Cover Sheet for Proposals *(All sections must be completed)*	**JISC** e-Learning Programme	

Name of Call Area Bidding For (tick <u>ONE</u> only):	
Call I: Transforming Curriculum Delivery Through Technology (JISC funded)	x
Call I: Transforming Curriculum Delivery Through Technology (Becta funded)	
Call II: Assessment demonstrators	
Call III: Course description and discovery	

Name of Lead Institution:	St George's University of London (SGUL)
Name of Proposed Project:	Generation 4 (G4)

Full Contact Details for Primary Contact:

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Length of Project:	24months		
Project Start Date:	October 2008	**Project End Date:**	September 2010

Total Funding Requested from JISC:	£200,000

Funding Broken Down over Financial Years (April - March):

April 08 – March 09	April 09 – March 10	April 10 – March 11	
£79,665.80	£96,073.60	£24,260.60	£200,000

Total Institutional Contributions:
£86,696

St George's, University of London delivers a Problem-based learning curriculum for its undergraduate medicine course, which is paper–based, linear and inflexible. The aim of this project is to use recently-developed technologies to assist in the creation of a

more interactive and integrated model for curriculum delivery in medicine. This will include interactive patient cases which provide students with the opportunity to make realistic decisions and explore the consequences of their actions. The intention is to create a more adaptive, personalised, competency-based style of learning which more closely matches to the role of the practitioner.		
I have looked at the example FOI form at Appendix B and included an FOI form in the attached bid (Tick Box)	**YES √**	**NO**
I have read the Circular and associated Terms and Conditions of Grant at Appendix D (Tick Box)	**YES √**	**NO**

1.0 FIT TO PROGRAMME OBJECTIVES AND OVERALL VALUE TO THE WIDER COMMUNITY

1.1 SUMMARY OF THE ISSUES

St George's, University of London (SGUL) delivers a Problem-based learning curriculum for its undergraduate medicine course. The nature of this paper–based delivery is linear and inflexible, and does not take advantage of the current technological developments which could radically improve flexibility, provide personalisation, and convert cases into an online interactive experience with choices and consequences.

1.2 BACKGROUND TO THE PROPOSAL

The Medical Curriculum at SGUL

In 2000 St George's Faculty of Medicine expanded its existing undergraduate medical education provision by providing a novel fast-track problem-based (PBL) MBBS curriculum for medicine taught over four years. Uniquely, this programme was open to graduates from any discipline including arts, humanities, law etc.

In 2007 St George's merged its undergraduate medical courses into a single course, with separate entry pathways for graduates, school-leavers, and non-traditional learners from under-represented sectors. The key phase where all these learners come together is a transitional year, known as the T year, which alternates PBL blocks with clinical attachments. Thereafter, all students are integrated for senior and final clinical attachments.

Problem-Based Learning in the Medical Curriculum

Increasingly, curricula in medicine are built around enquiry-based collaborative approaches to learning, predominantly Problem-based learning (PBL). In this approach, students work in teams to explore, manage or solve a problem. Guided by a tutor they share their existing knowledge and understanding relevant to an unfolding scenario, agreeing on what they need to learn and how to carry it out. Medicine and Healthcare education have been using this approach in the UK since the mid 1980s.

Typically, students discuss the emerging patient scenario at the beginning of the week. Throughout the week, they have access to many forms of face to face and online learning resources including sessional teaching, and in all cases, the activity in these sessions is related to the problem of the week. Such activities may include lectures, practical classes, tutorials and patient-based activities in the community or hospitals.

Needs of the learner for medical practice

When investigating problems, practitioners need to synthesise a range of relevant information, identify solutions, and test those solutions. Competence in this crucial process is necessary for all practitioners and requires an approach that differs from traditional teaching methods, where students are passive recipients of information.

SGUL has continued to look for ways of improving links between the process of student learning and the needs of the practitioner. This effort to mirror medical and healthcare practice is best illustrated by reviewing stages in the evolution of our teaching methods. Our teaching and learning activities have increasingly adopted the approaches of practitioners in medicine and healthcare in a way that builds on **generations** of pedagogical paradigms. These paradigms are described below as G1-4**:**

G1 - 'traditional' teaching in medicine, which would normally begin with modules in single discipline bioscience which in themselves had little relationship to ultimate learner needs (1980s).

G2 - the teaching moved to a body systems approach, e.g. respiratory system, which had greater relevance to clinical specialties e.g. chest physicians (1990s).This was a useful advance, but students still did not practise the competencies of practitioners, in solving even moderately complex problems.

G3 - began with the process of learning through scenarios based on practice which tied in sound knowledge and skills to the needs of the eventual practitioner. A common variant of this style in medicine is Problem-Based Learning (PBL) which ties in learning, developing decision-making, and problem solving skills. Students work through the patient case page by page with a facilitator, discussing the case, exploring possible diagnoses, investigations and treatments identifying learning objectives, and possible solutions as they go.

G4 – the next generation, proposed in this application, and described in the next section
Limitations of G3
Although PBL has proved effective and popular, particularly for the first year of our course, there are constraints in its paper-based nature. The paper cases used in tutorials can only proceed in a single

direction. In this regard, cases in G3 are linear. Learners can only follow one path. Such cases may have limited use in developing clinical reasoning, and are unrealistic for emulating real life, where there are frequently several ways to tackle a problem and mistakes made may not be immediately obvious. This approach may be less engaging for senior students than more complex, multi choice scenarios.

Merrill[1] suggests changing problems as learners progress by adding components to make them more realistic, and several studies have considered the guidance-fading effect, that active problem solving can be increased and guidance can be reduced as learners become more competent, and better able to deal with their working memory limitations[2]. Ironically, over recent years the PBL case in medicine has generally become more detailed, structured and restrictive in comparison with, say, cases pioneered at the University of McMaster in the 1960's.

Furthermore, PBL (as G3) has not taken full advantage of the possibilities for searching, reflection, testing and personalisation offered by technological developments. Simply putting PBL online has proved to be a poor use of the technology. For example, at a recent meeting of the 'Flinders collaboration' (Adelaide March 2008: a group of universities using a similar PBL style), five out of seven universities had found that simply putting PBL online was deeply unpopular with students who saw no real advantage to the change. This is in contrast to the student response to interactive online Virtual Patients at SGUL (see below).

1. 3   G4: THE NEXT GENERATION

ence SGUL's proposal to move to G4 - integrated, adaptive and authentic case-based learning. The aim of the G4 model is for medical students to engage in collaborative learning activities that more directly mimic the competencies of experienced medical practitioners. The proposed project integrates learning resources and technologies around a core interactive case based technology - the virtual patient (VP) - and will seamlessly blend online and face-to-face learning.

The role of VPs and associated learning resources

A VP has been defined as "an interactive computer simulation of real-life clinical scenarios for the purpose of medical training, education, or assessment[3]". Using the VP player Labyrinth at SGUL, VPs have been used to offer students the opportunity to take decisions, explore different choices, and follow the consequences of those choices. VPs are ideal for rehearsal of clinical decision-making for medical and healthcare training and can be used for adaptive forms of assessment.

This G4 model integrates (face to face) small group learning with a range of existing technologies: ePortfolios, adaptive formative assessments, and a wide range of repurposed learning resources. It will also explore the value of Second Life. Components of this integrated delivery have already been supported by JISC funding (see resources) and disseminated throughout the learning community.

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[1] Merrill, MD (2002). "A pebble-in-the-pond model for instructional design. *Performance Improvement* **41**:39–44.l
[2] Sweller, J (2006). "The worked example effect and human cognition". *Learning & Instruction* **16** (2): 165–169.
[3] Ellaway R et al.. (2006) . An architectural model for MedBiquitous virtual patients. Baltimore, MD: MedBiquitous.
http://www.medbiq.org/working_groups/virtual_patient/MVP_WhitePaper_11Sep2006.pdf

The Virtual Patient as an adaptive technology

Learning technology can be particularly effective when it adapts a lesson to decisions made by learners. This occurs in many computer simulators, such as flight simulators, driving simulators, and virtual patients[4]. In important ways, these simulators adapt learning activities in ways that customise how learners proceed, the specific feedback they view, and reports showing their progress[5]. From this perspective, each group of students will have a different experience, or path, in the same VP. A final point is that the diverse paths in a VP are designed so that all paths address a lesson's learning objectives, with careful quality assurance that offers subject matter experts multiple opportunities to review a VP. This quality assurance will include a separate and specially-designed "assessment VP" that will measure how well students have reached the learning objectives.

2.0 DESCRIPTION OF WORK

The aim of this project is to use recently-developed technologies to assist in the creation of a more interactive and integrated model for curriculum delivery in medicine. The intention is to create a more adaptive, personalised, competency-based style of learning which more closely matches the role of the practitioner[6]. The G4 proposal integrates all technologies and resources described below, rolls these out to the Transition year (T yr) of undergraduate medicine, and thereafter embeds the integrated delivery system into the rest of the course.

The specific objectives are:

- To review existing paper based PBL cases and re-write where necessary to fit new curriculum objectives.
- To deliver 18 interactive virtual patient cases as replacements for PBL paper based cases.
- To deliver 36 adaptive assessments with these cases.
- To integrate an array of resources, assessments, the eportfolio and web 2.0 tools with all administrative course elements and face to face teaching, and to include delivery to mobile devices.
- To produce a complete set of guidelines, interactive open source tools, and training and learning scenarios to enable institutions and teachers in different disciplines to set up a similar system.
- To rollout these supporting technologies to the rest of the undergraduate medicine (MBBS) course.

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[4] Steadman, R. H., Coates, W. C., Huang, et al. (2006) Simulation-based training is superior to problem-based learning for the acquisition of critical assessment and management skills. *Critical care medicine,* 34**,** 151-7.

[5] Park, O.-C. and J. Lee (2004). Adaptive instructional systems. Handbook of research on educational communications and technology. D. H. Jonassen. Mahwah, N.J., Lawrence Erlbaum**:** 651-684.

[6] Joint Information Systems Committee (2008) *Tangible benefits of e-Learning: Does investment yield interest?*, Northumbria University.

The review and creation of the scenarios will be led by subject matter experts (SMEs). The SMEs are based within the medical school and across the NHS Trust. Their clinical expertise will be bought-in on a case by case basis. In the first instance the SMEs will be guided by existing clinical experts on the creation of these VPs, and guided on the types of resources available and where these can be added to support the students. Alongside this, formative assessments can be added to build in the adaptive approach. Some technical development may be needed to generate the adaptive model. Once the content has been created, the technical development of resource can commence, and the SMEs will work alongside the learning technologist.

2.1 RESOURCES AND STANDARDS

The range of resources and tools needed for the integrated G4 delivery is currently available. Several are part-funded by JISC, and/or open source. We will explore other open source tools as they become available.

(i) Interactive VPs
SGUL has created a generic 'model' for the design of interactive virtual patients which is simple to use, yet flexible enough to simulate real decision-making. More than 60 members of staff have voluntarily attended VP workshops[7]. We have recently used VPs in two separate trials to replace conventional paper based learning, as described under G3 (see section 4.1).

(ii) Supplementary learning resources to embed in G4
Key Topics: a large collection of learning resources developed in house to cover the science needs of medicine and healthcare students. These resources were repurposed to different educational levels including FE, led by a JISC funded project REHASH[8], under the distributed e-learning programme. These resources were content-packaged using RELOAD, and distributed via our project website and the national repository JORUM[9]. SGUL has over 400 of these topics, stored in a searchable database. These resources are image rich and cover the basic and clinical sciences objectives for the first two years of the courses.

Clinical skills online: originally a subject centre mini-project to create clinical skill videos that has been continually added to. The videos are freely available though our website[10] or though the SGUL YouTube channel[11]. These videos have proved to be highly successful globally, with more than 1 million visitors and 100,000 downloads.

Web Libraries: assembled collections of links to web resources tailored to each case or subject area.

Anatomy and Pathology trails: online paths though structured collections of specimens which describe and illustrate the normal and disease body systems of the PBL/VP patient case of the week.

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[7] VP workshops, http://www.elu.sgul.ac.uk/virtualpatients/workshops.htm
[8] REHASH – Re-purposing Existing Health Assets to SHare, http://www.elu.sgul.ac.uk/rehash/
[9] JORUM, http://www.jorum.ac.uk/
[10] CSO – Clinical Skills Online, HEA 2004-present http://www.slu.sgul.ac.uk/cso
[11] CSO on YouTube, 2007-present, http://www.youtube.com/user/sgulcso

ePET: open source eportfolio, originally supported by JISC funding, which has been customised to fit the needs of competency based courses.

Adaptive formative assessments: Formative assessment, adapt to the performance/progress of the learner. These types of assessment VPs have attracted considerable interest at a major international medical education conference[12].

(ii) Open Source tools
Vue: a freely available topic mapping tool from Tufts University[13], Boston USA used for designing clinical scenarios, narratives and schemas, and used to import scenarios into Labyrinth.

OpenLabyrinth: an open source virtual patient authoring, delivery and analysis toolset[14], largely developed by Dr Ellaway and now in use in a number of different medical schools worldwide. It is currently being recoded at SGUL to improve functionality and allow greater flexibility in the types of VPs which can be produced. OpenLabyrinth exports and imports to the MedBiquitous[15] Virtual Patient standard.

The Medbiquitous Virtual Patient (MVP): an XML data standard for the exchange and reuse of virtual patients. It is freely available to the wider community and is currently undergoing ANSI accreditation. It is based on other commonly-used standards such as SCORM, LOM metadata and MeSH.

Second Life: a freely-available multi-user virtual world. A player for the MedBiquitous Virtual Patient packages has been developed as part of the JISC-funded PREVIEW[16] project. The web services developed for Second Life process VP scenarios as a web service based on existing standards for web communication protocols.

Moodle: this Virtual Learning Environment was adopted by SGUL in 2005, one of the earliest HE institutions to do so. It has been fully customised to meet the needs for our learners and teachers.

3.0 WORKPLAN

3.1 Project Management
Project management will be based upon Prince2 methodology. The recommended project plan will be updated within 1 month of the start of the project and will be used as a guide throughout the project lifecycle.

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[12] MedBiquitous annual conference,
http://www.medbiq.org/events/conferences/annual_conference/2008/presentations.html#THURSDAY
[13] VUE – Visual Understanding Environment, http://vue.uit.tufts.edu/
[14] Labyrinth - http://labyrinth.mvm.ed.ac.uk/
[15] MedBiquitous, http://www.medbiq.org/
[16] PREVIEW – Problem-based learning in Virtual Interactive and Educational Worlds
http://www.elu.sgul.ac.uk/preview/blog/

3.2 Key Deliverables

Deliverable	Work Package	Completion date	Milestone
Updated project plan	1	31/10/08	Yes
Evaluation, QA, Dissemination plan	1	31/10/08	
Exit and sustainability plan	1	31/10/08	
Project web site	2	05/01/09	Yes
Report detailing current practice	3	19/11/08	Yes
Finalised new delivery plan	4	06/01/09	Yes
Selection of VPs for adaptation	5	24/02/09	Yes
18 adapted and enriched interactive cases	6,7	06/10/09	Yes
36 adaptive formative assessments	7	14/07/09	Yes
Integration of learning resources eportfolio, web 2.0 technologies	7	19/08/09	Yes
Training and support documentation	11	10/06/09	
Cases delivered with the curriculum (Go-live)	12	05/10/09	Yes
Final evaluation report	13	16/08/10	Yes
Progress reports and financial statements: 2 per year	15		
Final report including financial statement	15	28/09/10	Yes

3.3 Project Plan

Below is an overview of the project plan and the associated work packages, a detailed project plan listing all the tasks, dependencies, resource and Gantt chart can be found in Annex A:

Generation 4 (G4)   **Mon 06/10/08 Fri 01/10/10**
WP1   Start up   Mon 06/10/08 Fri 01/10/10
WP2   Web Presence   Mon 03/11/08 Mon 23/02/09
WP3   Review of current practice at SGUL   Mon 20/10/08 Wed 19/11/08
WP4   New delivery plan   Thu 20/11/08 Tue 06/01/09
WP5   Select VP cases for repurposing and enrichment   Wed 07/01/09 Tue 24/02/09
WP6   Create e-content matrix   of learning resources and tools   Wed 25/02/09 Fri 01/10/10
WP7   VP repurposing and content enrichment   Wed 25/03/09 Tue 30/06/09
WP8   Review other modules/ years, integrate enriched content Wed 07/10/09 Thu 10/12/09
WP9   Quality assurance review   Wed 01/07/09 Tue 14/07/09
WP10   Testing   Wed 15/07/09 Fri 31/07/09
WP11   Training plan and support documentation   Wed 25/02/09 Thu 18/06/09
WP12   Embedding into the curriculum and go-live   Mon 03/08/09 Wed 14/07/10
WP13   Evaluation   Thu 03/09/09 Wed 18/08/10

WP14 Awareness and dissemination	Tue 06/01/09 Thu 30/09/10
WP15 Reporting	Fri 27/02/09 Tue 28/09/10

The learning material will be delivered at the start of the transition year (T year) October 2009.

NB: the resource abbreviations used in the project plan: CC – Chair, Curriculum Development, PD – Project Director, PM – Project Manager, ETL – E-Learning Educational Lead, SME – Subject Matter Expert, LT – Learning Technologist, RL – Research Lead, ELU – E-learning Unit

3.4 Risk Management

Risk	P	S	Action to prevent/Manage risk
Staffing: Failure to appoint clinical experts	1	4	Workload will be divided between teaching staff at SGUL; financial support available for the additional work for existing part-time staff.
Staffing: Departure of key staff	3	1	Workload to be shared among like skilled staff – SGUL is fortunate to have a range of skills.
Organisational: Failure to engage staff with the project	1	3	Financial incentive for staff involved in construction, early engagement of tutors, positive response from the pilot.
Organisational: Failure to meet project milestones, including completion of cases on time	2	4	Prior agreement with funded staff on a framework for triggering relocation of task as necessary. Draw upon the experiences of the pilot which was completed to time. Schedule for planning resources, repurposing and enrichment with built in safety factors.
Organisational: Failure to complete key documentation on time	1		High quality management and communication plan: complete as soon as possible and appoint team members to help where necessary; there are sufficient trained e-Learning managers and skilled personnel at SGUL to ensure satisfactory completion.
Organisational: Difficulties with/reliability of user feedback	1	2	Involve all stakeholders in the evolution of evaluation strategy; strategy to include collection of data from the start of the project; external evaluator to assist with collection of data and analysis. No difficulties experienced with the pilot.
Overspend on budget	2	1	Monies to be sourced from internal funding.
Technical: difficulties due to implementing adaptive teaching	1	3	Traditional paper methods of PBL will be used in the short term until the risk is resolved.
Technical: Failure to find suitable resources	2	2	Create new resources to compliment the case, in-house.

3.5 IPR and Copyright

Many of the tools used, such as the VP player (OpenLabyrinth) are already freely available. The resources to support VPs will be made available via the national repository (JORUM). The content of

the case itself may be restricted since VPS need to be used in subsequent years, without revealing the case prematurely. Content made available will be for educational purposes, covered by creative commons license.

4.0 ENGAGEMENT WITH THE COMMUNITY

4.1 Needs analysis

(i)VP trial
At SGUL two separate trials looked at the impact of converting existing PBL cases for use online. Paper PBL cases were adapted for online use, with two formats: 'branching' - which allowed students to choose from options and explore the consequences, and 'linear', without the decision pathways. A small preliminary trial with first year medical students yielded encouraging feedback, and so a second more comprehensive trial was carried out with second year medical students, with an entire module of five cases undergoing the same adaptation. A controlled trial allowed us to run, each week, five tutorial rooms with a control 'linear' case, and five tutorial rooms with the branching VPs. The next week, the groups would be reversed, so that by the end of the module all students had experienced an equal number of linear and branched VPs.

Students and tutor surveys strongly supported the use of the branching VPs. Both found the options in the case created a more engaging session, and students believed that to some extent they learned more. The clear message was that the most important element of online VPs was the 'options and consequences'.

(ii) Formal learner engagement
Students have recently established a Student e-Learning Committee with representatives from each year of the courses. SeLC reports directly to a high level Teaching committee and considers, (a) what students believe is needed and (b) their response to any new initiatives. The Project Manager will be in attendance at SeLC.

4.2 Stakeholder analysis

Stakeholder	Role/Interest/Stake	Process of engagement
Medical and other healthcare students SGUL	End-Users of curriculum innovations. Value added by VPs and adaptive technologies, to enhance experience, develop decision-making and increase personalization.	Full representation on curriculum development teams, and G4 development team.
Student e-Learning Committee (SeLC)	Reporting to high level Learning Teaching and Assessment Committee 3 times/year.	SGUL e-learning manager (member of the core development team) co-opted to SeLC.
SGUL institution, teachers	Create, deliver and provide support for the curriculum. Achieve skills in new	PM and ELT engage with course and module teams, discussions at

	technological developments.	Teaching an Learning Committees.
Wider community Medicine, Healthcare courses and teachers	Recipients of integrated technologies, to up-grade curricula. Sharing experiences and resources as a community of purpose.	Training by educational technology lead, internal dissemination.
The PBL community	Differences, benefits of interactive online PBL.	Website, Medical &Healthcare conf, (ASME. AMEE, Ottawa), publications.
The JISC community	Pedagogical and technological innovations will provide opportunities to add value to existing curricula in the wider community.	Website, Dissemination activities, JISC technology meetings/ demonstrations, conferences, publications.
The European medicine, VP, and healthcare standards communities	Widespread interest in use and re-use of resources and concepts in medical and healthcare institutions, and user groups, across Europe, and to a lesser extent the USA and Australasia.	Dissemination through the EC eViP programme[17], Medbiquitous Europe, and all invited presentations and workshops.

4.3 Evaluation

An extensive evaluation strategy will be produced within one month of the start of the project; which is factored into the project plan (see work package 1). It will include all key stake-holders. Key elements within the strategy will be the adaptive technologies involving VPs and adaptive assessment, analysis of student response to choices and consequences, the effect of personalisation on their learning, and performance in assessments. Milestones are shown in the project plan and key deliverables table (3.2).The evaluation will be an ongoing process through different stages of the project cycle, consisting of focus groups with students, questionnaires with staff and students, interviews with PBL tutors and SMEs. An external evaluator, will be appointed to assist and guide the project team throughout the project.

4.4 Exit and sustainability

SGUL will be pleased to take part in any feedback and dissemination events. The project will be sustained by:
1. Long term institutional commitment and support for development and roll out.
2. Reuse and repurposing of content created.
3. Roll out to other years of the medical curriculum and to other courses.
4. Development of further resources to support teaching where needed.
5. The use of common standards for all resources - e.g. MedBiquitous standard (MVP) for VPs, assessments, SCORM packaging for all resources.
6. Sharing findings of evaluation with stakeholders and with the wider community.
7. Dissemination events - national and international.
8. Dissemination through the European VP network, through MedBiquitous Europe, and the eViP project, JISC and HEA websites, the Flinders Collaboration, and to other medical and healthcare faculties and schools

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[17] eViP – Electronic Virtual Patient, European Commission, http://www.virtualpatients.eu/

9. Dissemination and sharing of useful content and tools – e.g. skills videos, exemplar VPs and applications such as Open Labyrinth.
10 Maintain links with clinical experts, connected with ELU research and development programmes.

5.0 Budget

JISC funding would allow us to make a significant step change in our delivery (from G3 to G4), a technological and pedagogical step forward that would not normally be possible without the additional funding for SMEs, the direct involvement of senior academics, change-managers and university leadership, and the structural benefits that derive from co-ordinated project-management. SGUL has a track record of making its outputs and resources from grant funded projects freely available to the community (REHASH, PREVIEW, ReVIP).

Directly Incurred Staff	Apr08– Mar09	Apr09– Mar10	Apr10 – Mar11	TOTAL £
Post, Grade, No. Hours & % FTE	£0	£0	£0	£0
Total Directly Incurred Staff (A)	**£0**	**£0**	**£0**	**£0**
Non-Staff	**Apr08– Mar09**	**Apr09– Mar10**	**Apr10 – Mar11**	**TOTAL £**
Travel and expenses	£200	£2,500	£2,500	£5,200
Hardware/software (2xlaptops)	£2,000	£0	£0	£2,000
Dissemination	£0	£5,000	£3,000	£8,000
Evaluation	£5,000	£3,000	£5,000	£13,000
Other	£0	£0	£0	£0
Total Directly Incurred Non-Staff (B)	**£7,200**	**£10,500**	**£10,500**	**£28,200**
Directly Incurred Total (C) (A+B=C)	**£7,200**	**£10,500**	**£10,500**	**£28,200**
Directly Allocated	**Apr08– Mar09**	**Apr09– Mar10**	**Apr10 – Mar11**	**TOTAL £**
Staff: Project Manager	£28,000	£33,600	£6,600	£68,200
Staff: Project Director	£3,500	£4,200	£700	£8,400

Staff: Educational Chair	£490	£588	£98	£1176
Staff: Educational Technology Lead	£10,500	£12,600	£2,100	£25,200
Staff: Learning Technologist	£7,700	£9,240	£1,540	£18,480
Staff: Subject Matter Expert	£17,800	£20,160	£4,360	£42,320
Staff: Research Lead	£2,800	£3,360	£560	£6,720
Estates	£800	£1,000	£200	£2,000
Other	£0	£0	£0	£0
Directly Allocated Total (D)	**£71,590**	**£84,748**	**£16,158**	**£172,496**
Indirect Costs (E)	**£36,000**	**£42,000**	**£8,000**	**£86,000**
Total Project Cost (C+D+E)	**£114,790**	**£137,248**	**£34,658**	**£286,696**
Amount Requested from JISC	**£79,665.80**	**£96,073.60**	**£24,260.60**	**£200,000**
Institutional Contributions	**£35,124.20**	**£41,174.40**	**£10,397.40**	**£86,696**
Percentage Contributions over the life of the project	**JISC 69%**	**SGUL 31 %**		**Total 100%**

NB Additional institutional funding, totalling approximately £200,000, is provided in contributions of efforts from module /course staff, ICT and e-Learning. These contributions are embedded within the traditional support for development of the MBBS the course, and therefore have not been listed in the core G4 team budget, above.

6.0 THE PROJECT TEAM

6.1 Previous experience of the project team

SGUL is an independent medical and healthcare HEI and a member of the federation of colleges that constitute the University of London. Its independence has enabled it to move swiftly in response to the ever-changing environment in education and it has a strong reputation for curriculum quality and educational innovation. In the most recent external assessment of teaching quality, SGUL achieved the highest score for medicine of any London institution, and was rated as excellent across the range of its provision. SGUL fosters interdisciplinary learning for traditional and non-traditional students

entering the medical and healthcare professions to support inter-professional teamwork. SGUL works in strategic partnership with Kingston University (KU), notably through the joint Faculty of Health and Social Care Sciences; and in strategic partnership with KU and Royal Holloway University of London in an alliance supported by HEFCE. This alliance (Swan – the SW London Academic Network) is committed to high quality research and education to support health and social care provision.

Technologically, SGUL has benefited form one of the fastest growing e-Learning Units in Europe, with a commitment to developments which directly influence pedagogy. The eLearning Unit is currently running, or has recently run, three major JISC projects (REHASH, REVIP[18], and PREVIEW) and leads a large scale European programme eViP, and the common standards group MedBiquitous Europe. One of its strengths is in having highly trained (Prince2) manager/developers all of whom also possess bioscience degrees, experience as technical developers and are able to create innovative projects and carry out evaluations. Ten out of eleven of its last peer-reviewed grant applications have been funded, all are having/ have had successful outcomes; they range from healthcare standards development, implementation of PBL in virtual worlds, and evaluation of resource/tools embedding in the curriculum.

6.2 Core project team:

Chair, Curriculum development: Professor Sean Hilton, Deputy Principal

Professor Sean Hilton is Deputy Principal of St. George's, University of London, and Institutional lead for Education. He qualified MB.BS (London) in 1974, and has been a General Practitioner in Kingston upon Thames since 1979. At St. George's, he was appointed as Professor of Primary Care in 1993; Dean of Undergraduate Medicine from 1997-2002; and Vice-Principal (Teaching and Learning) from 2004-2007. A non-executive Board member of the St. George's Healthcare Trust since 2003, he is an elected member of the Foundation Council of the Academy of Medical Educators (AME), and has an interest in standards in medical education and elearning .
He is particularly interested in personal and professional development for medical students and doctors. He was a member of the Royal College of Physicians' Working Party on Medical Professionalism from 2003-5 and recipient of a Leverhulme Trust Fellowship to study medical professionalism in the USA and Australia in 2002-3.
He is a past Chairman (1998-2001) and Secretary (1991-95) of the Society for Academic Primary Care, and also Chairman of the Anglo-European College of Chiropractice.

Project director: Dr Terry Poulton

Dr Terry Poulton is Associate Dean for e-Learning in the Dept of Medical Education and Head of the e-Learning Unit at St George's University of London. He is Project Director for a number of major grants between 2004-2007, totalling more than £2 million; these include ADAMs, REHASH, REVIP, the SGUL lead for PREVIEW (all JISC) Clinical Skills Online (HEA), the European multi-centre eViP project (EC), for which he received the Medbiquitous Innovation award in 2008, and a number of smaller projects.

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[18] REVIP – Repurposing Existing Virtual Patients, http://www.elu.sgul.ac.uk/revip/

He founded the European healthcare standards group, Medbiquitous Europe. He has had more than 40 publications in his career.

Project Manager: Trupti Bakrania

Trupti Bakrania is the e-Learning Manager for the e-Learning Unit at St George's Medical School. Her main role is to manage the institutional VLE (Moodle) and support the users. This includes the creation of interactive learning resources, on-line formative assessments and to maintain the quality of these using the in-house quality assurance checks. Trupti has a strong background in biosciences that has proved very useful in giving a broad understanding of basic and clinical science teaching in medicine and healthcare.

Assessment Lead: Professor Dame Lesley Southgate

Professor Dame Lesley Southgate is Professor of Medical Education at St George's Hospital Medical School. She is a general practitioner and was active in patient care until she became President of the RCGP in 2000. From 1996-2004 she led the President's programme to develop and implement the assessment methods for the GMC performance procedures for the medical profession. She was a member of the Postgraduate Medical Education Training Board (PMETB) to November 2006. She has just been awarded the prestigious Hubbard award by the US National Board of Medical Examiners for outstanding contribution to assessment of competence and performance of doctors in the international arena. Current major responsibilities include the leadership of the recertification technical group for British GPs. Dame Lesley is also President of ASME.

E-Learning Lead: Dr. Steven Malikowski

Dr. Steven Malikowski is the E-Learning Lead Manager for the ELU. Previously as an Associate Professor at St. Cloud State University, a university with 15,000 students in the State of Minnesota, USA, he managed Statistical Consulting and Research Support, a group that served the entire university. Since 1993, he has created and researched e-learning at the University of Minnesota, Indiana University, and Walden University, which exclusively offers courses online. His primary role at St. George's is to identify learning needs that can be resolved with technology. He also develops and implements strategies for evaluating the use of e-learning.

VP /Labyrinth co-coordinator Emily Conradi

Emily Conradi is the e-Projects Manager for the e-Learning Unit. Most of the projects she is involved with focus on virtual patients design and development. Current projects include the JISC-funded PREVIEW project to evaluate the use of virtual patients within Second Life. Emily also explores and evaluates curriculum integration for virtual patients, and runs virtual patient design and development courses and workshops.

Research and evaluation consultant: Dr Rachel Ellaway

Dr Rachel Ellaway is the Assistant Dean and Associate Professor for Education Informatics at the Northern Ontario School of Medicine and Visiting Professor in Education Informatics at St George's Medical School in London, UK, and she has been involved in e-learning development, practice and research for more than a decade. She is the co-chair of the MedBiquitous Virtual patient Working Group, the chair of the Association of Faculties of Medicine of Canada Resource Working Group on Medical Informatics and is a board member for Medical Teacher. The work she led in developing and implementing profession-focused VLEs at the University of Edinburgh was recognised in the award of a Queen's Anniversary Prizes for Higher and Further Education, the first such award given to work involving learning technologies.

Additional core team members: Technical developer and Learning Technologist (to be appointed)

6.3 Current relevant funded projects

- In Europe, SGUL is leading a major 3-year project funded by the European Commission, called eViP, investigating the sharing of VPs between the 7 project partners with a view to creating a comprehensive multilingual, multicultural, European pool of VPs. This project is now underway and is already making excellent progress, and is hugely raising the global profile of VPs and European elearning.

- ReVIP, funded by JISC, is a project tackling the repurposing technical issues arising from sharing content between different VP players and systems in order to smooth the way for the pedagogical, language, and cultural changes needed to successfully transfer and implement a VP from one country to another.

- PREVIEW is a JISC-funded project to create PBL scenarios in Second Life for distance learning healthcare students. Six months into the project, it has already surpassed expectations, and the patients can be found on SGUL's SL Island. The Paramedic patients are VPs, use the MedBiquitous VP standard, and are interoperable with Labyrinth.

7.0 FOI Form (completed)

We would like JISC to consider withholding the following sections or paragraphs from disclosure, should the contents of this proposal be requested under the Freedom of Information Act, or if we are successful in our bid for funding and our project proposal is made available on JISC's website.

We acknowledge that the FOI Withheld Information Form is of indicative value only and that JISC may nevertheless be obliged to disclose this information in accordance with the requirements of the Act. We acknowledge that the final decision on disclosure rests with JISC.

Section / Paragraph No.	Relevant exemption from disclosure under FOI	Justification

8.0 Appendices

Annex A: Detailed project plan listing all the tasks, dependencies, resources, milestones and Gantt chart

Annex B: Summary of CVs of Core project team

Annex C: Institutional Support letter from Deputy Principal at SGUL