

Pedagogy Map – Area: Technologies - Jeff at CQU

From General Capabilities	Low end pedagogy	High end pedagogy	Links to Pedagogy	ICT Connections
<p><u>Literacy</u></p> <ul style="list-style-type: none"> - communicate concepts, ideas and detailed proposals; - read and interpret instructions for ICT technologies; - prepare detailed engineering drawings with annotation, as well as coding and instructions on using software; - write detailed reports; and, - prepare specifications for ICT production. 	<p>Explicitly teach students literacy skills to communicate, read and interpret instructions for ICT materials.</p> <p>Explicit instruction would be used, being clear in the intended outcome of each lesson.</p> <p>This is teacher-centred.</p>	<p>Provide students opportunities to communicate ideas and detailed proposals through various self-selected ICT technologies. This communication includes collaboration with peers and evaluation of their own and other students written reports and specification using subject specific language.</p> <p>This is learner-centred.</p>	<p>Deep knowledge and higher order thinking: Students engage with, interpret and analyse self-selected instructions for ICT technologies.</p> <p>Student direction: Students self-select methods to communicate their proposals, reports, drawings and specifications using media channels appropriate to the intended audience. To an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p> <p>Knowledge as complex and linked to interests and experience: Students critique and second guess concepts, proposals and ideas of their own and others in a collaborative manner on topics of their interest.</p>	<p>Students use the internet to research appropriate and effective technologies for communication – including text, video and other media.</p> <p>Collaboration techniques and multi-author tools should be taught – such as Google docs, Dropbox, Scoop.it, Weebly and Blogs.</p> <p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p> <p>Students should be taught research techniques for ensuring correct technical terminology is employed in report and specifications writing.</p> <p>Students should understand and develop the ability to utilise different presentation software – such as Prezzi and PowerPoint.</p>
<p><u>Numeracy</u></p> <ul style="list-style-type: none"> - use real-life situations to interpret and use mathematical skills and knowledge; 	<p>Use the evidence based strategy ‘Show and Tell’ to teach students</p>	<p>Provide students opportunities to undertake statistical analysis for the</p>	<p>Problems are real and relevant to students: Students undertake statistical analysis using ICT where there is a focus on the identification and solving of real-life problems (authentic learning).</p>	<p>Students use the internet to research and select real-life problems on which to undertake analysis.</p>

<ul style="list-style-type: none"> - estimate, calculate and measure; - draw conclusions from and interpret statistics; - measure and record; - develop concepts, then refine and test them; - sequence and cost calculations when managing projects and manufacturing products; - in the use of software work with a range of mathematical concepts; - create technical drawings using 3D modelling; and, - design and create “best-fit solutions” using computational decision making and thinking processes. 	<p>basic skills to estimate, calculate measure and interpret statistics.</p> <p>These would include multiplication, division, subtraction and addition.</p> <p>Share the information of what is required with students (tell), then model what is required to be learned (show).</p> <p>http://www.evidencebasedteaching.org.au/evidence-based-teaching-strategies/</p> <p>This is teacher-centred.</p>	<p>interpretation of statistics and draw conclusions from their findings.</p> <p>Provide students with opportunities to explore self-selected or self-created designs in terms of their mathematical relation to ICT using a collaborative approach.</p> <p>This is learner-centred.</p>	<p>Problems are complex and require higher order thinking: Students draw conclusions using evidence-based approaches when developing, refining and testing concepts.</p> <p>Problems require student Direction: Students self-select software for use in computational analysis, to an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p> <p>Problems foster collaborative and social learning: Students’ learning should result in dialogue between students and teachers collaboratively as self-selected real-life situations are analysed in a solution-focused manner.</p> <p>Problems foster active citizenship: Students engage in real-life situations, designing and creating “best-fit solutions” that will benefit society.</p>	<p>On-line and stand-alone computer tools for statistical analysis should be taught with a focus on the formulation of solutions.</p> <p>Collaboration techniques and multi-author tools should be taught – such as Google docs, Dropbox, Scoop.it, Weebly and Blogs.</p> <p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p>
<p><u>Information and Communication Technology (ICT) Capability</u></p> <ul style="list-style-type: none"> - understanding of the characteristics of data, digital 	<p>Use explicit instruction to teach students the characteristics</p>	<p>Provide students opportunities to self-select complex ICT software to investigate,</p>	<p>Knowledge as complex and linked to interests and experience: Students self-selected software links with their background knowledge and experience to allow building on already set foundations.</p>	<p>Students use the internet to research and select design ideas for investigation and analysis.</p>

<p>systems, audiences, procedures, computational thinking and apply this by investigating, communicating and creating digital solutions</p> <ul style="list-style-type: none"> - automate solutions using algorithmic logic - generate optimum digital solutions using decision making that considers resources available as well as social, economic and environmental factors - realise design ideas gaining skill using software and hardware - investigate and analyse information - develop and evaluate design ideas - communicate and collaborate online - formulate plans and diagrams to communicate their designs - produce solutions using digital technology 	<p>of various ICT concepts.</p> <p>Model safe and ethical online collaboration and communication to students using the internet and social media.</p> <p>This is teacher-centred.</p>	<p>formulate and produce solutions to questions proposed by themselves. This will be self-directed learning. This should be done in a collaborative manner with decision making skills enhanced through group work.</p> <p>This is learner-centred.</p>	<p>Student Direction: Students self-select software for use in the generation of digital solutions, to an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p> <p>Collaborative and social learning: Students' learning will result in dialogue between students and teachers collaboratively as self-selected real-life situations are analysed in a solution-focused manner.</p> <p>Active citizenship: Students' development of digital solutions for genuine issues considers resources available without making a detrimental effect on society and the environment.</p> <p>Cultural knowledges: Students self-select on-line collaborative and communication technologies taking into consideration different cultural perspectives and sensitivities.</p>	<p>Ethical and sustainable decision making should be taught.</p> <p>On-line and stand-alone computer tools for the design, planning and production of digital solutions should be taught – such as mindmap creation software and websites, and drag and drop website builders.</p> <p>Collaboration techniques and multi-author tools should be taught – such as Google docs, Dropbox, Scoop.it, Weebly and Blogs.</p> <p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p>
<p><u>Critical and Creative Thinking</u></p> <ul style="list-style-type: none"> - develop critical and creative thinking through imagining, 	<p>Use explicit instruction to teach students how to critically evaluate ICT</p>	<p>Provide students opportunities to critically evaluate their own and their peers' planning,</p>	<p>Deep knowledge and higher order thinking: Students use problem based learning to engage with, interpret and analyse self-selected ideas and their</p>	<p>Students use the internet to research and select ideas for investigation and analysis of challenging problems requiring complex solutions.</p>

<p>generating and developing and critically evaluating ideas</p> <ul style="list-style-type: none"> - develop reasoning and the capacity for abstraction through challenging problems that do not have simple solutions - identify, clarify and explore technologies information and use this knowledge in a variety of situations - think critically and creatively about preferred, probable, and possible futures - consider how past and present systems, data, materials, information, tools and equipment impact on our lives, and how these might be better managed and designed - work with digital tools, software and equipment—drawing, modelling, designing and experimenting to build spatial and visual thinking, and create environments, solutions, services and products 	<p>ideas, and explore different technologies, identifying and clarifying anticipated and current uses of these technologies.</p> <p>This is teacher-centred learning.</p>	<p>designing and production of self-selected ICT solutions. This includes self-reflection and evaluation of design solutions to problems encountered throughout the process.</p> <p>This is learner-centred.</p>	<p>impact on futures (preferred, probable and possible).</p> <p>Collaborative and social learning: Students self-select challenging problems through collaborative methods using group work which will result in dialogue between students and teachers in a meaningful way.</p> <p>Student Direction: Students self-select digital tools for use in the generation of digital solutions, to an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p>	<p>On-line and stand-alone computer tools for the design, modelling and production of digital solutions should be taught – such as drag and drop website builders.</p> <p>Collaboration techniques and multi-author tools should be taught – such as Google docs, Dropbox, Scoop.it, Weebly and Blogs.</p> <p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p>
<p><u>Personal and Social Capability</u></p> <ul style="list-style-type: none"> - develop social and personal capability through exchanging in project management and development by utilising collaborative workspaces 	<p>Use explicit instruction to teach students skills such as collaborating, networking, social skills,</p>	<p>Provide students opportunities to actively participate in an ethical and safe manner in collaborative on-</p>	<p>Deep knowledge and higher order thinking: Students engage with, interpret and analyse self-selected investigations of social issues using ICT technologies.</p> <p>Student direction: Students self-select methods to communicate their findings of</p>	<p>Students should be exposed to current and relevant social responsibility issues for observation, investigation and analysis – such as videos of current news events and blogs.</p>

<ul style="list-style-type: none"> - direct own learning to plan and carry out investigations and become independent learners who can apply technologies understanding, skills when making decisions, and design thinking. - develop employability and social skills through sharing resources and processes, making group decisions, working cooperatively in teams and resolving conflict and showing leadership - collaborating and developing resilience - enhancing personal and social capabilities through development of social awareness - develop an understanding of diversity by researching and identifying different user's needs - consider past and present impacts of decisions on environments, communities and people - develop social responsibility through empathy with respect for and understanding of others 	<p>effective communication and teamwork.</p> <p>This general capability also lends itself to the modelling of safe and ethical online collaboration and communication to students using the internet and social media.</p> <p>This is teacher-centred learning.</p>	<p>line workspaces related to ICT.</p> <p>Students can self-evaluate and identify learning gaps in employability and social skills, then investigate and implement solutions to fill these gaps through self-directed learning.</p> <p>This is learner-centred.</p>	<p>investigations involving real-life impacts of projects, to an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p> <p>Knowledge as complex and linked to interests and experience: Students critique and second guess findings, proposals and ideas of their own and others in a collaborative manner on topics of their interest, taking prior knowledge into account.</p> <p>Collaborative and social learning: Students self-select resources and processes to share, working collaborative and cooperatively in groups.</p> <p>Cultural knowledges: Students self-select on-line collaborative and communication technologies taking into consideration different cultural perspectives and sensitivities.</p> <p>Active citizenship: Students' develop an understanding of social responsibility and diversity through self-selected research topics identifying various user's requirements through analysis, research, observation and interpretation.</p>	<p>Students use the internet to research and select ideas for investigation and analysis of different IT user's requirements.</p> <p>On-line and stand-alone computer tools for the design, modelling and production of digital solutions should be taught – such as drag and drop website builders.</p> <p>Collaboration techniques and multi-author tools should be taught – such as Google docs, Dropbox, Scoop.it, Weebly and Blogs.</p> <p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p>
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<p><u>Ethical understanding</u></p> <ul style="list-style-type: none"> - develop the capacity to understand and apply socially responsible and ethical principles when collaborating with others, and creating, using and sharing technologies – (data, processes, equipment, materials and tools) - look through an “ethical lens” to investigate future, current and past national, regional and global technological priorities - while engaged in systems thinking - evaluate findings against the criteria of, environmental sustainability, legality, social and economic viability, social awareness, health and emotional responsibility - explore complex issues associated with technologies and consider their possibilities - develop informed values and attitudes - learn about safe and ethical procedures for investigating and working with people, data, materials and animals, 	<p>Use explicit instruction to teach students basic ethical concepts in order to be socially responsible.</p> <p>This includes moral rights and obligations, and ethical responsibility as ordinary and digital citizens.</p> <p>This is teacher-centred learning.</p>	<p>Provide students opportunities to model ethical behaviour in the creation of socially acceptable self-selected ICT projects. Then provide students opportunities to gain a working understanding of intellectual property rights using their own projects as real-life examples.</p> <p>This is learner-centred.</p>	<p>Deep knowledge and higher order thinking: Students engage with, interpret and analyse self-selected investigations of global IT priorities using system thinking and ethical sensitivity.</p> <p>Student direction: Students self-select complex IT issues to explore in terms of ethics, to an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p> <p>Knowledge as complex and linked to interests and experience: Students critique and second guess findings, proposals and ideas of their own and others on topics of their interest, taking prior knowledge into account.</p> <p>Cultural knowledges: Students self-select on-line collaborative and communication technologies taking into consideration different cultural perspectives and sensitivities.</p> <p>Active citizenship: Students’ develop an understanding of intellectual copyright and the rights of others through self-selected research topics through analysis, research, observation and interpretation.</p>	<p>Students should be exposed to current and relevant ethical issues for observation, investigation and analysis – such as videos of current news events and blogs.</p> <p>Students use the internet to research socially ethical and responsible principles as well as intellectual property and copyright.</p> <p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p>
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<ul style="list-style-type: none"> - consider the rights of others and their responsibilities in using sustainable practices that protect the earth and life on it - learn to appreciate and value the part they play in the natural and social systems in which they operate - consider own roles and responsibilities as discerning citizens, learning to detect bias and inaccuracies - understand individual privacy, intellectual property and the protection of data “to be ethical digital citizens” 				
<p><u>Intercultural understanding</u></p> <ul style="list-style-type: none"> - students consider how technologies are used in various communities at local, national, regional and global levels - including their potential to transform and impact the lives of others - explore ways in which past and present practices enable people to use technologies to interact with one another across cultural boundaries 	<p>Explicitly teach students the importance of the influence of different cultural backgrounds on technologies and their current use.</p> <p>This general capability also lends itself to the modelling of safe and ethical online</p>	<p>Provide students with opportunities to explore intercultural diversity and display intercultural understanding in self-selected projects through safe and ethical on-line interaction.</p> <p>Collaboration with IT professionals from other countries with</p>	<p>Deep knowledge and higher order thinking: Students engage with, interpret and analyse self-selected investigations of the use IT and its potential impacts using system thinking and ethical sensitivity.</p> <p>Student direction: Students self-select real-life examples of the influence of cultural identities and traditions on solutions, to an extent directing, setting the pace and determining outcomes of learning (problem based learning).</p> <p>Cultural knowledges: Students self-select on-line collaborative and communication technologies taking into consideration different cultural perspectives and sensitivities.</p>	<p>Students should be exposed to current and relevant social responsibility issues for observation, investigation and analysis – such as videos of current news events and blogs.</p> <p>Students use the internet to research and select ideas for investigation and analysis of different IT user’s requirements.</p> <p>Collaboration techniques and multi-author tools should be taught – such as Google docs, Dropbox, Scoop.it, Weebly and Blogs.</p>

<p>- investigate how cultural traditions and identities influence the function and form of products, services solutions and environments designed to meet the needs of daily life in the present and future.</p> <p>- through interacting with others in online communities, consider the dynamic and complex nature of cultures, including beliefs, assumptions, values and practices</p> <p>- recognise and respond to the challenges of cultural diversity through the application of appropriate social protocols. Through this, students learn about the interactions between society and technologies and take responsibility for securing positive outcomes for members of all cultural groups including those faced with misunderstanding and prejudice.</p>	<p>collaboration and communication to students using the internet and social media.</p> <p>This is teacher-centred learning.</p>	<p>different cultural backgrounds can be integrated into this learning capability as the ease of communication is enhanced through on-line collaboration tools.</p> <p>This is learner-centred.</p>	<p>Active citizenship: Students' identify and respond to cultural diversity challenges by the investigation of appropriate protocols through self-selected research topics through analysis, research, observation and interpretation.</p>	<p>Communication tools should be taught taking into consideration ethical and cultural sensitivities – such as mobile apps, web-based apps, sms, voice and video conferencing.</p>
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