NORTHWESTERN STATE
UNIVERSITY OF LOUISIANA

Partial Funding Approved (See At

13-Jan 2024

Internal Use Only

STUDENT TECHNOLOGY FEE
GRANT PROPOSAL REQUEST FORM
FISCAL YEAR 2023-24

ALL BLANKS MUST BE FILLED COMPLETELY

Prepared by: Tara Tietjen-Smith for _____

Department/Unit: HHP College: COEHS Campus: Natchitoches

Which NSTEP Goals/Objectives does this project meet? Goals 1,2,3,4. Obj 1,2,3,8.

Requested equipment will be located/installed/housed? Bldg HHP Room 123C

Does the department receive lab fees? YES ☑ NO ☐

Are department property policies and procedures in place for requested equipment? Yes

Which individual will be responsible for property control of the requested equipment?

Signature: Tara Tietjen-Smith Digitally signed by Tara Tietjen-Smith Date: 2023.11.16 13:02:54 -06'00' Date: 11-16-2023

Proposal Requested Amount: $14,550.96 Budget Attached: YES ☑ NO ☐

Email completed request to Chris Brumley at brumleyc@nsula.edu

Funding from the Student Technology Fee is allocating funds to departments and individual grants, awarded on a competitive basis, which advance the teaching/learning process within the mission of the University. All requests will be considered in this context, as articulated herein and as reflected in the unit's technology plan. Proposals should enable or enhance the ability of Northwestern students to access and assimilate large mounts of information, further their professional competence, and provide state of the art technologies in their field. The nature of, and rationale for, a request for student technology fee allocation must be consistent with the University's and requesting unit's technology plan.

- Grant applications must be submitted by November 16th at 4:00 pm
- Funding decisions will be made during the month of December 2023
- If your grant is approved by STAT, you will be informed via email

STUDENT TECHNOLOGY FEE
GRANT PROPOSAL REQUEST FORM GUIDELINES

The proposal must include all specifications, descriptions, model numbers, quotations, cost, state contract numbers, and vendors for each item. If the proposal does not include all requested information, it will be returned.

1. Describe target audience.
2. Describe project/initiative for which you are requesting funds.
3. State measurable objective that will be used to determine the impact/effectiveness of the project.
4. Indicate how each project objective will be evaluated.
5. If funded, which NSTEP objective(s) will funding of this project advance? How will funding of the project advance the University and College/unit technology plan?
6. Provide a justification for funding of this project. Estimate the number of students that will be served per academic year and in what ways. Please indicate also any unique needs of the target group.
7. List those individuals who will be responsible for the implementation of the project/initiative and indicate their demonstrated abilities to accomplish the objectives of the project.
8. Describe any personnel (technical or otherwise) required to support the project/initiative.
9. Provide a schedule for the implementation and evaluation.
10. Estimate the expected life of hardware and software. Explain any anticipated equipment/software upgrades during the next five (5) years.
11. Explain in detail a plan and policy that will be in place to ensure property security/controls for any equipment received through the Student Technology Fee. If you are requesting equipment that will either be checked out to students or moved within the department, you must provide a checkout/loan policy.
12. Does the department that is requesting equipment receive lab fees? If so, please provide a justification for requesting funds from the Student Technology Fee over using lab fees from your department.
13. Attach a detailed budget.
14. Attach two (2) letters of support for the project from the following individuals: the requesting department's Dean, the appropriate Vice President or student request, the SGA President from the requesting campus.

STUDENT TECHNOLOGY FEE
GRANT PROPOSAL REQUEST FORM

Project: Department of Health & Human Performance – Engagement and Empowerment Initiative (EEI)
Date of Proposal: November 16, 2023

1. **Describe target audience.**

In alignment with NSU's vision, the vision of The Department of Health & Human Performance (HHP) is to "prepare the next generation of global leaders in health sciences, kinesiology, and sport." HHP currently serves approximately 300 undergraduate and graduate students in Health & Exercise Science, Health & Physical Education pedagogy, Sport & Recreation, and Public Health each year as well as numerous additional students in related fields (e.g., nursing, psychology, biology). Many of these students come from rural areas with resource challenges. For instance, over 90% of students attending Natchitoches Parish public schools are classified as "economically disadvantaged" (LDOE, 2023). Propelling these individuals to a better life and as productive members of the health sciences fields is imperative.

Table 1 shows the breakdown of the race/ethnicity and gender of majors in the Department of Health & Human Performance who were enrolled, Fall of 2022. This table is a snapshot of the gender and racial/ethnic breakdown of the Department. Over 50% of students are Male with approximately 42% Black, non-Hispanic. Over 50% of students identify themselves as part of a racial/ethnic minority.

Table 1. Fall 2022 HHP Enrollment by Ethnicity & Gender

		Race/Ethnicity								
Department/ School	Gender	American Indian or Alaskan Native	Asian	Black, non-Hispanic	Hispanic	Foreign/ Non-Resident Alien	Native Hawaiian or Other Pacific Islander	Two or More Races	White, Non-Hispanic	Total
Health & Human Performance	Female	1	0	49	3	8	0	5	66	132 (47%)
	Male	1	0	68	6	4	0	9	61	149 (53%)
	Total	2	0	117 (42%)	9	12	0	14	126 (45%)	281

These numbers are in contrast to NSU as a whole with 25% of students enrolled Fall 2022 being Black, non-Hispanic and 58% White (NSU-OIR, 2023).

Table 2 shows total HP and HED course enrollment during the FY2023 year.

Table 2. Total Course Enrollment in the Department of Health & Human Performance

	Level	FY 2023
# Total Course Enrollment in HHP	Master's	211
	Undergraduate	1759

2. **Describe project/initiative for which you are requesting funds.**

The requested technology is part of a larger project in HHP. The ultimate goals of this project (in alignment with the strategic priorities of the Department and University) are to provide educational access and experiences for rural, underserved populations living in underresourced areas of CenLA and to increase the numbers of underrepresented populations represented as healthcare providers in the CenLA region. In order to meet this goal, the **Engagement and Empowerment Initiative (EEI)** will provide access to and training with modern technology and equipment, increase knowledge about possible careers, create additional relationships between area schools and healthcare providers, create research partnerships and community outreach for students, and offer mentoring and expanded job shadowing opportunities.

Of the approximately 250 undergraduate students enrolled in the B.S. in Health & Exercise Science from freshmen to senior, most are required to observe and/or work in a health sciences-related setting before graduation. At the end of the program students complete an internship. For many, this is their first exposure to various areas of health care sciences careers. Part of their experience here at NSU is developing leadership skills and gaining skills with equipment they might see in their career fields. In order to do that, HHP needs the equipment to propel the program forward. In previous research with the use of VR technology, students (including women and minorities) were more likely to have lower anxiety associated with healthcare and higher self-efficacy about pursuing healthcare careers (e.g., Wyss et al, 2013; Greenidge, 2013; Heaverlo, 2011). They also had greater exposure to the types of careers that are possible thus increasing the likelihood of pursuing a health-related career (Remold et al., 2016). Consequently, virtual reality has been shown to "improve the career self-efficacy of minority students" (Greenidge, 2013, p. 1).

The purchase of the equipment requested will supplement and enhance this initiative for students to gain the following competencies:

a) Increased proficiency and self-efficacy in the use of modern health / exercise sciences equipment commonly used in the field.
b) Professional communication skills, knowledge about healthcare career fields, and soft skills for career development.
c) Improved self-efficacy for personal and professional problem-solving and research skills.
d) Knowledge of healthcare career progression and stacking of credentials to move up the healthcare career ladder.
e) Knowledge of the various career options and the career paths that may be taken, including the ability to ask questions of healthcare professionals about different careers and the healthcare professionals' individual career paths.
f) First-hand observation in both the virtual reality and real-world settings of healthcare careers.
g) Hands-on skills practice of progressive competencies (e.g., CPR, VR simulations).
h) Development of connections with community healthcare professionals.
i) Application of knowledge and skills to research projects and the improvement of the health of community members.

Some examples of capabilities with the projection, smartboard, and VR technology requested in this proposal include the following:

a) Research collaborations with other universities and labs with real-time interactions.
b) Practicing health sciences scenarios through virtual reality.
c) Projecting patient/participant stats to the whole class during a live lab.
d) Improve educational access by hosting guest lecturers via projection and smartboard from other institutions globally.
e) Integration of other technologies during a lab session for use by the instructor.

3. **State measurable objective that will be used to determine the impact/effectiveness of the project. AND 4. Indicate how each project objective will be evaluated.**

The following are goals, objectives, and assessments/evaluations of the Engagement and Empowerment Initiative (EEI). Applications to the requested technology in this proposal are included.

Overall Goal. Improve the education and skills of undergraduate and graduate students from underserved and under-resourced areas.

Objective 1: Provide exposure to, education about, and skills with modern technology, physiological equipment, and related experiences.

O1Measure #1:
Broaden the exercise physiology and applied neuromuscular physiology labs as service-learning labs where students are trained on current, state-of-the art equipment. Completed purchase of equipment and integration of use into coursework to be measured by delivery of new equipment, training by faculty, and integration into coursework.

a. Purchase, delivery, and installation of equipment.
b. 100% of health and exercise sciences' faculty will complete training modules on all technological equipment.
c. After completion of training, faculty will integrate equipment into 100% of the Department's health sciences-related courses utilizing the Exercise Physiology Lab.

O1Measure #2:
Student participation and completion of course modules related to equipment as measured by scores on class activities. Skill and/or research practice will be gained through the courses during labs and other course activities.

a. Tracking mastery of skills using the new equipment during coursework modules.
    i. 100% of students completing the following courses, HP 3550, HP 3560, HP 4150, HP 4170, HED 5370, HP 5690, and HED 5470 will be proficient in the use of related health sciences lab equipment and VR training modules as evidenced by their successful completion of assignments and activities in the courses.

Objective 2: Improve program graduates' chances of being successful in their careers.

O2Measure #1:
Graduates of the B.S. in Health & Exercise Sciences degree program will successfully complete student learning outcomes in the following courses HP 3550, HP 3560, HP 4150, and HP 4170.

O2Measure #2:
Student self-efficacy in the use of various health sciences equipment will be analyzed via pre-and post-test in the following courses: HP 3550, HP 3560, HP 4150, and HP 4170. 90% of students participating in VR modules will report improved self-efficacy related to health sciences technology.

5. **If funded, which NSTEP objective(s) will funding of this project advance? How will funding of the project advance the University and College/unit technology plan?**
   The following objectives will advance with funding of this project:
   - Objective 1. To improve access to technology by students, faculty, and staff at Northwestern State University.
   - Objective 2. To provide classrooms with updated technology and multimedia.
   - Objective 3. To upgrade laboratories with modern technology.
   - Objective 8. To encourage innovation and research.

6. **Provide a justification for funding of this project. Estimate the number of students that will be served per academic year and in what ways. Please indicate also any unique needs of the target group.**

The proposed technology is part of a larger purpose of implementation of an Engagement and Empowerment Initiative (EEI) in the Department of Health & Human Performance. The requested purchases are in line with the strategic priorities of the Department of Health & Human Performance including the following:

(1) Provide access, opportunities, and experiences to students of Natchitoches parish and surrounding communities (Central Louisiana; CenLA) to support underrepresented students in underresourced areas of CenLA and help them be competitive in their future careers and succeed beyond the university experience. These include improving HHP building physical structure and functionality, purchasing updated equipment for the Exercise Physiology and Applied Neuromuscular Physiology laboratories, hiring preeminent faculty with the desire to engage students in practical, service-learning experiences, and providing opportunities for interdisciplinary study and research, both domestic and international.

(2) Engage students in interactions with healthcare professionals and educators, gaining practical experiences through on-site and remote observation and mentoring experiences, and participating in learning labs that provide hands-on experiences that allow students to explore their interest in various healthcare fields.

The requests of this grant to support the implementation of the EEI meet the majority of these HHP strategic priorities for providing educational access and experiences for underserved populations living in underresourced areas of CenLA and to increase the numbers of underrepresented populations represented in health sciences careers in the CenLA region. Table 3 shows the projected number of NSU students impacted over a 5-year period.

Table 3. Projections of Students Impacted over a 5-year Period.

Student Level	# Current and Projected Students Impacted				
	Year 1 2024 - 2025	**Year 2 2025 - 2026**	**Year 3 2026 – 2027**	**Year 4 2027 - 2028**	**Year 5 2028 - 2029**
HHP Undergraduate*	190 of 266	266 of 266 (65 new freshmen)	266 of 266 (65 new)	266 of 266 (65 new)	266 of 266 (65 new)
HHP Graduate	8 of 47	12 of 47	16 of 47	20 of 47	20 of 47
NSU Students in related programs**	100 of 344	110 of 344	130 of 344	150 of 344	170 of 344
Total Projected Students Impacted Over a 5-year Period					772

Note: Projected student data from NSU Institutional Effectiveness (2023)
*Note 2: 266 is the average number of students enrolled in HHP courses over the last 5 years.
**Note 3: 877 is the average number of students enrolled in HHP classes, with 344 in related programs over the last 5 years.

Projections are made without changing total enrollment over the 5-year period. Only graduate students in some HHP concentrations will benefit (public health and exercise physiology). The approximate number of HHP Undergraduate students per year is also included.

7. **List those individuals who will be responsible for the implementation of the project/initiative and indicate their demonstrated abilities to accomplish the objectives of the project.**

Dr. Tara Tietjen-Smith will oversee all parts of the project. Dr. Tara Tietjen-Smith will oversee all project initiation, maintenance, and evaluation. She has experience in purchasing, utilizing and maintaining a plethora of equipment. She oversaw a brand new $54 million Nursing & Health Sciences building and related equipment at her previous place of employment. She will oversee the projection smartboard and related equipment. The following are related courses (and equipment) that have been taught by Dr. Tietjen-Smith: Exercise Physiology; Biomechanics; Anatomy & Physiology; Motor Learning; Epidemiology; Tests & Measures; Research Methods; Statistics; Theses and Dissertation Advisor; First Aid & CPR; Personal and Community Health; Nutrition and Optimal Performance; Health and Exercise Psychology.

Dr. Jackie Calhoun, Dr. Erick Kigen, and Dr. Sunggun Jeon will assist Dr. Tietjen-Smith with the integration of equipment into related coursework and research projects. Dr. Sunggun has a Ph.D. in Health & Human Performance and has taught the following related courses: Physiology of Exercise; Physiology of Exercise Laboratory; Evaluation & Exercise Prescription in Health Promotion; Medical Terminology; Allied Health Terminology; Principles of Exercise Testing and Prescription; Therapeutic Exercise and Fitness; Health and Exercise; Physical Fitness. Dr. Kigen holds a Ph.D. in Health & Human Performance. He is the director of the Exercise Physiology Laboratory and has taught the following related coursework: Exercise Prescription and Program Planning, Principles of Exercise Assessments in Healthy and Special

Populations, Physiology of Exercise, Physiology of Exercise Laboratory, Evaluation Performance and Resistance Training, Applied Research in Exercise Science.

Dr. Calhoun will also help Dr. Tietjen-Smith maintain the Occulus (Virtual Reality [VR]), system. She holds a Ph.D. in Kinesiology, has worked for Career Compass, and has taught the following related courses: Evaluation and Exercise Prescription in Health Promotion; Implementing and Evaluating of Health Promotion Programs; Planning and Organizing Health Promotion Programs; Health & Exercise Psychology; Exercise Physiology and Laboratory; Applied Kinesiology; Community Health Promotion; Motor Learning and Development; Essentials of Sport Performance Training; Psychosocial Aspects of Physical Activity; Tests and Measurements in Kinesiology Laboratory; Human Anatomy Laboratory; Medical Terminology

8. **Describe any personnel (technical or otherwise) required to support the project/initiative.**

University IT personnel will be consulted in case of issues with equipment. Installation companies will provide training on equipment and help with maintenance. Equipment and technology come with warranties that provide support.

9. **Provide a schedule for the implementation and evaluation.**

Goals and Objectives	Activities for Achievement	Benchmark	Person responsible	Schedule / Due Date
Goal A. Improve the education and skills of undergraduate and graduate students from underserved and under-resourced areas.				
O1: Provide exposure to, education about, and skills with current, physiological equipment and experiences.				
O1Measure #1: Completed purchase of equipment and integration of use into coursework to be measured by delivery of new equipment, training by faculty, and integration into coursework.	Complete purchase and delivery of equipment.	Purchased equipment is delivered and installed.	Tara Tietjen-Smith	February 2024
	Integration of new equipment into coursework	Addition of labs and activities (using equipment in related phases) to syllabi of coursework.	Erick Kigen (HED 3100, 5470; HP 3560, 4660 Jackie Calhoun (HED 4000, HP 3310, 2630, 2000, 5990) Sunggun Jeon (HP 3550, 4150, 4170) Tara Tietjen-Smith (HED 5370, 5980; HP 5690, 5020)	New technology will be pilot tested during March and April 2024. Full implementation is targeted for Summer I 2024.
	100% of health and exercise sciences' faculty will complete training modules on all equipment.	Completion certificates on each piece of equipment by March 2024	Erick Kigen Jackie Calhoun Sunggun Jeon Tara Tietjen-Smith Tara Tietjen-Smith will keep a file of completion certificates.	March 30, 2024
O1Measure #2: Student participation and completion of course modules related to	Tracking mastery of skills using the new equipment during coursework	100% of students completing the following courses, HP 3550, HP 3560, HP	The instructors of each course.	Measured August 2024; December 2024; 1-year report May 2025; Then

equipment as measured by scores on class activities. Skill and/or research practice will be gained through the courses during labs and other course activities.	modules in courses related to their programs, specifically focusing on HP 3550, HP 3560, HP 4150, HP 4170, HED 5370, HP 5690, and HED 5470.	4150, HP 4170, HED 5370, HP 5690, and HED 5470 will experience VR simulations and attend classes and collaborative meetings with smartboard.	A final report will be compiled by Tara Tietjen-Smith	every semester thereafter.
O2: Improve program graduates' chances of being successful in their careers.				
O2Measure #1: Graduates of the B.S. in Health & Exercise Sciences degree program will successfully complete student learning outcomes in the following courses HP 3550, HP 3560, HP 4150, HP 4170.	100% of students successfully completing these courses will meet the student learning outcomes related to each course.	Student scores on benchmark assignments and tests.	The instructors of each course will determine assignments. A final report will be compiled by Tara Tietjen-Smith	Each semester, starting August 2024.
O2Measure #2: Graduates of program will experience increased self-efficacy on the utilization of health sciences equipment.	90% or more students graduating from the B.S. in Health & Exercise Sciences program will experience increased self-efficacy.	Benchmark is 90% or more. Students will be given a pre-test at the beginning of class and a post-test at the end of the semester.	Instructors of the following courses will report pre-and post-self-efficacy scores: HP 3550, 3560, 4170	Scores will be reported at the end of each semester.

10. **Estimate the expected life of hardware and software. Explain any anticipated equipment/ software upgrades during the next five (5) years.**

According to the manufacturer, the smartboard has a life of 3 to 5 years with available upgrades. The AV Equipment is projected to last 3 to 4 years or until warranty runs out. The PC has a projected lifespan of 5 to 8 years. The Apple TV last for up to 3 years and is covered under AppleCare until then (Apple, 2023).

The VR Headsets and accessories' expected life depends on amount of use. The focus of these units is "to enable gaming, video viewing, 3D video viewing, and picture viewing without interruption for a period of one hour per day during one year. The reference lifetime is three years" (Andrae, 2017, p. 15). New software updates are available with second generation Meta Quest devices which can lengthen this time.

Reference: Andrae, A.S.G. (2017). Life Cycle Assessment of a Virtual Reality Device. *Challenges*, 8, 15. https://doi.org/10.3390/challe8020015

11. **Explain in detail a plan and policy that will be in place to ensure property security/controls for any equipment received through the Student Technology Fee.**

Equipment will be housed in the Exercise Physiology lab in the Department of Health & Human Performance. Doors are locked and secured when equipment is not in use. Dr. Tara Tietjen-Smith will

be responsible for maintaining security of equipment and the overall building with Tammy Dobson, HHP Administrative Assistant, serving as a secondary contact. A policy will be in place to log out of software and equipment at end of use for safety of data.

12. **Does the department that is requesting equipment receive lab fees? If so, please provide a justification for requesting funds from the Student Technology Fee over using lab fees from your department.**

The only lab fees our department receives are for 3 classes at $10 each. These funds are used for maintenance and replacement of first aid and CPR equipment as well as existing lab equipment. The equipment requested in this proposal will allow us to begin the modernization of our lab and improve functionality. It will also allow students to work with experts from all over the world and interact with students at other institutions or in other research labs. We will also be able to include high school (and HHP) students in virtual health sciences training experiences that can help with recruitment and retention. This would help to "even the playing field" for our students to compete with students from other institutions in the job market.

13. **Attach a detailed budget.** (Please see attachments for details on quotes.)

Projection and Smartboard for Physiology Lab-Bluum Technology		
Line# 1108542 Interactive Panel 10- Interactive Flat Panel, Large	$4,200	
1 LA State Contract - Mount Category	195.3	
AV Camera	$1,751.20	
Room controller	580.3	
PowerSurge 01	15.39	
Wall Plate	63	
AV Cable	245	
Bluum Technology Installation and Systems Testing/Training	2,250	
		$9,300.19
Computer and Apple TV – Works with Bluum Technology System		
Dell Micro computer, mount, USB extension cable- OptiPlex Micro Plus	1,212.43	
Apple TV 4K WiFi plus Ethernet 128GB Storage - AppleCare +	178	
		$1390.43
Meta Quest Pro (Occulus): Virtual Reality Headset Gear, Accessories		
Incase Carry Case for Meta Quest Pro	119.95	
Meta Quest Pro Full Light Blocker	49.95	
Meta Quest Pro	999.99	
Total for 3 sets		$3860.34
TOTAL COST OF GRANT PROPOSAL		$14,550.96
HHP Courses in which Bluum Technology Projection and Smartboard, Computer, Apple TV, and Meta Quest Pro Virtual Reality Headset Gear/Accessories are projected to be used:		

HED 1010	First Aid & CPR
HED 1090	Personal & Community Health
HED 2010	Prevention & Care of Athletic Injuries
HED 3000	Community Health Promotion
HED 3100	Nutrition & Optimal Performance
HED 3010	Advanced Athletic Training
HP 3550	Applied Kinesiology & Biomechanics
HED 4000	Health & Exercise Psychology
HP 2000	Introduction to Health & Human Performance
HP 2630	Motor Learning & Development
HP 3310	Sport Psychology
HP 4150	Tests and Measures in Health & Physical Education
HP 4170	Testing, Evaluation, & Prescription of Exercise in HHP
HP 3560	Exercise Physiology
HP 4000	Intro to Adapted Physical Education
HP 4660	Scientific Principles of Strength & Conditioning
HED 5370	Research Project in Public Health
HP 5690	Research Project in HHP
HP 5020	Research Methods in HHP
HED 5470	Evaluation & Exercise Prescription
HED 5980	Thesis in Public Health
HP 5990	Thesis

14. **Attach two (2) letters of support for the project from the following individuals: the requesting department's Dean, the appropriate Vice President or student request, the SGA President from the requesting campus.**

Please see attached letters of support from Dr. Neeru Deep, Interim Dean of GCEHD, and Dr. Greg Handel, Provost and Vice-President of Academic Affairs.

Proposal

Proposal Number
2111375618

Account Number/Name
736669
NORTHWESTERN STATE UNIVERSITY

Created On
09/25/2023

Created By
Alfred Ehlers

Thank you for creating your proposal, details are provided below. You can access this proposal from your Apple Store for Education Institution by searching proposal number 2111375618.

Comments from Proposer:

HHP 123C Apple TV

Item	Product / Description	Total Quantity	Unit Price	Total Price
1	MN893LL/A Apple TV 4K Wi-Fi + Ethernet with 128GB storage	1	149.00	149.00 USD
2	S9632LL/A AppleCare+ for Apple TV	1	29.00	29.00 USD

Subtotal	178.00 USD
Estimated Tax	0.00 USD
Total	178.00 USD

Please note that your order subtotal does not include sales tax or rebates. Sales tax and rebates, if applicable, will be added when your order is processed. Your order total may include estimated sales tax that is subject to change at the time your order is processed.

How to Order

If you would like to convert this Proposal to an order, log into your Apple Store for Education Institution and select 'Proposal' from the pull-down menu. Search for this Proposal by entering the Proposal Number referenced above.

Note: A Purchaser login is required to order. Visit your Apple Store for Education Institution to login

or create your Purchaser Apple ID.

The prices and specifications above correspond to those valid at the time the Proposal was created and are subject to change. Purchases are subject to the terms and conditions of your agreement with Apple and the Apple Store for Education Institution.

Fw: Dell Computer - Saved Quote Information -3000161594325

Alfred Ehlers

Mon 9/25/2023 3:40 PM

To:Chris P. Brumley <brumleyc@nsula.edu>

Attached is the Micro computer, mount and USB extension cable quote for HHP 123C.

Thanks,

Alfred Ehlers
Instructional Technology & Student Support
Northwestern State University
Watson Library Room 113C
Natchitoches, LA 71497
Phone: 318-357-6482
Fax: 318-357-6480

From: Dell (please do not reply) <automated_email@dell.com> on behalf of Dell Inc. <dell_automated_email@dell.com>
Sent: Monday, September 25, 2023 3:37 PM
To: Alfred Ehlers <ehlersa@nsula.edu>
Subject: Dell Computer - Saved Quote Information -3000161594325

You have saved an eQuote 3000161594325

An eQuote is now saved in your Dell Online Store.
This will be held for 30 days and will expire on 10/25/2023

Your eQuote has been sent to:

Emailed to: ehlersa@nsula.edu
ehlersa@nsula.edu

To retrieve this eQuote

Login to Premier
Sign in to Northwestern State University NASPO ValuePoint 4400002525 / WN14AGW
Click on "Quotes" in the top menu bar and search for eQuote number 3000161594325

eQuote Name	NSU-HHP-123C
Saved By	ehlersa@nsula.edu
eQuote Description	HHP 123C Micro, Mount & USB Extension Cable

Authorized Buyer	
Notes/Comments	
Account Name	Northwestern State University NASPO ValuePoint 4400002525 / WN14AGW
Contract Code	C000000010742
Contract Name	Dell NASPO Computer Equipment PA - State of LA
Customer Agreement #	MNWNC-108/4400002525
State Contract	70137

Shipping Info

Purchasing Office
998 South Jefferson
Central Receiving
NATCHITOCHES, LA 71497-0001
(318) 357-4496

Billing Info

ACCOUNTS PAYABLE
PO BOX 5655
ST DENIS HALL
NATCHITOCHES, LA 71497-0001

eQuote Summary

Description	Quantity	Unit Price	Subtotal
Dell Wall/Under-the-Desk VESA Mount w/ PSU Sleeve - MFF/TC/CFF	**1**	**$37.49**	**$37.49**
C2G 1m USB Extension Cable - USB 2.0 A to USB - M/F - USB extension cable - USB (M) to USB (F) - 3.3 ft - black	**1**	**$9.45**	**$9.45**
OptiPlex Micro Plus - Build Your Own	**1**	**$1,165.49**	**$1,165.49**

Non Taxable Amount	$1,212.43
eQuote Subtotal	$1,212.43
Shipping*	$0.00
Shipping Discount*	$0.00
Tax*	$0.00
Environmental Disposal Fee*	$0.00

eQuote Total* **$1,212.43**

*The eQuote total, including applicable taxes and additional fees, may be viewable online.

Note: Your order may contain one or more items which are billed on a recurring basis. See Important Notes for details on your specific offering and, for customers with auto-renewing subscriptions, how to turn off automatic renewal.

eQuote Details

Description	Quantity	Price
452-BDUY | Dell Wall/Under-the-Desk VESA Mount w/ PSU Sleeve - MFF/TC/CFF	1	$49.99
Premier Discount		$12.50
		$37.49

Module	Description	Product Code	Sku	ID
Dell Wall/Under-the-Desk VESA Mount w/ PSU Sleeve - MFF/TC/CFF			[452-BDUY]	

A7011272 | C2G 1m USB Extension Cable - USB 2.0 A to USB - M/F - USB extension cable - USB (M) to USB (F) - 3.3 ft - black	1	$10.99
Premier Discount		$1.54
		$9.45

Module	Description	Product Code	Sku	ID
C2G 1m USB Extension Cable - USB 2.0 A to USB - M/F - USB extension cable - USB (M) to USB (F) - 3.3 ft - black			[A7011272]	

xctoomffphusr | OptiPlex Micro Plus - Build Your Own	**1**	**$2,099.99**
Premier Discount		**$934.50**
		$1,165.49

Module	Description	Product Code	Sku	ID
Keyboard	Dell Pro Wireless Keyboard and Mouse - KM5221W - English - Black	GX0V4JP	[580-AJJG]	4
Mouse	Mouse included with Keyboard	GU54MYP	[570-AADI]	12
Back Cover	No Cable Cover	GDT2C7Z	[325-BCZQ]	376
OptiPlex Micro (Plus 7010)	OptiPlex Micro (Plus 7010)	GGH4W8S	[210-BFXT]	1
Processor	13th Gen Intel® Core™ i5-13500T (24 MB cache, 14 cores, 20 threads, 1.60 GHz to 4.60 GHz Turbo, 35W)	GUT9F1M	[338-CHBX]	146
Operating System	Windows 11 Pro, English, Brazilian Portuguese, French, Spanish	G01OVWE	[619-ARSB]	11
Microsoft Application Software	No Microsoft Office License included	GC7OFJV	[658-BCSB]	1002
Memory	16 GB: 1 x 16 GB, DDR5	GU3F01C	[370-AGWU]	3
Hard Drive	256 GB, M.2 2230, PCIe NVMe, SSD, Class 35	G52ZTP3	[400-BOQJ] [773-BBBC]	8

Additional Hard Drive	No Additional Hard Drive	G780XKR	[401-AANH]	637
Chassis Options	OptiPlex Micro Plus with 35W CPU	GJAOF9R	[329-BHPL]	116
Power Supply	180 Watt A/C Adapter, TCO Compliant	G09XE3K	[450-BBBM]	1015
Power Cord	Power Cord (US) for 180W Adapter	G1S6LHJ	[450-AAZN]	20
Wireless	Intel® Wi-Fi 6E AX211, 2x2, 802.11ax, Bluetooth® wireless card, internal antenna	G9DTOIU	[555-BHDU] [555-BHDV]	19
Wireless Driver	Wireless Driver, Intel AX211	G84V91T	[555-BIIO]	7
Serial Port Adapter	No PCIe add-in-card	GVEYOQ7	[492-BBFF]	698
Additional Video Ports	Optional HDMI Port	GP5O9BQ	[382-BBLO]	495
Software Stack	Dell Additional Software	GJAR81X	[658-BFPY]	1003
Operating System Recovery Options	OS-Windows Media Not Included	GLA9OQ1	[620-AALW]	200013
ENERGY STAR	ENERGY STAR Qualified	G6J34SM	[387-BBLW]	122
Documentation	Safety/Environment and Regulatory Guide (English/French Multi-language)	G7RB0GY	[340-AGIK]	21
System Monitoring Options	System Monitoring not selected in this configuration	GITYA2H	[817-BBSI]	39
Placemat	Quick Start Guide, OptiPlex Micro Plus	GEWTK82	[340-DDHH]	60
EAN/UPC Labels	No UPC Label	G8WGTYN	[389-BCGW]	292
TPM Security	Trusted Platform Module (Discrete TPM Enabled)	GJMDKT6	[329-BBJL]	297
Shipping Material	Shipping Material	GQKNZ4O	[340-CQYN] [389-BBUU]	465
Label	FSJ Reg label 180W adaptor	GAY576X	[389-FBSK]	676
Processor Label	Intel® Core™ i5 Processor Label	G2HQMXF	[340-CUEW]	749
Transportation from ODM to region	Standard shipment	GQT8IGC	[800-BBIO]	200080
Protect your new PC	No anti-virus software	GD4K19S	[650-AAAM]	1014
Stands and Mounts	No Stand or Mount	GJO5ZSE	[575-BBBI]	558
Adapter	No Additional Cable	GIX0L8M	[379-BBCY]	592
External Speakers	No External Speaker	GTNM7E2	[817-BBBC]	200095
FGA Module	No FGA	NOFGA	[817-BBBB]	572

Windows AutoPilot	No AutoPilot	GYEO2AP	[340-CKSZ]	291
TAA	No Federal Order	GUSA19Y	[340-ACQQ]	97
EPEAT 2018	EPEAT 2018 Registered (Gold)	GBU8CHM	[379-BDZB]	200331
Speakers	No Internal Speaker	GK95QLS	[520-AARK]	18
Systems Management	No Out-of-Band Systems Management	GZRBP6I	[631-ADQI]	49
Raid Connectivity	NO RAID	GX5Q06T	[817-BBBN]	1009
Intel Responsiveness Technologies	Intel® Rapid Storage Technology Driver MFF	GEY3LQM	[658-BFQK]	707
Service	5Y ProSupport Plus Next Business Day Onsite with In-Region HW-SW Support and AD and KYHD	G87TIGK	[812-3886] [812-3938] [812-3939] [812-3940] [812-3941] [997-8367]	29
Accidental Damage	No Accidental Damage Selected	NOAD	[981-4619]	33

Non Taxable Amount	$1,212.43
eQuote Subtotal	$1,212.43
Shipping*	$0.00
Shipping Discount*	$0.00
Tax*	$0.00
Environmental Disposal Fee*	$0.00
eQuote Total*	**$1,212.43**

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Qty	Item	MFG	Price	Ext. Price
	Client will supply Dell Micro PC, Wireless Mouse/Keyboard Combo & Apple TV			
1	**LA State Contract - Interactive Flat Panel Category** Line# 1108542 Interactive Panel 10- Interactive Flat Panel, Large		$4,200.00	$4,200.00
1	**LA State Contract - Mount Category** Line# 1108423 Mount 07		$195.30	$195.30
1	**LA State Contract - AV Camera Category** Line# 1108803 A/V Camera 13		$1,751.20	$1,751.20
1	**LA State Contract - Control Category** Line# 1108487 Control 08- Room Controller		$580.30	$580.30
1	**LA State Contract - Power Surge Category** Line# 1108477 PowerSurge 01		$15.39	$15.39
1	**LA State Contract - Wall Plate Category** Line# 1108569 AVWP 04- Wall Plate		$63.00	$63.00
7	**LA State Contract - AV Cable Category** Line# 1108551 AVCBL01- Interconnect Cables		$35.00	$245.00
25	**LA State Contract - Install Category** Line# 1150806 Installation & System Testing		$90.00	$2,250.00

Subtotal	$9,300.19
Tax Total	$0.00
Shipping Cost	$0.00
Total	$9,300.19

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Meta Quest 2 Elite Strap with Battery
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Quantity: 1

Meta Quest 2 256GB
Est. delivery: Wed, Nov 15

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Quantity: 2

Anker Charging Dock for Meta Quest 2
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Subtotal	$1,198.93
Add promo code	
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Total	**$1,297.32**
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EDUCATION AND TRAINING

Virtual reality and the transformation of medical education

Author: Jack Pottle[A]

ABSTRACT

Medical education is changing. Simulation is increasingly becoming a cornerstone of clinical training and, though effective, is resource intensive. With increasing pressures on budgets and standardisation, virtual reality (VR) is emerging as a new method of delivering simulation. VR offers benefits for learners and educators, delivering cost-effective, repeatable, standardised clinical training on demand. A large body of evidence supports VR simulation in all industries, including healthcare. Though VR is not a panacea, it is a powerful educational tool for defined learning objectives and implementation is growing worldwide. The future of VR lies in its ongoing integration into curricula and with technological developments that allow shared simulated clinical experiences. This will facilitate quality interprofessional education at scale, independent of geography, and transform how we deliver education to the clinicians of the future.

KEYWORDS: Virtual reality, medical education, nursing education, simulation, innovation

Introduction

The pace of change in medical practice is relentless. The complex needs of an ageing population, the range of treatment options available, the interprofessional nature of care and the complexity of healthcare systems themselves are vastly different today than they were 20 years ago.

As such, how we prepare future clinicians for practice has had to adapt. It is no longer a question of whether an individual can retain or access facts, but how they use them, evaluate them and apply them to patient care.

There is therefore a move to replace rote learning with more clinically relevant and practical teaching. Problem-based learning, communication skills training and simulation-based learning have all entered curricula. With the increasing drive to provide clinical learning experiences, and the inherent difficulties in doing so, simulation in particular has gained momentum as a method of delivering experiential learning.

Simulation is an educational technique that involves creating situations that replicate real life, letting a learner act as they would do in real life, then providing feedback and debrief on performance. Simulation is effective in many domains and has been found to be 'superior to traditional clinical education, producing powerful educational interventions that yield immediate and lasting results.'[1]

However, while simulation is becoming central to healthcare education, it requires significantly more resources than traditional education. At a time when healthcare systems and educational institutions globally are struggling with growing demands and limited budgets, additional resources are hard to come by.

Fortunately, there has been a recent dramatic expansion in the ways in which we can deliver medical education. This has not only been through the internet and mobile devices, but through immersive technologies. These technologies – including augmented reality (AR) and virtual reality (VR) – can transform how we deliver educational experiences.

VR in particular has been adopted across medical and nursing fields. VR involves the user putting on a VR headset to become completely immersed in an interactive virtual environment. When used with appropriate educational software, this allows the user to *learn from experience* in the virtual world. This paper outlines what VR is; its strengths, its weaknesses, the evidence behind it, its use in practice and where the future lies.

What is virtual reality?

VR is the use of software to create an immersive simulated environment. Unlike traditional user interfaces, to experience VR, users put on head-mounted display (HMD) which places the user inside an experience, where they can engage with the environment and virtual characters in a way that feels real. VR has a unique power, more than any other technology that has ever existed, to make users *believe* they are in a different environment. This allows them to learn from experience as they would do in real life.[2] This ability to deliver experiences on demand is where the power of VR lies.

Screen-based learning

Confusingly, screen-based learning has previously been referred to as 'virtual reality' in the medical literature. However, there is now an understanding that the value of virtual reality comes from immersion and the sense of presence – the feeling of 'being there' – that it generates.[3,4] As such, only VR that is immersive – using headsets that completely block out the real world – is now referred to as 'virtual reality'.

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360-video

360-video is a method of filming in 360 degrees to create a complete picture of the environment. To record 360-video, a camera is used that can film in every direction at once. Such recordings can then be viewed using a VR headset, allowing the viewer to feel like they are in the middle of the film. 360-video is a suitable medium if the aim is to provide the learner with a non-interactive experience of an environment. Examples of use include using 360-video to immerse patients in new virtual worlds to distract them during painful procedures.

However, 360-video is a largely passive experience. Viewers cannot interact realistically as the video is purely a linear recording, nor can they move realistically as the video is recorded from one location. This disconnect between the user's movement in the real world with their lack of movement in the virtual world can also lead to a sense of nausea in 360-video.

Interactive VR

By contrast, interactive VR involves a totally immersive, dynamic, adaptive, interactive world.

If you can imagine being *in* a highly realistic computer game, you will have some approximation of what VR feels like. In the context of medical training this can include virtual wards, interactive patients, colleagues and relatives, with interaction similar to the real world.

For example, in a scenario of a patient with chest pain presenting to the emergency department (ED), the learner can be in the virtual ED, moving and interacting with the virtual environment and patient as they would in real life. They can take a history, examine, investigate, diagnose and treat the patient. Family members and an interdisciplinary team can be added, with everything from patient observations to blood gases to realistic conversation adapting dynamically, as in real life. Patients can become confused, agitated and look physically unwell, while the bustle of a virtual hospital and emotional engagement with emergency scenarios and lifelike characters in real time builds a sense of stress.

The focus in such scenarios is on decision making, critical thinking and clinical reasoning, with scenarios being designed to replicate human interaction in the real world.

Once scenarios are completed, learners can receive virtual debriefing and view automatically-generated feedback on their performance. This feedback and debrief is central to the learning outcomes in any simulation, whether delivered in VR or through a manikin. In VR, feedback can be provided on technical and non-technical skills carried out in the simulation relative to best practice. This allows learners to examine their performance in more detail and provides the opportunity for blended learning. It also facilitates peer learning as learners can share feedback with their colleagues and mentors as a basis for discussing specific learning points.

Companies, such as Oxford Medical Simulation, are already delivering such platforms globally, with scenarios covering medicine, nursing, paediatrics, psychiatry, and community health, with content expanding across fields.

What can VR offer?

VR offers distinct benefits for learners, faculty and the health system.

For learners, VR makes accessing clinical experiences simple. VR systems usually comprise a headset and laptop combination. They are commercially available, so are simple to setup, and designed for ease and safety of use. Many VR systems work with no faculty required. Learners can go to the VR system and take part in simulation whenever they like. This is not confined to large centres or high setup budgets so allows for much broader, flexible access.

This flexibility of access allows the integration of simulation-based education into everyday practice. Simulation can become a regular occurrence around other learning activities – more like going to the gym than a one-off faculty-heavy training day.

Vitally, VR scenarios are repeatable. This allows learners to make mistakes safely and then learn through deliberate practice to improve performance. This has been noted as one of the central features to successful simulation but one that cannot be accomplished with the space, time and faculty requirements of many simulation centres.[5]

In addition, the psychological safety, enjoyable nature and potential for gamification of VR encourages engagement and autonomous learning.

From an institutional standpoint, VR allows simulation to be delivered at reduced cost with fewer resources. The costs of physical simulation vary widely between institutions and defining the cost of physical simulation is complex. In medical education and simulation, costs are often difficult to assess and, when attempts are made, are frequently under-reported.[6,7]

Those studies that do attempt to define the cost of fully immersive medical simulation approximate that for one learner to lead one simulation scenario costs over £200; for example, McIntosh concludes 'Set up cost was US$876,485 [£758,300] (renovation of existing facility, equipment). Fixed costs per year totalled $361,425 [£275,000]. Variable costs totalled $311 [£237] per course hour' and Iglesias-Vázquez states that the 'cost of ALS [advanced life support] simulation for a 4-day course is €1,320 [£1,140] per passed participant.'[8,9]

Virtual simulation costs often comprises hardware and software. High-end VR hardware costs approximately £3,000 for a setup (laptop and headset). Software costs depend on provider and quality of product, but is frequently under one-tenth of the cost of physical simulation independent of provider.[10] As such, there are substantial setup and running cost savings to be made with virtual reality.

As well as financial savings, such technologies free up space and faculty time. Faculty do not necessarily need extra training to be able to use the VR equipment – most is commercially available hardware and intuitive software. Once running, some VR setups require a faculty member to be present, others do not, and faculty input is often dictated by specific use cases of the given VR system.

VR can deliver the clinical scenario in a small space (2 x 2 m) with under 5 minutes of setup. This simplicity of use allows other simulation activities to take place in a centre while VR simulation is occurring. This can include more faculty focus on advanced communication skills or *in situ* simulation, neither of which is well-suited to VR.

Any virtual scenario should also be objective and standardised, ensuring consistent quality and adherence to protocols, so institutions can embed their latest protocols and ensure clinicians have practiced using them prior to seeing patients.

Additionally, many immersive systems allow the creation of bespoke simulation curricula to meet specific needs. These systems can also generate large amounts of performance data. This data is valuable for ensuring utilisation, encouraging learner engagement and for identifying struggling students who may benefit from further training.

Finally, from a global health perspective, this reduction in cost and equity of access allows simulation to be distributed globally. This potential to democratise the availability of quality medical training makes VR an exciting prospect in healthcare training.

What are the drawbacks?

Despite the advantages, VR simulation is not a panacea. Rather, it is a tool used to accomplish a defined set of learning outcomes and should be deployed as such, integrated within an institution's curriculum and pedagogy to ensure effective use.

For example, VR is not suitable for every possible educational opportunity. It is not the best way to teach abdominal palpation; there is no need for complex immersion in this situation, just an accurate physical representation of an abdomen. The same applies for part task training, such as cannulation or many other procedural skills.

Virtual characters are often controlled by artificial intelligence (AI) systems. Though this is developing fast, it not yet suitable for certain learning objectives, such as breaking bad news. The complexities of language processing and facial expressions are, at present, best covered by a human rather than a virtual patient.

Educational barriers aside, there are difficulties with any new technology, implementing it requires faculty support. It can be difficult for faculty to engage more senior members, as they may see VR as a game, rather than an educational tool. However, many companies provide trial periods to allow educators to become comfortable with the technology, and fear of VR becomes less of an issue as its use becomes more widespread.

Key to the conversations that institutions have about VR is the acknowledgement that VR should not replace the expert educator. In much the same way that physical simulation should not replace clinical training, VR is just a technology to deliver a learning technique, in this case simulation. There are certain learning objectives that are best taught through physical simulation, there are others that are best taught through VR. Educators need to decide which objective they are looking to improve and determine the most appropriate method of delivery. With this approach, clinicians, universities and healthcare institutions can increase simulation delivery at reduced cost, while taking the burden off faculty and ensuring training quality.

Does VR simulation work?

Numerous lines of evidence demonstrate how VR and the immersion it offers deliver effective experiential learning.[3,11] The efficacy of VR is evident in practice, already being a vital teaching tool in multiple fields, including aviation, oil, shipping and the military.[12] In fact, the aviation industry credits VR-based simulation as a major contributor to a nearly 50% reduction in human error-related airline crashes since the 1970s.[13]

Studies in healthcare support the value of VR. For example, medical students demonstrate significantly higher knowledge gain when using an immersive environment rather than screen-based learning.[4] Immersive VR has subsequently been widely adopted in surgical training where it has been shown to decrease injury, increase speed of operations and improve overall outcomes. It has now been absorbed into a large number of surgical programmes with excellent results.[14]

While medical and nursing fields have been slower to take up VR than surgeons, there is plenty of evidence available. For example, VR can be used to train clinicians in complex procedures such as transvenous lead extraction, is effective in cardiopulmonary resuscitation training, can improve communication skills, enhance critical thinking and improve clinical decision making.[15–19]

VR has also been favourably tested against physical simulation. In one paper, 84 nursing students were randomised to either a virtual or physical nursing simulation. Learning transfer was the same in both, with no significant difference in performance between groups, but the simulation in VR group was found to be significantly cheaper.[20]

VR, therefore, has a number of benefits over traditional training and a solid evidence base across medical and nursing education. So how is it being used today?

How is VR used in practice?

VR simulation is used in medical and nursing schools as well as in postgraduate education around the world (Fig 1).

Practical implementation and curriculum integration vary depending on the VR platform and institutional need. See Box 1 for case studies on the University of Northampton and Oxford University Hospitals.

As well as hospitals and universities, VR systems are also being used across healthcare systems, with Health Education England, East of England supporting delivery of VR simulation across 18 NHS trusts from August 2019.

As such, VR simulation can fit around institutional needs as required. Though the specific examples mentioned here refer only to education and training, VR simulations are also being used in other areas. The standardised and objective nature of scenarios has allowed various institutions to implement assessment and recruitment programmes using VR. In recruitment, VR scenarios are being used as a proxy for clinical competency and form a basis for ongoing interviews. This facilitates recruitment locally as well as

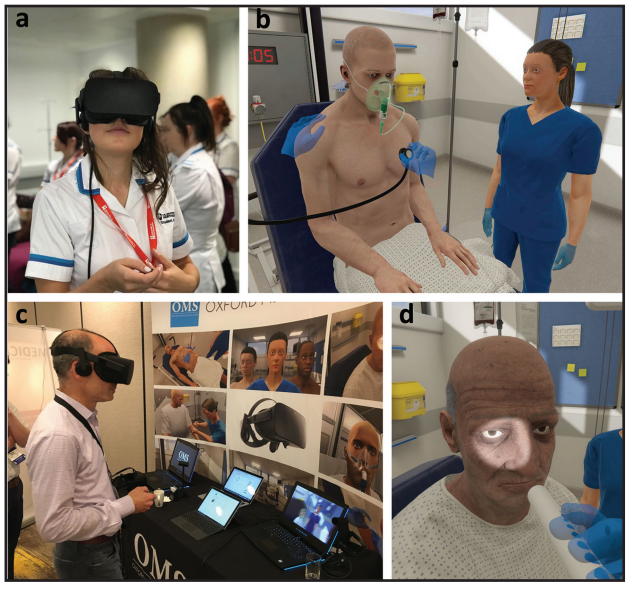

Fig 1. Virtual reality in use. a) Nursing student wearing a virtual reality headset. b) Performing a cardiac examination on a virtual patient. c) Projecting a virtual reality experience on multiple screens for group learning. d) Pupil responses to light in a virtual patient.

Box 1. Case studies of universities using virtual reality simulation.

University of Northampton

The University of Northampton have created a virtual reality (VR) simulation suite for nursing students, with four sets of VR hardware and a large screen integrated in a physical simulation ward. This screen allows projection of what the learner is experiencing in VR onto the screen for group teaching. In small groups, learners take turns leading VR scenarios with real-time peer contribution, before doing a group debrief like physical simulation. This integration of VR within the simulation space ensures innovation complements existing educational structures and allows learners to practice simulation at scale while maintaining the value of peer support.

As noted by the nursing faculty:

Nurses require people skills, soft skills and clinical skills, and we needed to be able to train future nurses in a balanced way that caters to each of these skill sets. Technological developments are allowing us to do this in a safe and supportive learning environment, focusing on immediate feedback and the opportunity to repeat the scenarios and improve over time. VR simulation allows us to integrate theory into practice in a really meaningful manner, allowing students to progress throughout their academic careers.

University of Oxford

The University of Oxford are using VR simulation for their medical students and doctors working in the John Radcliffe Hospital. Rather than integrating VR in a defined simulation space, the faculty implemented mobile VR trolleys to transport their equipment wherever it is needed. Peer learning has been facilitated by groups of 'super-users' who introduce VR-naive students to the system. As a result of this, no faculty are required for use other than when they choose to review student progress or if the students approach them with clinical issues encountered in VR.

The faculty explained:

Simulation is a vital part of medical education and students just don't get to do it enough. Embedding VR simulation into what we do has enabled us to give a far greater number of learners access to simulation in a shorter space of time, and lets them do it as often as they like to transfer their knowledge to practice. It's encouraging to see how quickly our students have adopted the technology and I'm excited to see how they progress clinically as they use it more and more.

overseas, as the technology works in any setting and does not need expert faculty to run.

A number of institutions are also investigating VR from the standpoint of objective structured clinical examinations, as a method of decreasing the cost and increasing the objectivity of their assessment processes. These avenues remain at an early stage but are set to expand over the coming years.

In both assessment and recruitment situations, the utility of VR is in saving time, space, physical resources, need for expert faculty and removing geographical boundaries. In both cases however, the stakes are higher than in education and rigorous validation per institution becomes vital.

Where does the future lie?

As pressure to increase delivery of simulation continues, VR simulation will continue to expand. Rather than simulation being an occasional, faculty-led, day-long event, VR will allow simulation to be more like going to the gym. Learners will be able to do a scenario at the end of their shift or even at home, allowing continual improvement in performance to suit learner needs.

The standardisation and scoring possible with VR will make it commonplace in assessment and recruitment. In time, VR will become used routinely for continuing medical education and revalidation and become a benchmark to ensure clinical competency and patient safety across healthcare systems.

Then there are the technological advances. Increasing use of hand control (for complex procedural tasks) and voice control (for communication skills) are becoming viable. Haptics (the sense of touch in VR) will become increasingly used and all of these technological advances will become integrated within scenarios, blurring the lines between the real and the virtual.

The integration of AI will not only make interaction with virtual patients more realistic but allow increasingly in-depth analysis of clinical performance. AI can be used to tease out particular issues across large numbers of learners and offer dynamic, tailored scenarios to meet specific learning needs.

Most excitingly, although much current use focuses on individual learners in VR scenarios, multiplayer VR is becoming available. Multiplayer VR allows many disparate learners to see each other, talk to each other and interact with each other (and the patient) in the same virtual scenario.

This allows remote, collaborative learning in a real time clinical case – a paradigm that has never been possible before. With such systems, a doctor in Oxford can be seeing a virtual patient supported by a nurse in Delhi while being mentored by a professor in Baltimore.

This co-learning across cultures, essentially offering clinical experiences on demand, has the ability to revolutionise global healthcare education. The increased virtual clinical exposure that VR can offer, allowing an early focus on human factors and non-technical skills, also has the ability to accelerate learning curves, and will contribute to the potential shortening of training timelines.

Summary

VR is already transforming medical education. It is helping to free learning from the classroom, allowing learners to apply their knowledge to practice and learn from mistakes. It focuses on improving competencies and places the emphasis on autonomous, blended learning, which is expected from the learners of today.

As VR continues to be implemented and integrated within curricula, its use will become mainstream. The ability for multiple learners to take part in truly interprofessional, completely life-like simulation which is not bound by geography, is set to change how we conduct medical and interprofessional education beyond recognition. ■

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Address for correspondence: Dr Jack Pottle, Oxford Medical Simulation, 10 Old Town Hall, 19 Spa Road, London SE16 3SA, UK. Email: jack@oxfordmedicalsimulation.com

November 15, 2023

Dear Committee Members:

I am expressing my endorsement for the Department of Health and Human Performance's application for a Student Technology Fee Grant. The allocated funds will play a crucial role in advancing the department's Engagement and Empowerment Initiative, aiming to enhance education, shills, and opportunities for students enrolled in the Bachelor of Science in Health and Exercises and related programs. The overarching vision of HHP is to cultivate future leaders in global health sciences, kinesiology, and sport. The utilization of these funds is integral to realizing this visionary goal.

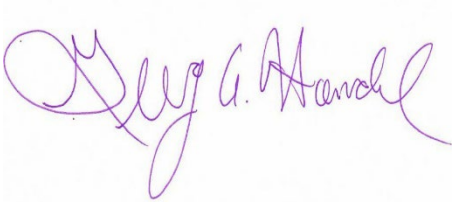
As Provost and Vice President of Academic Affairs, I wholeheartedly support the progression of the Engagement and Empowerment Initiative. I express sincere gratitude to the Student Tech Fee Committee for their ongoing support of our institutional needs.

Sincerely,

Greg Handel
Provost & Vice President of Academic Affairs
Dean of the Graduate School
Professor of Music Education

As Provost and Vice President of Academic Affairs, I offer my full support of this application, and I remain very grateful to the Board of Regents for its continued support of educational programs here at NSU and throughout the state of Louisiana.

Sincerely,



Greg Handel
Provost & Vice President of Academic Affairs
Dean of the Graduate School
Professor of Music Education

NORTHWESTERN STATE
Gallaspy College of Education and Human Development

November 14, 2023

Dear Committee:

It is with great pleasure to write a letter of support for Dr. Tara Tietjen-Smith's "Student Technology Fee Grant" proposal to improve the Department of Health & Human Performance (HHP) at Northwestern State University. Dr. Tara Tietjen-Smith currently serves as the chairperson of the Department and is dedicated to enhancing education, skills, and opportunities for students. She is committed to the HHP's vision to prepare the next generation of global health sciences, kinesiology, and sports leaders. The limited access to technology is a barrier to recruitment, retention, students' learning, and fulfilling the workforce needs.

The Department of Health & Human Performance (HHP) at Northwestern State University provides a Bachelor of Science in Health & Exercise Science (HES) with the following possible concentrations: general, pre-physical therapy, pre-occupational therapy, and pre-athletic training; Health and Physical Education, K-12. HHP also offers a Master of Science with a concentration in Public Health.

The Student Technology Fee Grant will help the Department to bring new technology such as Projection and Smartboard for Physiology Lab-Bluum Technology, Computer, and Apple TV – Works with Bluum Technology System; Meta Quest Pro (Occulus): Virtual Reality Headset Gear and Accessories. The latest technology will support the Department's Engagement and Empowerment Initiative and improve students' education, skills, and opportunities in the Bachelor of Science in Health & Exercise Sciences and related programs. Our students will be well prepared to be successful in the job market. This grant will help to meet the Department's vision and NSU mission.

I wholeheartedly support this grant and request the committee commit to our students' future at the Department of Health & Human Performance. I truly appreciate your commitment to our students. Please contact me at deepn@nsula.edu or 318-357-6188 if you have any questions.

Thank you so much for your consideration.

Sincerely,

Neeru Deep

Dr. Neeru Deep, Interim Dean
Gallaspy College of Education & Human Services

NORTHWESTERN STATE
UNIVERSITY OF LOUISIANA

STUDENT TECHNOLOGY FEE
GRANT: PARTIAL FUNDING EQUIPMENT LIST 2023-24

- Projection and SMARTBOARD for Physiology Lab for $9300.19
- Computer and Apple TV for $1390.42