeps an instructor home for the day, the students can expect their class to "go online" for the day, with class discussion, group work, and assignments all available as the instructor teaches from home.

VCSU's education programs lead the way in online delivery. VCSU's B.S.Ed and M.A.T. teacher preparation programs allow people to remain and work in their home communities, while pursuing teaching licensure, so they can move from para to substitute or full-time teaching in their community school districts. VCSU also offers its undergraduate elementary education program on the NDSU campus, providing a shared service that allows NDSU to focus on delivery of graduate degrees in Education. And VCSU offers its M.Ed. program by online-only delivery to place-bound K-12 teachers across the state who would otherwise not have access to a graduate program.

VCSU's instructional design team promotes exemplary course design, whether face-to-face or online. Courses include group work, problem-solving, service learning, discussion, and experiential learning. To a large extent, VCSU faculty use small lecture bursts, flipped classrooms, group engagement and discussion, and problem-based learning activities. Students are teaching concepts, presenting ideas, working with real clients, and participating in authentic assessments. Technology is used to enhance the learning environment.

VCSU faculty use Open Education Resources (OER) to replace or supplement traditional textbooks. Students have free or reduced cost access to the materials they need for coursework. Students can complete their general education program at VCSU using OER, and several majors rely almost exclusively on OER for their coursework.

Students are engaged in their professions, communities and the world around them. Course activities prepare them for this engagement.

• Students create social media campaigns for real clients, many of which are continued after the semester is over. For example, VCSU student Simon Fischer and four friends at NDSU created a "snow kit" app, which he marketed through social media via a digital communication course.

• Through a dementia lab set up by a psychology professor, students have the opportunity to "see" the world of those with Alzheimer's and dementia.

• Business courses use a variety of simulation products to help students get a better feel for the business world environment; they are also involved in collaborative projects with community entities, such as developing marketing campaigns for the Barnes County Museum.

• Students provide service learning to such agencies as The Open Door Center, the Flying Eagle Ranch, Churches United for the Homeless, and the Abused Person Outreach Center. They work with the people and reflect on what they have learned and how these experiences will make them stronger citizens and practitioners once they have graduated.

• Music students provide music workshops to area schools, such as the opera workshop in Alexandria, Fargo, and Kindred.

• Throughout our programs, students participate in internships. Placements have been with congressional leaders in Washington D.C., the West Fargo Park District, local newspaper and radio stations, Focus on the Family headquarters in Colorado, convention and visitors' bureaus, Medora, summer theatre programs, local television stations, the Anne Carlson Center, and much more.

• Student teachers use technology such as GoPro cameras mounted on their heads to learn how they are talking to students, where their eye contact is going, and how they are managing the classes, not from what appears from video, but actually from their point of view.

• Working together, students solve puzzles in puzzle boxes, similar to puzzle rooms, then debrief on what they have learned about group work, pressure, and communication soft skills.

• Non-traditional students with vast work skills can provide evidence of competencies via a Prior Learning portfolio and earn credit.

• Faculty can use innovative technology such as green screens and glass screens in their videos. They can project images behind them via the green screen, and they can write on a glass screen in front of them (thus not turning their back to their audience) and be recorded to demonstrate models, formulas, etc. to their online students.

• Students in online courses are talking to each other via discussion and voice thread. They are in groups and meet via Collaborate—an electronic meeting space—so they can meet from anywhere at any time. They share research, discuss present-day issues, and critique each other's work.

• Classrooms are loud with discussion, group work and discussion, trial and error of ideas, experiments, etc. Student are creating videos, presentations, and material to help others. The day of passive learning—both face-to-face and online—is gone.

VALLEY CITY STATE UNIVERSITY

RANKED

No. 1

Public Regional College in the Midwest
by U.S. News and World Report for 2017

STUDENTS

1,452

Total Headcount (Fall 2016)

798

Full-Time Undergaduates

497

Part-time Undergraduates

157

Graduate Students in Master of Education and Master of Arts in Teaching programs, both entirely online

RETENTION

71.1%

First-Time, Full-Time Retention
(Fall 2015–Fall 2016)

NORTH DAKOTA UNIVERSITY SYSTEM
ACCESS. INNOVATION. EXCELLENCE.

MISSION

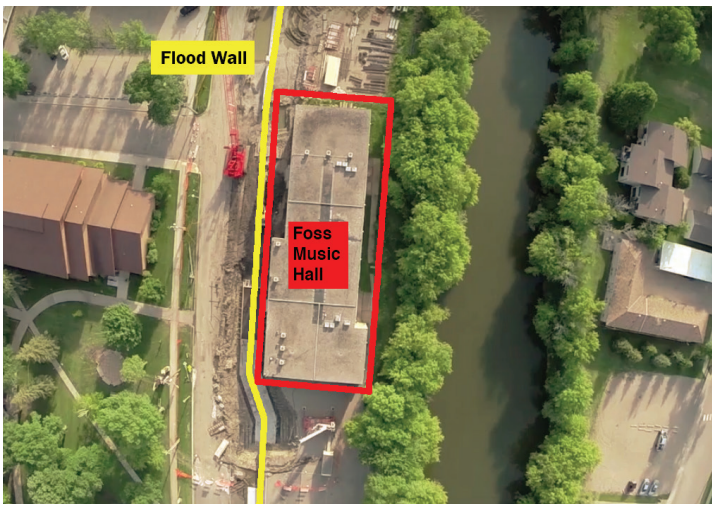
Valley City State University is a public, regional university offering exceptional programs in an active, learner-centered community that promotes meaningful scholarship, ethical service, and the skilled use of technology. As an important knowledge resource, the University offers programs and outreach that enrich the quality of life in North Dakota and beyond. Through flexible, accessible, and innovative baccalaureate and master's programs, VCSU prepares students to succeed as educators, leaders, and engaged citizens in an increasingly complex and diverse society.

VISION

Valley City State University will be nationally recognized for advancing important collaboration, fostering innovative engagement, and promoting noteworthy transformation. Through effective use of best practices in technology, teaching, and learning, VCSU will be a destination university for students in North Dakota and throughout the region, extending its reach and influence beyond the campus boundaries.

CORE VALUES

- *Mission Driven*: We are committed to a learner centered philosophy. We make education meaningful with positive relationships and effective practices.
- *Quality and Integrity*: We have high expectations for results, integrity, and positive interpersonal relations in all we do.
- *Innovation*: We are flexible, creative, and free to try new things. We have a strong work ethic, positive attitude, and open mind. We embrace change.
- *Community*: We trust each other, we work well together, and we are involved with our local and extended communities.
- *Diversity*: We believe that diversity of all kinds enriches the quality of thought, discussion, and learning.



HEAT PLANT

Construction on the new VCSU heat plant continues on a site east of Rhoades Science Center. Funded by an appropriation received from the North Dakota Legislature in its 2015 session, the $13.9 million steam plant facility will replace an outdated facility constructed in 1910.

Crossover from the old plant to the new will be accomplished by mid to late winter, with the plant fully operational for the 2017–18 heating season.

VCSU, in collaboration with the Energy and Environmental Research Center at the University of North Dakota, is pursuing an innovative carbon plant addition to the heat plant. The carbon plant would burn North Dakota lignite coal and biomass in a clean process to produce fuel for the heat plant, while at the same time producing valuable activated carbon byproducts.

WELLNESS CENTER

The Gaukler Family Wellness, Health and Physical Education Center opened Oct. 1, 2016.

A joint project of the Valley City Parks and Recreation Department, the Sheyenne Valley Community Foundation and VCSU, the Wellness Center offers the greater Valley City community an outstanding health and fitness facility.

Located directly across 8th Avenue from W.E. Osmon Fieldhouse, the Wellness Center houses the classrooms, labs and offices for VCSU's Department of Kinesiology and Human Performance, which includes programs in athletic training, health education, physical education, exercise physiology, sport management, strength and conditioning, and wellness studies.

PROPOSED COMMUNICATIONS & FINE ARTS BUILDING

Foss Hall (built in 1963), VCSU's music building, sits directly on the banks of the Sheyenne River. As the City of Valley City moved forward with permanent flood protection—protecting the city and the VCSU campus—Foss Hall is now located on the wrong side of the newly constructed flood wall.

To protect students and state assets, Foss Hall must be razed and its functions replaced elsewhere on campus. The proposed Communication and Fine Arts Building will replace Foss Hall and consolidate the art and music programs in one facility, which will also include the Communication Arts and the Language and Literature departments. Every student completing the general education program at VCSU will take 5 classes (15 credits) in this building. By shuffling classrooms and offices, this will also allow for the razing of McCarthy Hall.

Estimated at $25.4 million, a new Communication and Fine Arts Building will allow VCSU to retire $6.9 million in deferred maintenance by razing both Foss and McCarthy halls.

The Viking SCHOLAR

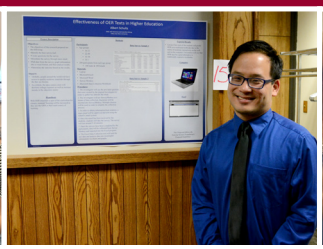
October 2016

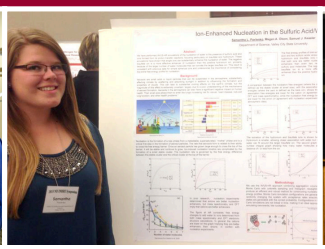
A Research Publication of Valley City State University

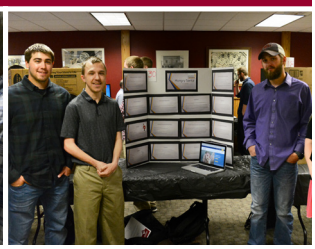
VALLEY CITY STATE UNIVERSITY

www.vcsu.edu

SOAR ◆ Scholar Symposium
The Forge ◆ INBRE ◆ Graduate Studies
Student Presentations ◆ Faculty Presentations







Welcome to the October 2016, number two edition of The Viking Scholar. This publication is made possible as a result of dedicated faculty who mentor and challenge their students to present papers at professional conferences, as well as recent initiatives and established programs that have fostered and supported student research. The result has been an increase in the depth and breadth of research taking place across the campus.

The second publication is more inclusive in presenting the venues across campus where students have the opportunity to do discipline specific research and present their work. New in this edition is The Forge, INBRE, Performing Arts, and Graduate Studies.

The students on the cover are the Spring 2016 Literary Publication class. See page 6 for further details.

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Mission

Valley City State University is a public, regional university offering exceptional programs in an active, learner-centered community that promotes meaningful scholarship, ethical service, and the skilled use of technology. As an important knowledge resource, the University offers programs and outreach that enrich the quality of life in North Dakota and beyond. Through flexible, accessible, and innovative baccalaureate and master's programs, VCSU prepares students to succeed as educators, leaders, and engaged citizens in an increasingly complex and diverse society.

Student Opportunities for Academic Research (SOAR)

Rare is the scholarly activity that is more intellectually rewarding than research; driven by inquiry, discovery unfolds for the student who practices independence, ethics, and grit, a principle feature: development of a skill set that will continuously benefit all involved.

Annually in early May at the Valley City State University, President Mason and Vice-President Dahlberg host a celebratory banquet to recognize to recognize undergraduate academic research.

SOAR Students Justin Tangen, Tanner Hovland, Mackenzie Bruce, DaveMarth Nagbe, Dallas Petersen, Alexis Getzlaff, Jordan Bushaw, Richard Langdeaux, and Baylee Swenson. Visit http://soar.vcsu.edu/?page_id=460 to read their research abstracts.

Annually, the SOAR program solicits student interest to work with VCSU faculty of their choosing on scholarly and creative works of significance, project effort estimated at 100 hours, remuneration at $1,000 with an additional $250 allowed for research materials.

Interested students participate by identifying first a faculty mentor to develop their idea, developing a short proposal that is submitted to jurors who rank submissions using a scoring rubric, then, if successful, committing to working on their project for up to one year.

During the 2015-16 academic year, nine students were awarded funding to investigate the topics they found most interesting as an extra-curricular activity.

As coupled with a faculty mentor, the work proved rewarding for both student and faculty, and in each case, shepherding long-term relationships for the student, with faculty and campus.

Inclusivity is an important attribute of the program. A goal is for each academic department across the arts, science, and education spectrum to regularly host student discovery makers.

The SOAR process is competitive, the program sponsoring seventeen projects since its inception in 2014, and VCSU continues to encourage more students to become Viking Scholars.

Participants in a virtual tour of a wetland using an Oculus Rift, an optical aide for immersion. Baylee Swenson and Jordan Bushaw partnered on their project: The Effects of Motion Sickness in Virtual Reality Environments.

Baylee Swenson and Jordan Bushaw use SOAR Grant to pursue the effects of motion sickness in virtual reality environments

Baylee Swenson has always had an interest in technology, video games, and virtual reality – this SOAR project allowed her to work with all three in a way that can positively impact others. Her project, *The Effects of Motion Sickness in Virtual Reality Environments*, looks at why motion sickness is prominent in virtual reality as well as why we are susceptible to it. The project will have willing participants play through two levels: a realistic level and a cartoon-like level. She will measure the participants' motion sickness before and after the tests to get an accurate measure of how the game affected them. From doing this, she hopes to learn whether the level of realism of graphics within a game can cause a form of motion sickness on the user when playing it in virtual reality. The SOAR project is a great chance for a student to work on something they're passionate about, and she is grateful to have the opportunity to be a part of it.

Baylee Swenson is a Senior from Hatton, North Dakota. She is pursuing a major in Software Engineering with a minor in Computer Science and is scheduled to graduate in December of 2016. She currently works in the Web Services office at Valley City State University in order to help her prepare for her job at the Center for Open Science in Virginia after graduation.

The SOAR project is a great chance for a student to work on something they're passionate about.

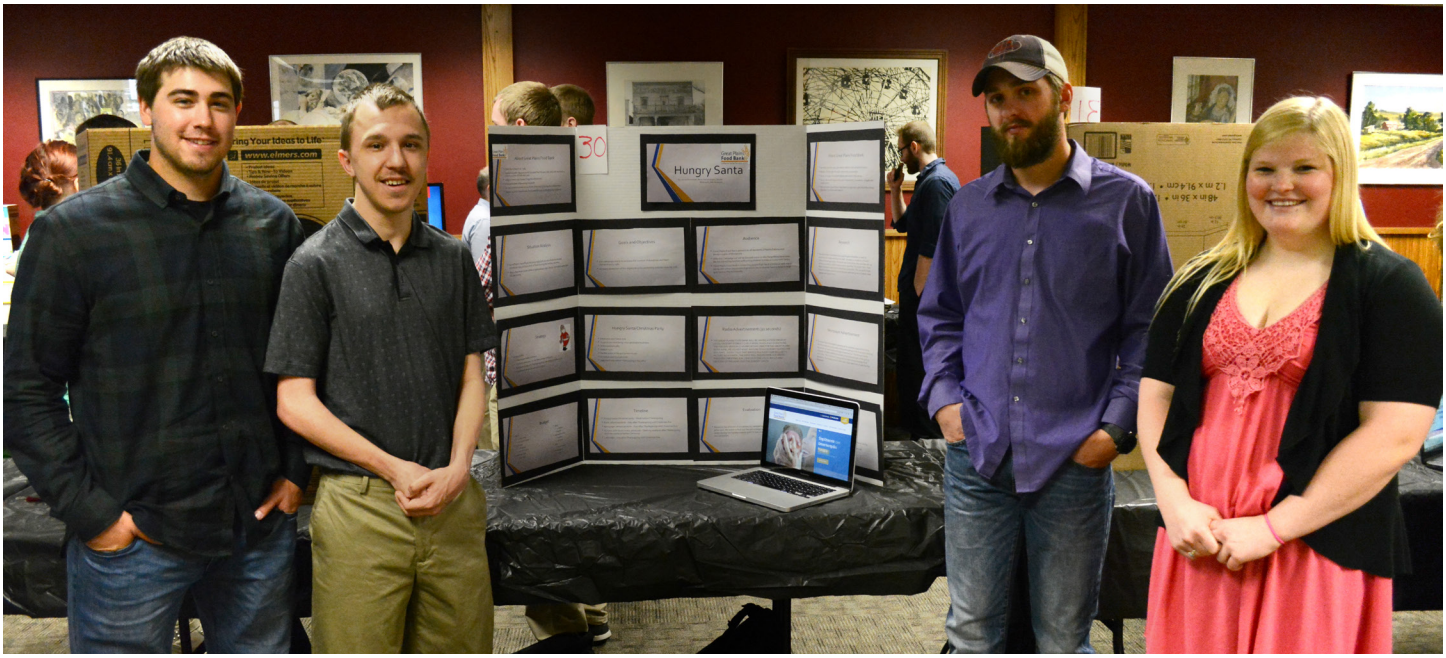
SOAR gave **Jordan Bushaw** the opportunity to take her passion of up and coming technologies and working with them. Her study of *The Effects of Motion Sickness in Virtual Reality Environments* looks at how motion sickness appears in virtual reality environments and what the leading causes behind that may be. To do this she and her partner will send test subjects through two separate levels in a virtual reality environment, one with cartoonish graphics and the other with realistic. The different reactions of the two will give her and her partner an indication as to what a cause behind the motion sickness in Virtual Reality may be. Through her research, she has discovered many new things about Virtual Reality and the effects that come along with it, many of which she has utilized in her internships and hopes to use with her future career at NBCUniversal after she graduates. There are not many colleges that would give an undergraduate the opportunity to perform such research, and she is extremely grateful for the opportunity.

There are not many colleges that would give an undergraduate the opportunity to perform such research.

Jordan Bushaw is a senior from Bismarck, North Dakota. She will graduate from Valley City State University in May of 2017 with a major in Software Engineering and a concentration in Enterprise Applications.

Scholar Symposium

Undergraduate Students Present Their Best Academic Work at VCSU's Student Scholar Symposium



Ben Bruenjes, Jacob Pommerer, Ryan Hammargren, and Nicole Willprecht presenting their "Hungry Santa" public relations campaign.

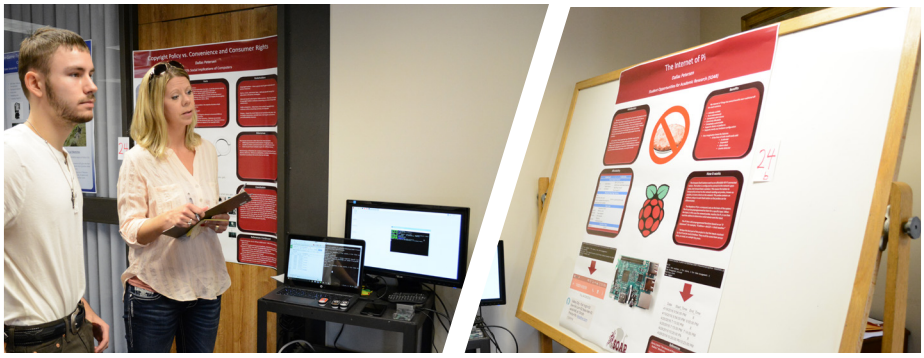
VCSU's Annual Student Scholar Symposium provides an opportunity for undergraduate students to share their best work and their talents with the VCSU community. In May of each academic year, students display their academic work using wall posters, tri-fold table boards, and computers and then present to judges consisting of VCSU faculty, staff and administration. Judging criteria includes content, appearance and rigor of student academic work. Monetary awards are given to the top three students with the highest judges' ratings, and the top 20% of students are recognized as/with Honorable Mention. Approximately 75 students participate in the symposium each year with 40 some faculty, staff and administration participating as judges.

On Tuesday, May 3, 2016, 84 undergraduates presented their projects from the 2015-2016 academic year; 43 faculty, staff and administration volunteered as judges.

This year's event featured individual and team projects as well as projects from two distance students who Skyped their presentations for their judges. One of the team projects receiving Honorable Mention was a Great Plains Food Bank public relations campaign titled *Hungry Santa.* Ryan Hammargren, Jacob Pommerer, Nicole Willprecht, and Ben Bruenjes teamed up to share their project using a tri-fold table board to display their work.

Mattea Bierman, a junior Fisheries and Wildlife major from LaMoure, North Dakota, presented a research proposal receiving Honorable Mention. Bierman's project titled *Community Parasite Loads in Bluegill and Black Crappie Populations in Nelson Lake and Fish Creek Dam in North Dakota* describes a proposed study to examine fish parasite populations. This was Bierman's first time presenting at a symposium. She stated, "At first, I was nervous to present to people who were not from the science field because I thought they would not have much interest in my proposal, but I was definitely wrong. All of my judges were very interested in my proposed project and encouraged me to actually complete the project this summer if I was able to."

Mattea Bierman presenting her research proposal displayed on a wall poster to one of her symposium judges Dr. Curt Hill.



Dallas Petersen top award winner of the 2016 Student Scholar Symposium presenting his SOAR project titled "The Internet of Pi" to one of his symposium judges Angela Williams.

The May 2016 Student Scholar Symposium top award winner was no novice to the symposium event. Dallas Petersen, from Kenmare, North Dakota, and a May 2016 graduate in the Software Engineering program, presented two individual projects this year and two individual projects last year with all four projects receiving award and/or honorable mention recognition.

Petersen's May 2016 SOAR Undergraduate Project titled *The Internet of Pi* received first place in this year's symposium. SOAR--Student Opportunities for Academic Research--encourages faculty-mentored research, artistry, and creativity projects for undergraduates at VCSU. Petersen's goal for his research project was to create an affordable home automation system, one that any consumer could afford. Petersen studied applications of using the "Raspberry Pi" computing device for both smart home/home automation tasks, as well as an Internet of Things (IoT) hub. To study the capabilities of the device, Petersen made three sub-projects – a time management system, a panic button (similar to a Life Alert), and a weather notification system. Petersen displayed his methods, results and findings of his research project using a wall poster and highlighted his project with a computer demonstration.

Petersen's advice to future symposium presenters: "Don't give up after your first year at the symposium. Yes, the first symposium is difficult to know what to expect, but by year two, you have a handle on what to expect, and then you can really focus on giving your best presentation."

The 2016 Student Scholar Symposium Awards

BEST IN SHOW

Dallas Petersen

The Internet of Pi

RUNNER UP

Baylee Swenson

Ethics and Implications of Violence and Immorality in Virtual Reality

THIRD PLACE

Alexandra Cardenas and Ashley Metcalf

Las Mariposas Valientes: The Courageous Mirabal Sisters

VIEWERS CHOICE - TIE

Dallas Petersen

The Internet of Pi

Deborah Haley

Developmentally Different

Jordan Bushaw and Baylee Swenson

The Effects of Motion Sickness in Virtual Reality Environments

HONORABLE MENTION

Tarah Cleveland, *Big Data Analysis and Social Media*

Jordan Bushaw and Baylee Swenson, *The Effects of Motion Sickness in Virtual Reality Environments*

Mattea Bierman, *Community Parasite Loads in Bluegill and Black Crappie Populations in Nelson Lake and Fish Creek Dam in North Dakota*

Richard Langdeaux, *Environmental Health-Oriented, Coal Fly Ash*

Ryan Hammargren, Jacob Pommerer, Nicole Willprecht, and Ben Bruenjes, *Hungry Santa*

Hayden Zander, *Dragonfly Distributions in North Dakota*

Taran Langland, *Drones and Their Impact on Society*

Jordan Bushaw, *DNA: The New Facebook? The Ethics and Protection of DNA in a Technological Society*

Dallas Petersen, *Copyright vs. Convenience and Consumer Rights*

Ethen Preston, *To Use Live Bait or Artificial Bait: That is the Question*

Justin Tangen, *Using Side Scanning Sonar to Map Bottom Substrate Features in North Dakota*

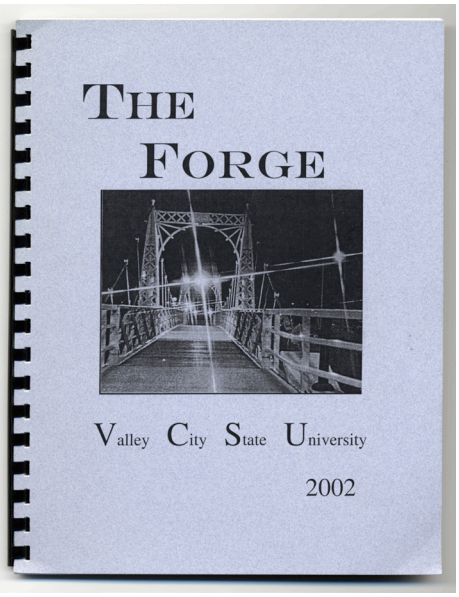
Ashley Limesand, *Developmental Differences Between Urban China and Rural U.S.*

DaveMarth Nagbe, *My Life as an Illegal Immigrant*

The Forge: Celebrating 15 Years of Student Creativity

Origins

Fifteen years ago, a small group of English majors met with new hire Lee Kruger to discuss the desirability of resurrecting a campus literary magazine. Years before, Dr. Richard (Dick) Betting had overseen an earlier incarnation, *The Exhibitor* (1967-77), and Dr. Martin Kelly had been filling the gap with a publication from his Creative Writing class each time he taught it, but the group was interested in a more representative effort to include a broader swath of campus. The result? The founding of *The Forge,* the name the group resoundingly and rather pointedly endorsed over Kruger's initial suggestion of *The Valkyrie*, in a move that suggested the impact of students from the start—an impact recent developments have only further solidified.

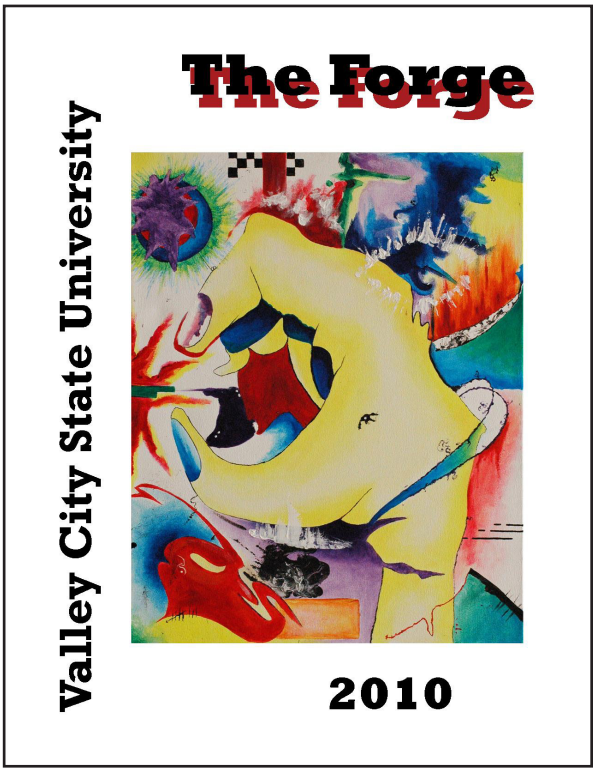


The First Edition

That first year included work by 30 students from 4 different countries in 4 juried categories—Essay, Poetry, Drama/Fiction, and Visions (a combination of photography, digital imagery, drawing and intaglio)—and paid 1st ($20) and 2nd ($10) places for each with price monies coming from personal contributions on the part of 12 faculty. Additionally, five faculty contributed original pieces, including a haiku from then basketball coach Adam DeHaan, and over a half dozen faculty also served on three-member juries for each category. The cover to the left, by Hawaiian native, Chantal Molina, won second place in the Visuals category, and seemed an iconic photo to set the tone for the magazine, which emerged as a 67-page, comb-bound 8½x11 book with the extensive help of JJ Thoreson in the FMC. Scarlett Gray, a music and English double major, won first prize for both Poetry and Visuals, and Ross Kopperud and Philip Godel , won for essay and Drama/Fiction, respectively. Kruger served as faculty advisor and co-editor with Ally Godel, a senior English major; Dr. Margaret Dahlberg and senior Maggie Clemons (also English) chipped in for the lion's share of the editing duties; and funding for the printing of 200 copies came primarily from Sigma Tau Delta and the CASS Division.

Upon Further Review

After that first year, *The Forge* steadily grew in popularity, size, and scope to reach average publishing runs of between 250 and 300, include (on average) 6 categories, and pay out upwards of $300 in prize monies annually. Additionally, the 2002-2010 editions were made available online through generous funding from Student Senate, which has become the major financier for the print editions of *The Forge* ever since that first year. Over 300 different students have been represented in at least one issue in the 14 years of its existence, and special sections have been dedicated to alumni (both alive and in one case recently deceased), to special class productions, to three talented graduating art majors, and even to the writings of former President Chaffee's mother, who had written a lifetime of poetry and prose. Along the way, we've experimented with incorporating music, including the 12-string stylings of area resident and one-time VCSU student Michael Whisler's (in the 2008 online edition—Googling 'VCSU The Forge' should get you there), as well as Tyson Rost's winning entry from the Music Department's 2009 Composition contest. In all, we've published over 1,000 individual original works ranging from poems to plays to paintings to ceramic images from students who came from Nepal, Nigeria, France, Mexico, Colombia, Canada and Fingal (to name a few nations and one small North Dakota town), distributed over 3,000 copies of *The Forge* itself to anyone who wanted one, and had an absolute blast along the way.



2016 Spring Literary Publication Class, left to right: Lee Kruger, former faculty advisor; Strella Navalta; Jolene Woodbury; Alexis McCullough; Elisabeth Ostrem; Heather Gensler; Deborah Haley; Dr. Greg Brister, current faculty advisor; Maren Stegner; (not pictured: Monika Browne)

The Handing Over of the Keys

In our most recent strategic planning efforts, it became clear the time might be ripe to approach the publication of *The Forge* through an addition to our English curriculum. For years, the Creative Writing class and spin-off poetry and fiction workshops had kicked up strong material for *The Forge* (and continued to do so last year as poets from an online workshop for distance students won top honors), but the production of the actual publication depended on volunteers—particularly upper class English and Art majors looking for some experience—working with Kruger. In 2015, that changed with the development of a one-credit class, Literary Publication, to be offered by Dr. J. Gregory Brister. This last spring, Dr. Brister's inaugural class met weekly, studied literary magazines from other campuses and organizations, organized marketing materials, got the word out, and then practiced what they had learned in publishing the first class-based issue of *The Forge.* Then, they held a party—an Open Mic celebrating the unveiling of *The Forge* and announcing the winners—and distributed the slick, 2016, saddleback stapled edition held by several above. Finally, in May, after a four-year absence, *The Forge* returned to full color online through the efforts of Dr. Brister.

> *"a wonderful learning experience"*

The Dawn Chorus

I got the news today,
from an old friend of a friend
who will never be the same;
a life has come to an end.

The morning air fills with sorrow;
no one thought this day was near.
As the birds chirp outside the window,
suddenly, life seems more unfair.

The birds flit and twitter around the trees
dancing in the morning breeze,
oblivious to the tragic news
that makes the day so dark and the mood so blue.

Nothing seems to matter –
my friend is without a father.

by **Shayna Taffinder**
Vancouver, British Columbia

Takeaways and the Future

By all accounts, the switch to a class-based publication was a rousing success, and deemed "a wonderful learning experience" by sophomore Deborah Haley, who plans to take the repeatable course again. Junior transfer Jolene Woodbury added that the experience was "a cool way to see how talented kids at VCSU are." It seems we're on to something sustainable, and marvelous, here.

> *"a cool way to see how talented kids at VCSU are."*

The themes reflected over the years in *The Forge* mirror the themes found in the best of literature and image—love and loss; discord and balance; the simple and the complex; the sense of wonder and awe and beauty in both the mundane and the extraordinary. One imagines those themes will emerge again next year, and the year after that, but the special nature of the publication emerges through the intense variety of ways VCSU students wrestle with the universal. Here's hoping *The Forge* will continue to be a vehicle for discovery and realization far into the future those students themselves have helped, and will continue to help, create.

Forge Prizes

First Place: $30, Second Place: $20, Third Place: $10

Poetry

First Place	Erin Jangula	***The Course of the Columbia***
Second Place	Colleen McNeill	***Dawn in the Night***
Third Place	Sarah Staley	***The Top of the Farm***

Fiction/Drama

First Place	Deborah Haley	***Kid Friendly: A Play***

Academic Essay

First Place	Jami Markovsky	***Supporting the Underdog: Examining Shakespeare's View of the Marginalized Character***

Personal Essay

First Place	Angelea Wald	***Miracles Do Happen***
Second Place	Brittany Nathan	***Gotcha Day***
Third Place	Deborah Haley	***Not My Fault***

Photography

First Place	Amanda Schrenk	***Rainbow Flame***
Second Place	Megan Trautman	***Clock Tower (VCSU)***
Third Place	Levi Fettig	***Curious Owl***

Drawing/Printing

First Place	Megan Fuller	***Cull (Block Print)***
Second Place	Katarina Boychuk	***Dodo***

Painting

First Place	Kaylee Johnson	***Blue Winter (Watercolor)***

Ceramics

First Place	Megan Trautman	***Beaded Bowl***

THE FORGE 2016

Return *(Mono Print) by Megan Fuller*

THE INBRE PROGRAM

For more than a decade, the North Dakota INBRE program has been providing opportunities for VCSU students. Since the program's inception in 2004, more than 50 students have gained valuable research experience, travelled to scientific meetings to present their results, and earned extra money to help pay for school. These experiences have helped our students gain admission to Ph. D. programs, medical and dental schools, and a wide variety of other professional programs. Program alumni are working in careers ranging from research, to health care, to education. This program has been instrumental to building research capacity at VCSU, providing more than $3,000,000 in student and faculty support, research materials, and travel funding over the last decade, and will continue to be an invaluable opportunity for our students moving forward.

The INBRE program (IDeA Network of Biomedical Research Excellence) is a nationwide program administered by the National Institutes of Health to help build biomedical research capacity and provide increased research opportunities for faculty and students, particularly in states where these opportunities have been limited in the past. The success of the program at VCSU and the other institutions in the North Dakota network has enabled the state to secure three consecutive grant awards from this program.

Several different VCSU faculty mentors have participated in the INBRE program. Dr. Andre Delorme and Dr. Hilde van Gijssel were VCSU's first participants. Dr. van Gijssel's research investigates the link between herbicides and cancer using fruit flies as a model, while Dr. Delorme investigated the impact of herbicides on macroinvertebrate species in aquatic environments. Dr. Jerzy Bilski and Dr. Sam Keasler are currently participating in the program. Dr. Bilski has been an INBRE participant since 2009 and runs a research group studying the growth of plants in coal fly ash. Dr. Keasler is a new participant in the program, starting in 2014. His research uses computational modeling to better understand how sulfuric acid and other pollutants can impact climate.

A major goal of the North Dakota INBRE program is to help create research capacity at undergraduate institutions and promote a culture in which faculty are active in research and work to include undergraduate students in these projects. This culture has been a driver of other efforts by faculty to create research opportunities for students beyond the INBRE program and will continue to be a major component of VCSU's ongoing efforts to ensure that our programs provide meaningful real-world experience to our graduates.

Megan Olson presents research on Global Warming at national conference

Megan Olson has been a participant in the INBRE program since the fall semester of her sophomore year working with Dr. Sam Keasler to understand how sulfuric acid and other pollutants can promote the formation of water droplets in the atmosphere which can have a significant impact on global climate. During the last two years, Megan has presented her results in the ND INBRE symposium in Grand Forks and at the Midwest Undergraduate Computational Chemistry Consortium Annual meeting in Evanston. Her work also earned an honorable mention at the VCSU scholar symposium. A journal article based on her findings is currently being prepared for submission and her results will presented at the American Chemical Society National Meeting in San Francisco this spring.

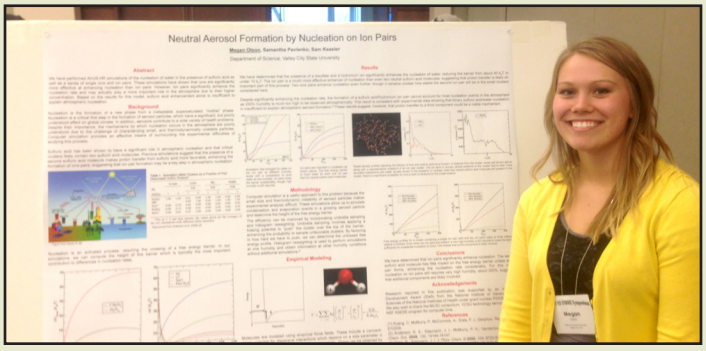
Megan is a triple major in health science, biology, and chemistry, and is spending much of her senior year finishing minors in business and marketing in preparation for a career in medical device sales.

"The INBRE program has had a huge impact on me. Being a part of this program is much more rewarding than I ever thought possible. When I first came to college I never thought I would have the opportunity to be a part of something so much bigger than I am, but here I am two years later, still working on the research. I feel like this opportunity has made me a more well-rounded candidate for my future job. My analytical skills have been challenged many times through this program. I strongly believe that I have done better in my classes due to the INBRE program.

"The INBRE program has had a huge impact on me. Being a part of this program is much more rewarding than I ever thought possible."

It has also been great to have the chance to travel to different schools and present our research. Although this was typically something I was scared to do, it always went well and it was such a great experience. My public speaking skills have certainly grown thanks to this program.

I have thoroughly enjoyed being a part of the INBRE program and I am so thankful that I was given the opportunity to improve my education."



GRADUATE STUDIES

Graduate Students Take Action to Improve Learning in the Classroom

VCSU's Graduate Programs use action research to find effective solutions to problems they confront in their classrooms in everyday life.

VCSU's graduate program has been in existence for ten years and each concentration focuses on providing teachers an advanced education with a technology focus. As with any graduate level program, research is also at the heart of VCSU's M.Ed. degree. Graduates learn how to conduct action research and apply their new knowledge to improve instruction. The goal of action research in the program is to provide teachers with a systematic approach to investigate everyday problems and develop solutions they can implement right away.

Unlike traditional educational research that focuses generalizable results, action research seeks solutions to specific situations that are localized to a single school or classroom. This doesn't make action research less valuable or relevant. Action research is a powerful tool that results in a plan for implementation or action to improve teaching and learning and has a higher potential to impact instructional strategies and student outcomes.

Action research studies in the program are traditionally mixed-methods studies that allow for triangulation of data and better support for the development of action plans. A typical action research study is still written in a five chapter format covering the following major topics (a) Area of Focus, (b) Data Collection, (c) Analysis and Interpretation of Data, (d) Action Plan, and (e) Reflection. Graduate students present the findings of their research and the action plans to a faculty committee as a part of their capstone presentations.

Although action research can be done in an informal manner in the classroom, the research conducted as a part of a university program is required to seek Institutional Review Board approval, which poses some unique challenges. The nature of action research potentially makes the teacher both the researcher and the data collection instrument. The graduate student is responsible to address the ethical challenges and ensure the rights of the research participants are protected to the satisfaction of the IRB. All research conducted through the graduate programs must also seek administrator approval.

> *"Action research has a higher potential to impact instructional strategies and student outcomes."*

Graduates of the Master of Education program that have continued their education in specialist or doctoral degrees found the action research process beneficial in preparing them for experimental research associated with these programs. Graduates are also encouraged to present their findings at conferences or publish in related educational journals. In some cases, students will do this independently, but sometimes faculty will assist with the research and publication process as a co-author.

The Office of Graduate Studies also supports faculty research and assessment projects on campus. Each year individual $500 mini grants are available to faculty who are completing research or assessment studies that increase scholarly activity, publications and conference presentations. Faculty and students at the graduate and undergraduate level are conducting great research studies and it is important to recognize their work.

To date, just over 250 action research studies have been conducted since the first graduating class in 2007. Based on the minimum, this translates to almost 4,000 K-12 students impacted by the research and resulting action plans. The graduate faculty have always supported the goal of promoting research methods that teachers can use on a regular basis and have a tremendous impact on teaching and learning in the classroom.

Aleksandr Sadwnyk is a Technology and Engineering Education teacher in VCSU's graduate program and works in the state of New Jersey.

Action Research Spotlight

Online vs. Face-To-Face Outcomes for Nurse Assistants

Katie Hatt
Health Science Teacher
Grand Forks Public Schools
Grand Forks North Dakota

According to Allen and Seaman, "The number of students taking at least one online course increased by over 411,000 to a new total of 7.1 million" and "Ninety percent of academic leaders believe that it is 'likely' or 'very likely' that a majority of all higher education students will be taking at least one online course in five years time" (2014, p. 4). Despite the growing interest in distance education, one–quarter of chief academic leaders still consider the learning outcomes for online education to be inferior to those for face–to–face instruction, and over two–thirds of academic leaders believe there are concerns about the quality of online courses (Allen & Seaman, 2014).

The findings of this action research project provided reassurance there were no disadvantages in academic achievement, perception of the learning experience, or student satisfaction for students enrolled in one course platform versus the other. Information gained from this research included what students felt was most beneficial to their learning, what they found most challenging, and what they enjoyed the most about their course experience. With this data, educators are able to take action towards improving the experience for future students and use it as rationale for why specific decisions are made within a course. Two items that came up multiple times on the question asking about aspects the learner found most challenging were the memorization of medical terminology and memorization of steps in skill procedures. Having this specific feedback provides direction; for example, instruction can be improved and differentiated by exploring instructional strategies for vocabulary and memorization.

"This research will be beneficial when the district's CTE Director and I seek certification for the online Nurse Assistant course from the North Dakota Department of Health in the upcoming future."

The research results can also be used to show students, parents, and school administrators that online courses can be used to expand student opportunities that would not have otherwise been available due to limited offerings in some schools or schedule conflicts. The findings show that online courses are a valid and effective alternative to traditional classes.

Finally, this research will be beneficial when the district's CTE Director and I seek certification for the online Nurse Assistant course from the North Dakota Department of Health in the upcoming future. There has been apprehension to certify online Nurse Assistant courses in the state due to the differences in the learning experience. With the growing nursing shortage we are experiencing in our country, especially rural areas, healthcare facilities could have an increased supply of CNAs if the state certified a greater number of programs. Online Nurse Assistant programs can offer flexibility and increase opportunities for both busy and rural individuals interested in becoming CNAs. Having evidence–based research to support the effectiveness of online Nurse Assistant programs could help support a change in the perception of the online learning platform.

Katie is working with faculty member Lana Fornes to prepare her research study for an article in the *Technology and Engineering Teacher* journal. She will also be submitting a proposal for an article in one or more of the Journals of Career and Technical Education. Katie is a Spring 2016 graduate of the VCSU Master of Education program with a concentration in Technology Education.

Student Presentations

Dedicated faculty at Valley City State University inspire their students toward excellence. One of the ways faculty do this is to mentor and encourage students to submit research to regional and national professional conferences or other venues. This section highlights the depth and breadth of student presentations over the 2015–16 academic year. For a complete list of student presentations, see pages 16–17.

Justin Tangen pursues multiple research opportunities at VCSU

Previous to pursuing his nursing degree, Justin Tangen conducted research as an Environmental Science major on two primary topics: using side scanning sonar to map substrate features on a stretch of the Sheyenne River, and growing different cereal crops on coal fly ash substrates to gain a better understanding of how certain crops uptake chemicals. The first research used sonar technology to scan and take pictures/videos of river beds to understand how the substrate is laid out along a stretch of the Sheyenne River near Kathryn, North Dakota. A better understanding of the substrate can help identify certain areas where keystone species such as the freshwater mussels may reside. This opportunity was granted by the North Dakota NAS Space Grant Consortium, and Justin conducted the research in the summer of 2015 and presented his findings at the Space Grant Consortium conference in the spring of 2016. For his second research project, Justin is growing different crops, mostly cereal grains, on varying substrates that contain coal fly ash. Currently, coal fly ash waste is lightly regulated by the EPA and is often dumped in large containment pits and stored onsite of coal burning facilities. The goal of this research is to find a better and more productive use for the waste, such as fortifying plants with fly ash due to the many chemicals it contains. Since 2014, the means for his research has been provided by INBRE of North Dakota, short for the Idea Network for Biomedical Research Excellence. Justin has presented his findings at both the annual INBRE conference and at the North Dakota Academy of Science conference. While at VCSU, he has also helped to maintain the greenhouse and conducted personal research growing and maintaining a variety of horticultural plants. He also enjoys working with computers and technology and with different embedded systems to create devices that help monitor changes in temperature, humidity, and barometric pressure.

"The professors at this school know you by name and take the time to get to know you, which makes the learning experience that much better."

At Valley City State University, Justin feels he has been granted opportunities to study many different areas than he might have had at larger schools and credits his research with making him a more rounded person academically and personally and with showing him how fun and rewarding research can be. When asked about VCSU's impact, he stated, "VCSU has not only helped me to do better research, but it showed me how great being at a smaller school can be. The professors at this school know you by name and take the time to get to know you, which makes the learning experience that much better." He also wanted to say a special thanks to VCSU Science Chair Dr. Andre Delorme and to Dr. Jerzi Bilski for helping him become academically proficient, and for their and others' part in sparking a lifelong interest in seeking new knowledge and answers.

Justin is currently enrolled in the Dakota Nursing Program through Dakota College at Bottineau on the Valley City State University campus, Justin is from Kathryn, North Dakota. Upon graduation high from Valley City High School in 2008, he served five years in the United States Marine Corps providing security for a nuclear weapon submarine base in Seattle, Washington, and then as an infantryman out of Twentynine Palms, California. While stationed in California, his unit deployed overseas to Sangin, Afghanistan, where he served seven months. Shortly after arriving back to the States, he was honorably discharged and moved back home to pursue a college education.

Faculty and Staff Publications and Presentations

Faculty and staff across campus engage in research to present at conferences or for publication.For a complete list of staff and faculty publications and conference presentations during the 2015–16 academic year, see pages 17–20.

Sam Keasler examines impact of Sulfuric Acid on Global Warming

Aerosol particles are tiny drops of liquid that are light enough to be suspended in the atmosphere. Despite their small size, aerosols have an important role in regulating global climate. Incoming light from the sun can be reflected back to space by aerosol particles, reducing the amount of light that reaches the surface and significantly impacting global temperatures. In addition, the small size of these particles allows them to bypass natural filters in the nose and throat and enter the lungs, where they can cause a wide range of health problems. Despite their importance to medical and climate change research, the ways in which these particles form in the atmosphere are still poorly understood. Dr. Sam Keasler received a grant from the North Dakota INBRE program in 2014 focused on understanding how aerosol particles form. His current research uses computer simulations to understand how sulfuric acid and other pollutants in the atmosphere lead to the production of new aerosols. The main application of this research is to improve models for predicting how climate will change as carbon dioxide concentrations continue to rise. This data can also help to inform policy makers about which pollution control measures will be most helpful for limiting aerosol production and improving public health.

Several VCSU students have been involved in this research, including current students Megan Olson (see page 8), Jacob Schelcht, and recent graduates Samantha Pavlenko and Charlie Johnson. These students have presented the results of this work at the annual INBRE symposium in Grand Forks and the Midwest Undergraduate Computational Chemistry Consortium annual meeting in Evanston, IL. The first journal article based on this research will be submitted later this year.

In addition to his INBRE funded research, Keasler has been involved in a collaboration with Dr. Hilde van Gijssel and one of VCSU's newest faculty members, Dr. Nick Galt, to create a synthetic biology research program at VCSU. The goals of this program are to apply engineering principles to biological systems in order to develop a bacteria that can sense mercury, a harmful environmental contaminant. While current VCSU student Max Kollar has been working with Drs. van Gijssel and Galt on engineering the mercury sensing bacteria, former VCSU student DaveMarth Nagbe worked with Dr. Keasler on using computer modeling to better understand how the mercury sensor works.

Keasler started his higher education at Iowa State University in Ames, Iowa. He earned a B.S. in chemistry in 2005 and had a chance to work on several different undergraduate research projects. These projects not only gave him his first introduction to computer modeling in chemistry, but they also highlighted the impact that research experience can have on undergraduate students. Keasler went south to Louisiana State University in Baton Rouge for his doctoral program, where his research focused on using computer simulations to understand chemical processes in the atmosphere. After completing his Ph.D. in 2010, Keasler moved to the University of Minnesota in Minneapolis, where he spent three years working as a postdoctoral associate. He was involved in several different research projects at Minnesota including the development of improved models for next generation refrigerants, and investigating methods to more economically remove the water from biofuels. In 2013 Keasler joined the science faculty at Valley City State University where, in addition to running his research group, he teaches courses in general, analytical, physical, and inorganic chemistry. Dr. Keasler is always looking for new research students so anyone interested in working on any of these projects should contact him directly.

Music faculty produce album of original compositions

Original compositions by Nicholaus Meyers, assistant professor of music, are featured on a new album titled *Stepping Away*. The album was recorded in Froemke Auditorium on May 13, 2016, and features Geraldine Ong, assistant professor of music, at the piano. The tracks on *Stepping Away* were recorded and mastered by John LeTellier, assistant professor of music and instructor of music technology courses. The equipment used in recording and mastering the album is the same equipment used by students in the Music Recording and Production minor. The artwork for the cover was designed by Shannon Hone, a recent VCSU alumna and percussion student of Meyers. The production of this album, the scholarly equivalent to writing and publishing a book, demonstrates the depth of talent VCSU's Music Department and what can be achieved by faculty working in a collaborative fashion.

John LeTellier, Geraldine Ong, and Nicholaus Meyers

Viking Scholar Bibliography

Student Opportunities for Academic Research (SOAR)

Bruce, Mackenzie. *Does the herbicide 2,4-dichlorophenoxyacetic acid induce epigenetic changes in G12-Chinese hamster ovary cells?* Mentor: Dr. Hilde van Gijssel.

Getzlaff, Alexis. *The pickled fish project.* Mentor: Dr. Casey Williams.

Hovland, Tanner. *Are the multigenerational effects of chlorophenoxy herbicides on development and growth of drosophila melanogaster inherited through the male or female germ line?* Mentor: Dr. Hilde van Gijssel.

Nagbe, DaveMarth. *Analyzing mercury biosensors using computational modeling techniques*. Mentor Dr. Samuel Keasler.

Petersen, Dallas. *The internet of pi*. Mentor: Dr. Curt Hill.

Pilipetskii, Andrei, *Creating a virtual ensemble for online learners*. Mentor: Dr. Nicholaus Meyers.

Swenson, Baylee and Bushaw, Jordan. *The effects of motion sickness in virtual reality environments*. Mentor: Professor Susan Pfeifer.

Scholar Symposium

Bierman, Mattea. *Community parasite loads in bluegill and black crappie populations in Nelson Lake and Fish Creek Dam in North Dakota*. ENGL 410 Technical and Scientific Writing. -Honorable Mention.

Bruenjes, Benjamin; Ryan Hammargren; Jacob Pommerer; and Nicole Willprecht. *Hungry santa*. COMM 314 Public Relations.

Bushaw, Jordan. *DNA: The new Facebook? The ethics and protection of DNA in a technological society*. SE 379 Social Implications of Computers. – Honorable Mention.

Bushaw, Jordan and Baylee Swenson. *The effects of motion sickness in virtual reality environments*. SOAR Undergraduate Research Project. – Viewer's Choice / Honorable Mention.

Cardenas, Alexandra, and Ashley Metcalf. *Las Mariposas Valientes: The courageous Mirabal sisters*. SPAN 320 Introduction to Spanish Literature. – Third Place.

Cleveland, Tarah. *Big data analysis and social media*. SE 379 Social Implications of Computers. – Honorable Mention.

Haley, Deborah. *Developmentally different*. PSYC 250 Developmental Psychology. – Viewer's Choice.

Langdeaux, Richard. *Environmental health-oriented, coal fly ash*. SOAR Undergraduate Research Project. – Honorable Mention.

Langland, Taran. *Drones and their impact on society*. SE 379 Social Implications of Computers. – Honorable Mention.

Limesand, Ashley. *Developmental differences between urban China and rural U.*S. COMM 460 Media Ethics. – Honorable Mention.

Nagbe, DaveMarth. *My life as an illegal immigrant*. COMM 216 Intercultural Communication. – Honorable Mention.

Petersen, Dallas. *Copyright vs. convenience and consumer rights*. SE 379 Social Implications of Computers. – Honorable Mention.

Petersen, Dallas. *The internet of pi*. SOAR Undergraduate Research Project. – Honorable Mention.

Preston, Ethen. *To use live bait or artificial bait: That is the question*. ENGL 410 Technical and Scientific Writing. – Honorable Mention.

Swenson, Baylee. *Ethics and implications of violence and immorality in virtual reality*. SE 379 Social Implications of Computers. – Honorable Mention.

Tangen, Justin. *Using side scanning sonar to map bottom substrate features in North Dakota*. SOAR Undergraduate Research Project. – Honorable Mention.

Zander, Hayden. *Dragonfly distributions in North Dakota*. SOAR Undergraduate Research Project. – Honorable Mention.

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Anderson, Ladonna S. *Can gender bias and stereotyped careers be changed?*

Arnold, Duane W. *Motivating reluctant readers.*

Brown, Jaclyn A. *The effects of "digital book talks" on student reading habits.*

Butler, Andrea M. *Effects of listening to audio recordings on the comprehension of informational texts by English language learners*.

Christensen, Adam L. *Tier II interventions with texting*.

Decker, Kathryn M. *A discriminative study of methods for the qualitative determination of what strategies help students to become more independent readers.*

Driscoll, Jodi R. *A study of the impact of free voluntary reading on achievement and reading motivation.*

Engler, John H. *A study of vocabulary use in technology literacy.*

Farrell-Poncelet, Susan. *Improved reading through technology intervention.*

Fox, Sarah R. *The effects of brain breaks in an elementary setting.*

Grumbo, Jill L. *The effects of web 2.0 tool integration on sixth grade students' information literacy skills acquisition.*

Hatt, Katie Jo. *differences in learner outcomes between face–to–face and asynchronous online nurse assistant students.*

Hendershot, Chauncy J. *Mobile iPad applications effect on student perceptions and assessment scores.*

Heistuman, Laura H. *Will utilizing instructional databases increase the quality of student research?*

Hess, Jennifer A. *Where are all the books?: student perceptions and attitudes about e-books in the school library.*

Hoffer, Lyndsey Michelle. *Effects of classroom environment on student learning.*

Hrdlicka, Leisa M. *First grade math instruction: incorporating whole group, small group, and tiered lessons.*

Inbody, Nathan J. *A research study of methods increasing student visualization of two and three-dimensional representation.*

Isabell, Tonya Madora. *A study to determine the impact of robotics education on student engagement and achievement.*

Jeskey, Michael A. *self-determined goal use during the engineering design process in the middle school technology classroom.*

Jung, Scott M. *A study of the impact using computerized state assessments.*

Keenan, Jack M. *Utilizing screencasting video tutorials as a differentiation aid in the CADD classroom.*

Kenkel, Heather L. *Language supports for English language learners in math word problems.*

Kjemhus, Jessica M. *The relationship between music and students' behavior and academic success.*

Krumwiede, Sarah Beth. *A study on improving students' attitudes toward reading.*

La Vallee, Brian M. *An action research report on the effects of classroom management practices on at-risk students.*

Larson, Doneen R. *Investigating library webpage resources and usage.*

Lingen, Matthew John. *Flipped classroom: the effect on student engagement and learning.*

Lundon, Molly J. *A study on the efficiency of activities in physical education using target heart rate.*

Mackowick, Bradley D. *Motivation of students in Project Lead the Way.*

Mckay, Cynthia J. *A study of the perceptions of block scheduling at Erik Ramstad Middle School.*

Nathe, Karen L. *Effectiveness of computer-based training on student learning.*

Nevins, Lacey Lynn. *Finding the right methods to increase test scores.*

Palmer, Alysa M. *Accelerated Reader: Does it help improve reading scores, student motivation to read, and library circulation?*

Paquin, Ashley Rae. *The flipped classroom instructional approach in an English classroom.*

Range, Kya. *The past, present, and future of the United States: an integration of technology into social studies.*

Schiferl, Abigail. *Can STEM infusion change students' perception towards math?*

Seil, Michele. *Exploring digital periodicals analysis of digital periodicals in promoting recreational reading.*

Shirek, Tara Jo. *The relationship between writing and students' mathematical comprehension.*

Siewert, Angela M. *The efficacy of graphic novels in the English language arts classroom*.

Sitzler, Kelli J. *Lecture-based teaching vs. project-based teaching: which will increase student engagement and achievement?*

Stromme, Kari J. *The effectiveness of the Big 6 Research Model.*

Upton, Michael C. *A study on the effect of Edmodo on student engagement and achievement in high school students.*

Winczewski, Dean A. *Technology and Learning: Effects of iPad technology and application on student engagement and learning.*

Westerhausen, Renita L. *The effects of technology on mathematics in the elementary classroom.*

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Allebach, Robin. *Elisa Mokole guest artist recital & masterclasses*. Valley City State University. March 2016.

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Kuipers, Gilbert. *Global climate change & a personal adventure*. Barnes County Historical Society Lecture Series. Barnes County Historical Society Museum, Valley City, ND. September 2015.

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VanHorn, Shannon. *Embracing assessment: Opportunities via testing, badges, eFolios, and more!* National Communication Association Conference. Las Vegas, NV. November 2015.

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VanHorn, Shannon. *Engaging best work with badges.* Communication, Speech, and Theatre Association of North Dakota Conference, Mandan, ND. September 2015.

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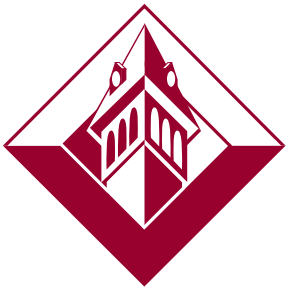

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