

Technology Competencies for VCU SOM Medical Educators

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January 29, 2009

Principles of Technology Competence

The competent medical educator will:

1. Use technology to provide an environment that supports creativity, collaboration, critical thinking, and commitment to lifelong learning for students and faculty alike.
2. Promote universal access to learning opportunities, with consideration for differences in technology access, culture, gender, age, and physical capability.
3. Maintain an attitude of continual learning, openness to change and emerging technologies in education.
4. Practice appropriate information security with respect to individual privacy and data protection.
5. Promote responsible social interaction and professionalism in all communications media.
6. Model fair use of copyrighted materials.

Technology Competencies

1. Prepare instructional materials and maintain administrative communications using email, word-processing, presentation, and spreadsheet software.
2. Manage classroom technologies such as:
 - room lighting
 - projector and podium controls
 - audience response systems
3. Manage basic eLearning system features such as:
 - online assessments
 - ePortfolios
 - gradebooks
 - discussion boards
 - content management
4. Conduct online scholarship and communications using tools such as:
 - search engines
 - instant messaging
 - podcasting, wikis, blogs
5. Digitally capture, edit, play back, and distribute images, audio, and video, with consideration for:
 - quality (resolution, bit depth, clarity, contrast, etc.)
 - file size
 - file format
 - bandwidth
 - physical media
6. Access online databanks and patient information in the clinical setting.

Examples of Core Technology Skills

Email (e.g. MS Outlook, Lotus Notes):

- Send, receive, reply to and forward messages to individuals, groups, and lists
- Copy (CC) and Blind-copy (BCC) messages to individuals, groups, and lists
- Send, receive and save file attachments
- Sort and search messages by sender, date, and subject
- Filter junk mail, spam
- Create and manage mail folders
- Set up personal address book, create mailing lists
- Set up auto reply, out-of-office message

Word-Processing (e.g. MS Word):

- Create and save documents
- Format fonts, lists, line-spacing, page-numbering
- Use spell check, word count
- Edit documents: insert, cut, copy, delete
- Create and edit tables
- Insert and edit graphics
- Review documents collaboratively: insert comments, track changes

Presentation Software (e.g. MS PowerPoint):

- Create and save a presentation containing text, images and graphs
- Select different objects within a slide
- Create and edit slides in outline view
- Compress images to reduce file size
- Export a packaged presentation or movie for standalone playback
- Use master slide to modify presentation appearance
- Apply, modify, and remove animations
- Insert multimedia into presentation (images, audio, video, hyperlink, animation)
- Create handout of presentation
- Create schematic diagrams, organization charts

Spreadsheet Software (e.g. MS Excel):

- Create a workbook
- Move cells; copy, insert and delete columns and rows
- Use formulas to perform dynamic calculations
- Create data-driven charts
- Protect worksheet cells and workbooks from unauthorized changes
- Sort and filter data
- Create and use Pivot tables and Pivot charts
- Calculate across worksheets

Adobe Acrobat:

- Create a PDF file from any printable document
- Understand the difference/limits of a fill-in and non-edible PDF file
- Extract text from a PDF file
- Add, delete pages in a PDF document

- Optimize a PDF file size
- Create a fill-in form
- Add security features to a document

Blackboard and SOM eCurriculum:

- Distribute information and course material
- Use content management system
- Manage scheduling, assignments, tests, and grades
- Generate student self-assessments such as online quizzes
- Manage discussion boards
- Create evaluation forms

Internet:

- Use current web browsers such as MS Internet Explorer, Mozilla Firefox
 - Manage security options and respond appropriately to security warnings
 - Manage bookmarks/favorites, tabs and plug-ins
- Perform basic and advanced searches using web search engines: Google, Yahoo, MSN
- Use internet portals such as MyVCU, Yahoo, and Google effectively
- Evaluate credibility and relevance of online information and databases

Image Scanning and Editing (e.g. MS Photo Editor, Adobe Photoshop):

- Understand capabilities of different file formats (jpeg, gif, tiff, bmp)
- Scan image in grayscale or color, convert color image to grayscale
- Create image size and resolution suitable for printing, web or PowerPoint
- Edit image (crop, resize, add text, remove imperfections)

Multimedia (e.g. MS Movie Maker, Mac iMovie):

- Understand capabilities of different video formats (mpeg, mov, avi)
- Understand capabilities of different audio formats (wav, aiff, mp3, ram)
- Convert between multimedia file formats
- Compress/Resize video file
- Edit audio or video file (crop, add text, remove imperfections)

Computer Operating Systems:

- File management: filing, moving, deleting, recovering, archiving, system and data backups
- Maintenance: disk cleanup and optimization, system updates
- Security: maintain use of passwords, encryption, firewall, antivirus, and antispam settings
- Printing: connect, manage paper and toner

Local Networks:

- Understand the differences between wired and wireless networks
- Manage wireless security options
- Understand risks of network sharing

Distance Education and Teleconferencing

- Manage web and video conferences
- Follow group conferencing etiquette
- Understand the capabilities of desktop web conferencing and advanced large-group conferencing systems
- Manage audio and camera settings for optimal clarity and feedback control

- Include remote site personnel in conference planning, document distribution, and conversation.

Library Services:

- Access and retrieve library information on and off campus
- Access online journals at VCU
- Access online databases for diagnosis and treatment (eg. MDConsult, FirstConsult)
- Access Interlibrary Loan (ILLiad) for information not available at VCU
- Evaluate information in terms of authority and relevance
- Use Course Reserves to make materials available to students

Clinical Setting:

- Use VCU Health System intranet
 - Page colleagues
 - Complete PSN reports
 - Access Learning Exchange and CIS training
- Manage electronic medical records (EMR)
 - Order medications (inpatient and outpatient)
 - Review inpatient and home medication lists
 - Review provider documentation
 - Review nursing documentation and bedside data
 - Enter provider documentation
 - Review results (labs, radiology, ancillary studies)
 - Use message center to review and send message
 - Use medication reconciliation tool
- Access Stentor (radiology)
- Use telephone for paging and dictation
- Practice information security and HIPPA-compliant patient confidentiality on all systems

Classroom Technology:

- Turn system on and off
- Manage lighting and audio levels for optimal clarity and feedback control
- Understand capabilities of wireless microphones
- Activate lecture recording (video, audio)
- Use Whiteboard, ELMO, DVD
- Connect auxiliary devices (ie. notebook)

Human Simulation:

- Create and schedule courses
- Analyze data and create reports
- Manage inventory
- Enter and review pre- and post-encounters
- Debrief using audio & video playback

- **Technology competencies in the Stanford Faculty Development format**

Technology

- understand key computer operations
- understand key application functions
- understand podium controls
- facilitate technology-based learning
- avoid technology dazzle
- employ data sensitivity and security
- do not share userID/password
- provide resources in multiple formats
- promote humanism and professionalism
- obey fair use and copyright

Learning and development

- environment of innovation and creativity
- encourage interactive learning
- promote higher level critical thinking
- promote student group and self-learning
- provide self-assessments
- encourage student feedback
- update resources regularly