

Presentation Proposal for the New York Cyber Security and Engineering Technology Association (NYSETA) Spring Conference, April 14-15, 2016

Category: Presentation only

Presentation title: Lights, Cameras, Action! – Educational Television Production in STEM Teacher Education

Conference tracks: Educational technologies, STEM education, Instructional strategies

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Author biography: Stephen Gareau is a professor and coordinator of the graduate educational technology program at SUNY Buffalo State. He teaches courses, and conducts research, in a wide range of educational technologies and media, such as text design, graphic design, educational video and television production, animation, Web development, audio and radio production, etc.

Abstract: With advances in video camera technology, more features are being offered at less cost, making the possibility of relatively low cost, entry-level television studios an affordable option for many K-12 schools, colleges, universities, and corporations. With today's student body increasingly enjoying learning in a visual manner, the use of such tools in education seems appropriate. There are also significant opportunities to use such tools for training purposes in government, business, and industry, and for community cable TV programming. This presentation will examine a graduate-level educational television production course designed for K-12 teachers, as well as for training specialists from government, business, and industry. The presentation will describe relevant background theory; the components, design, and installation of a small-scale, entry-level television studio; the methods, tools, and activities used in the course; and the outcomes of the course.

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Lights, Cameras, Action! – Educational Television Production in K-12 STEM Teacher Education

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Outline

1. Background to Educational TV Instruction at Buffalo State
2. The Rationale
3. The Opportunity
4. What We Asked for vs. What We Ended Up With
5. Main Components of the Studio
6. Current Uses
7. Feedback from the Students
8. What's Required on an Ongoing Basis
9. Sharing the Studio: Other Possible Uses on Campus
10. Possible Next Steps / Additions
11. DIY Educational Television Options

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Background to Educational TV Instruction at SUNY Buffalo State

- 1994: Instructor learned educational TV (ETV) production at Concordia University.
- 2004: Taught ETV production at McNeese State University in Lake Charles, LA.
- 2006: Sought to teach an ETV course at SUNY Buffalo State.
- 2009: Formally created an ETV course at SUNY Buffalo State.
- 2009: Began designing new facilities in planned Technology Building.

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*Why instruction
in educational
television
production
(ETV)?*

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Rationale

- Main audience of EDT program is K-12 teachers + training specialists from business, industry, and government.
- Growing use of student television production in Buffalo area K-12 schools.
- Growing interest in visual tools and associated need for visual literacy.

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What is 'Visual Literacy'?

- Ability to decode & encode visual messages
- **Decoding** = Ability to view, interpret, and understand visual messages
- **Encoding** = Ability to design and create visual messages
- Visual messages can include a range of **media**.
- Visual messages can use a variety of **media formats**.

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How a TV Course Fits into an Ed. Tech. Program



The screenshot shows the Buffalo State website for the Educational Technology, M.S.Ed. program. The header includes navigation links: ABOUT, APPLYING, ACADEMICS, CAMPUS, NEWS AND EVENTS, ATHLETICS, GIVING. The Buffalo State logo is prominently displayed. Below the header, the program name "EDUCATIONAL TECHNOLOGY, M.S.ED." is shown. The "About the Program" section states that the program is designed primarily for K-12 educators, business and industry, and other professionals. It lists three main objectives: 1. Design, develop, implement, and evaluate instruction; 2. Use computers and other educational technologies in the instructional process; 3. Develop evaluation criteria and evaluate educational software and hardware. The footer indicates "S. Gansau © 2016 7".

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How a TV Course Fits into an Educ. Technology Graduate Program

- Ed. tech. programs typically teach design, creation, and use of a variety of instructional products—using a wide variety of media.
- Individual courses often focus on individual media.
- A single ETV production typically combines a variety of media.
- ETV productions typically require a variety of design skills.

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The Opportunity



The screenshot shows a news article titled "Buffalo State Celebrates Opening of New Technology Building" dated September 11, 2013. The article features a photograph of the building. The text describes the opening ceremony and the building's location. It mentions that the building is located on the former site of the Buffalo Post-Office County Courthouse and is situated just north of the college's Creative Building. The building opened in time for the beginning of the fall semester and houses three major departments within the College of Professional Engineering Technology: the first floor houses the second floor, and Fashion and Textile Technology on the third floor. The footer indicates "S. Gansau © 2016 9".

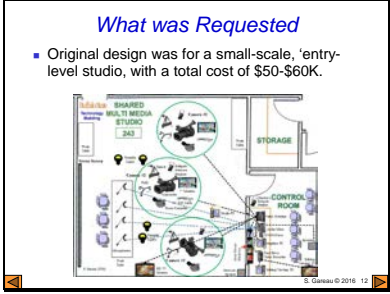
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What was Built

- Finished studio had a total cost of about \$100K-\$120K.

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Main Components: Studio Equipment

- HD camcorders (TV cameras), tripods, and camera monitors
- Camera cabling system (RG-6 + BNC)
- Camera status light system
- Camera headsets
- Display monitor
- Lighting system (lighting grid, L7-T light fixtures (ceiling mounted & portable), background luminaire)
- Green screen
- Curtains (black curtain, blue screen, backdrops)
- Teleprompter system (Windows- and/or Mac-based)
- Microphones (wireless and wired)
- Talent headsets

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Studio Equipment

Camera (with a VariZoom control + manual camera light) mounted on a tripod

Video display monitor

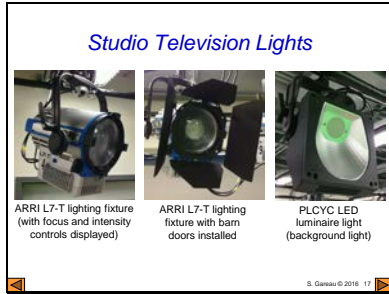
One-camera teleprompter system

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- Main Components of the Studio:*
Control Room Equipment
- Three-bay equipment console
 - Video switcher (including DVI input and output boards)
 - Multi-view display monitor
 - Light switcher (lighting desk)
 - Wireless intercom system (base station + headsets)
 - Microphone system (wireless and wired, including controller, cables, and mics)
 - Audio switcher
 - Speaker system
 - Character generator (CG) computer
 - Networked multimedia computer with Internet access
 - CD-ROM player
 - HD video recorder (HDR)
 - Digital countdown timer
- S. Garneau © 2016 18

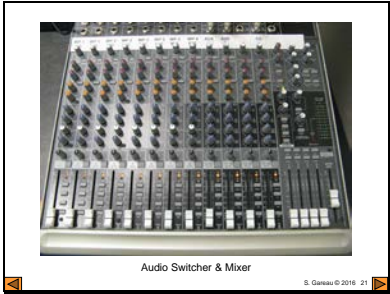
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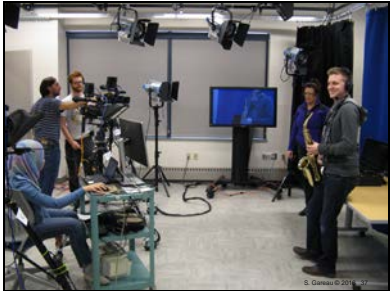
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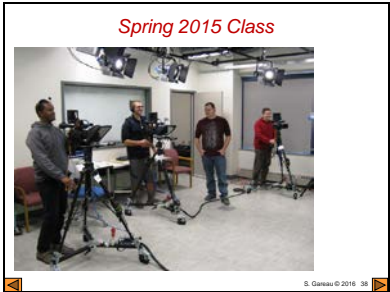
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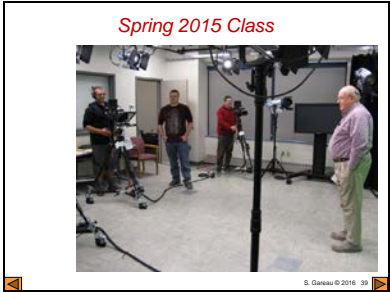
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Learning Strategy Used

- 'Flipped classroom' format
- **Before each class:**
- Theory is studied using course textbook & workbook.
- Also, students design their upcoming productions.
- **During each class:**
- (a) **Early morning: Instructor-led review:** Brief review of theory, with relevant examples provided.

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Learning Strategy (cont'd.)

- (b) **Late morning + afternoon: Hands-on learning** creating TV productions.
- Whole class is involved in every production.
- In every production, there are 11-12 different crew positions → Each student assumes a different role in each production.
- **During the course, productions progress:**
- **FROM:** short, simple, silent, single-camera productions
- **TO:** more complex, scripted, multi-camera productions that incorporate video, voice, music, text, graphics, and animation.
- In designing productions, students typically must create script, storyboard, shot sheet, crew list, set layout, etc.

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Production Crew Positions

- Director
- Video Switcher
- Audio switcher
- CG graphics person
- HDR operator
- Multimedia computer operator
- Lighting person
- Camera person(s)
- Floor manager
- Teleprompter operator
- Talent

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Feedback from Students (cont'd.)

- Students like the predominantly hands-on approach to the course.
- They enjoy the teamwork and socialization aspects of the course.
- Students generally find the course engaging, and often remark at how quickly time passes during each day-long class.
- They are often amazed at how much they have learned by end of the course.

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What's Required on an Ongoing Basis

- **For minor problems:** Be able to troubleshoot and make minor repairs (e.g., cable connector installation, camera failure, etc.)
- **For major equipment failures:** Obtain a service contract with reasonable response times.
- **In-house tech. support:** Have someone to: (a) manage use of the studio, (b) troubleshoot and repair minor problems, and (c) coordinate major equipment repair and re-installation
- **Ongoing learning + researching new applications** and implementing them into instruction

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Sharing the Studio: Other Possible Uses


Department	Course(s)
Geography and Planning Department	GEG 382—Weather Forecasting
Technology Department	TED 349—Communication Systems
Creative Studies Department	CRS 610—Facilitating Group Problem Solving
Theater Department	DAN 303—Dance Composition
	DAN 320—Rehearsal/Performance
	THA 327—Acting III
	THA 385—Business of Performing Arts
Hospitality and Tourism Department	HTR 480—Practicum Hospitality Operations
School of Education	Preparing teacher education candidates for Teacher Performance Assessment (a New York State requirement for all graduates)

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DIY ETV Options

- **DIY** = Design-It-Yourself, Do-It-Yourself, Learn-It-Yourself
- Growing interest in DIY (and open source) initiatives
- Revival of post-war spirit of 1950s when resources were scarce.
- Examples of DIY trend:



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DIY ETV Options

- **Option #1:** Use existing in-house facilities.
- **Option #2:** Use existing external facilities (e.g., local cable TV facilities).
- **Option #3:** Design and create your own ETV studio.

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Option #2: Use Existing External Facilities.

- Every city and region should have a public broadcasting cable TV center, from where public access programs are broadcast—i.e., **channels 20 (Public), 21 (Education), and 22 (Government)**.
- These broadcast centers may or may not have TV production facilities available for use by the public.

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eBay Equipment Decisions **BH**

- With creative thinking and effort, an inexpensive studio can be constructed from low cost **new and/or used equipment**.
- Two most expensive items:
 - a) video switcher (\$ 15,000+);
 - b) three studio cameras (\$ 6,000+ each).
- **Also essential:** Sound switching and mixing, and adequate lighting.
- Portable light kits and other low end tools can be purchased from various audiovisual outlets (e.g., B&H Photo Video, etc.).

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DIY ETV: Used Equipment on eBay



Ross Video Synergy 1 Digital Production Video Switcher;
- \$500 on eBay



Panasonic WJ-MX30 Digital AV Audio Video Mixer Switcher;
- \$300 on eBay



Ross RVS-210A 10 Input Analog Video Switcher;
- \$100 on eBay

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DIY ETV: Other Equipment Possibilities



Roland VS-1880 24-bit Digital Audio Switcher/Mixer
- \$230 on eBay

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