

## Annex D – Proposal template (Submission date: Monday 12 January 2009)

### Learning and Teaching Innovation Grants - Submission of Initial Proposal

Thank you for choosing to submit an initial proposal to the January deadline of the JISC Learning and Teaching Innovation Grant programme.

#### BEFORE YOU COMPLETE THIS TEMPLATE YOU SHOULD HAVE:

- read the circular guidance document available at [http://www.jisc.ac.uk/fundingopportunities/funding\\_calls/2008/04/circular408.aspx](http://www.jisc.ac.uk/fundingopportunities/funding_calls/2008/04/circular408.aspx) ;
- attained the support of a senior member of institutional staff for your proposal, and been assured that yours is the only institutionally supported proposal;
- checked the length and completeness of your proposal;
- checked the eligibility of your proposal against the circular.

#### PLEASE DO NOT:

- submit overlong answers (note, you cannot “vire” words between answers) or an ineligible proposal;
- include supplementary material (annexes, staff CVs, letters of support);
- use images in an attempt to get around the word limit.

Bids that do not follow these simple instructions will not be assessed, and you will receive a notification of this rather than feedback.

### Proposal Information

This is the basic information that we need to process your bid and correspond with you regarding the assessment process:

<b>1. What is the name of your proposed project?</b>
<i>The use of 3D Audio soundscapes in kinaesthetic learning : Simulation for physical training for Ear-hand coordination (with a particular application to Blind Cricket)</i>
<b>2. What is the name of the institution leading this bid?</b>
<i>London Metropolitan University with Nottingham Trent University</i>
<b>3. Who is the contact person for this bid?</b>
Martin Wright
<b>4. What is the email address of the contact person?</b>
<i>m.wright@londonmet.ac.uk</i>
<b>5. What is the amount of funding sought from JISC for this proposal?</b>

£72 000
<p><b>Similarities to previous JISC bids</b></p> <p>Though we will check this internally, projects should to indicate where they are submitting a heavily revised bid to a previous call for proposals. Note that direct resubmissions of unchanged bids are not eligible.</p>
<p><b>6. Has a version of this proposal been submitted to any previous JISC programmes?</b></p> <p><b>No</b></p>
<p><b>6a. If yes, please explain <u>briefly</u>.</b> (200 words)</p> <p><i>(you should mention the programme the bid was made to, the feedback offered and steps that have been taken to address this)</i></p>
<p><b>Freedom of Information</b></p> <p>Please see <a href="http://www.ico.gov.uk">http://www.ico.gov.uk</a> for further information on the Freedom of Information Act and the exemptions to disclosure it contains.</p> <p>This FOI Withheld Information question is of indicative value only and JISC may nevertheless be obliged to disclose this information in accordance with the requirements of the Act. In answering this question you acknowledge that the final decision on disclosure rests with JISC.</p> <p>We also reserve the right to post details of this submission online, in order to support future rounds of this call.</p>
<p><b>7. We would like JISC to consider withholding the following sections or paragraphs of this proposal 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 the JISC website.</b></p> <p>n/a</p>
<p><b>Project Description</b></p> <p><b>8. Describe your proposed project in 3 sentences.</b> (80 words)</p> <p>The project will construct a virtual practice and training environment for sports people within HE programmes who are blind or have visual impairments using an existing 3D virtual sound application combined with Wii technology. Working with undergraduates, teaching staff and practicing coaches from a Foundation Degree in Community Sport Coaching; we will implement a User centred Innovation development model to create a scalable learning space applicable across HE in a range of contexts where kinaesthetic learning styles and ear / hand coordination may be appropriate. The 'space' can be integrated into regular learning environments and e-learning contexts.</p>
<p><b>Material for Assessment</b></p> <p>These sections will comprise the part of the proposal that is assessed at stage one of the process (pre-interview). You <b>must</b> adhere the word limits indicated for each question.</p>

## 9. What is the issue, problem or user need that your proposed project is addressing? (500 words)

The use of 3D Audio soundscapes in kinaesthetic learning : Simulation for physical training for Ear-hand coordination (with a particular application to Blind Cricket) - this project will address the question of autonomy for the players of sport who are blind or who have visual impairments. Blind Cricket is as resource intensive as the mainstream form and requires similar structural, organisational and equipment inputs; however, for players of Blind Cricket there is the added challenge of mobilising the requisite time, space, locational and practical support to be able to engage with others for purposeful and challenging practice in addition to play.

London Metropolitan University is committed to maintaining and expanding the number of places offered by its Foundation Degree in Community Sport Coaching to players of Blind Cricket and is seeking to build up both a domestic and international reputation for excellence in this area. In line with this aspiration, there is a need to develop appropriately appointed opportunities for skills practice and simulated play.

Blind cricket is growing in popularity not merely domestically, but across the globe. Our key partners, *Cricket for Change*, are at the centre of these developments and have over the past two years been involved in development initiatives in the Caribbean, India, Pakistan, South Africa, Zimbabwe and Sri Lanka. However, the growth of Blind Cricket is not confined to those areas of the world where Test cricket is embedded, *Cricket for Change* have also worked in Sierra Leone and Kenya as well as being at the heart of communal reconciliatory projects focused on Blind Cricket in Rwanda and in bringing Jewish settlers and Palestinians together in Israel. Blind Cricket works in countries where there is an established cultural heritage, because they have that heritage, but also works in contexts where there is no cultural "baggage". In combination with these global developments, there is a need to give players opportunities to acquire and develop a basic compatible and commensurable body of skills to allow domestic competition that supports international matchplay; this will benefit the development of the game across a wide range of cultural and resource realities.

The growing profile of the Paralympics Games means that there is potential, and possibly a moral imperative, to bring games such as Blind Cricket not just to wider "mainstream" audiences, but also to build up more extensive direct engagement with the game. Blind Cricket requires finely tuned skills, muscularity and tactical nous, all things that come with regular and sustained practice.

We apply a non-deficit model in our development insofar as the application is not assistive technology but maps to the full capabilities of targeted users. In practice this approach ends up also being highly applicable beyond the target to non-blind users – we call this reverse inclusion whereby a product or application is designed for the specific special need in the first instance but becomes highly applicable to users beyond the target. This has been our approach in a range of learning application developed to date.

## 10. How does the proposed project address the issue described above? (500 words)

The use of 3D Audio soundscapes in kinaesthetic learning : Simulation for physical training for Ear-hand coordination (with a particular application to Blind Cricket) - offers players autonomy and control over their development as sports-people by providing an environment in which they will be able to train and practice their sport. This environment loosens and in some aspects removes the constraints not only of time, location and space, but also the support required from others. The practice and training environment simulates each of the playing roles found in a game and offers physical access through an input device based on existing Wii technology. As long as players have access to a computer their play and training can be facilitated. Quantitatively, this should greatly increase the time that players can devote to their practice; qualitatively, the environment will facilitate purposeful, formative and progressive practice in which players set themselves challenges and evaluate their progress.

A physical training simulator will facilitate the education of students who play Blind Cricket and who are training to be Community Sport Coaches. Training principles, coaching practices and skill development can be introduced and mediated through the simulated environment as they would be in real time and space. Therefore, the environment can underpin the University course and offers students and tutors opportunities to construct appropriately challenging curricula and learning experiences.

Despite some obvious resource differences (fiscal, physical, cultural and human) between those countries playing Blind Cricket, the computer and its potential to support e-learning can be near ubiquitous. Real-time dependence on coaches (often from the UK) will be reduced by the creation of a portable training environment that can facilitate skills' transfer and through it, the creation of a wider coaching community of practice. The promotion of a global, intercultural comity through sport for a group who are so often marginalised and offered limited opportunities would be a welcome accompaniment to this.

Our initial focus for the development of this environment is on Blind Cricket because of the opportunities afforded by having an enthusiastic group of players at the University who will be able to work closely with the software developers. This has clear benefits for the appropriateness and applicability of the end product as well as for the students who will learn so much as they engage with the development process. We believe that this environment has the potential to grow the interest in Blind Cricket for wider audiences and participants but more significantly the environment will be scalable to other games and contexts.

The design and build methodology using a User Innovation Development Model will produce a Cricket specific application but all the parametric elements representing the virtual space and aural/haptic interaction will be generic such that it can be applied to any simulation space with different rule sets. We will develop Cricket as a full working exemplar. There will as well be a basic visual representation of the virtual space – very much as in regular Wii games.

**11. What makes the proposed project innovative? (500 words)**

The project is both pedagogically and technologically innovative and is fundamentally committed to a non-deficit model for blind and visually impaired users in that it grows from an established practice and plays to the strengths that are vital to successful engagement with Blind Cricket and sport in general, e.g. the aural.

#### Pedagogic innovation

Autonomy - the project enables greater autonomy for learners, in that it allows them to control when, where and how often they are able to practice. This contrasts with the sort of organisational challenges that accompany practice in real space and time.

Socially interactive - being an environment rather than a rather narrowly constrained and ready-made computer game it facilitates negotiated engagement and learning between players and their coach and thereby offers a social basis for their learning.

Community of Practice - Blind Cricket coaches have developed a repertoire of drills, games and practice activities as part of their professional lore, the environment offers a focal point around which these practices can be consolidated and disseminated, thereby encouraging a community of practice with potential for growth and extension to other sports and across national boundaries.

Scalable / adaptable learning space – in addition to a virtual simulation of a real space this environment could be used for other modelling / training learning activities.

#### Technological innovation

Technological synthesis - this project is technologically highly innovative bringing together three distinct existing technologies, two of which have been developed at two different universities, into a single integrated environment.

3D audio environment - this unique 360° audio environment, which is delivered through standard stereo headphones, brings a novel level of immersion and engagement. The base technology which relies on head related transfer functions was developed originally for the defence industry and has been adapted to an interactive learning environment for which London Met has developed the engine and educational content for maths learning for Blind children, with particular emphasis on spatial awareness and geometry.

Wii technology - the Nintendo Wii remote controller (Wiimote) which has been applied at NTU as a platform for the development for assistive technology.

Physics engine – the above will be integrated with the Havoc physics engine to provide an audio gaming and simulation environment suitable to support our particular learning need.

#### References :

- Battersby, S. (2007) Serious Games and the Wii – a technical report, BCS SGAI AI-2007 Serious Games Workshop, Cambridge, 10-12 December 2007
- Users and Innovation Development Model : Craig Wentworth JISC July 2007  
[http://www.jisc.ac.uk/media/documents/programmes/capital/u&i\\_townmtgoct06\\_model\\_cw.pdf](http://www.jisc.ac.uk/media/documents/programmes/capital/u&i_townmtgoct06_model_cw.pdf)
- Serious Games for People with Physical and Cognitive Impairments  
David Brown, Lindsay Evett, Steven Battersby, Allan Ridley  
**ISRG**, Computing and Technology, Nottingham Trent University  
Disability and Games – conference Middlesbrough October 2007
- Sos and the Big Maths Adventure  
Developed at Gamelab London, London Met University in partnership with BBC.  
( Publication January 2009 )
- QIA Excellence Gateway :

Nintendo Wii brings long-term benefits for the disabled ( Dec 2008 )

<http://excellence.qia.org.uk/page.aspx?o=169843>

- Audio Games Survey – Mark France (2007) Accessibility Foundation , Netherlands
- ENORASI : Virtual Environments for the Training of Visually Impaired  
<http://www.ist-world.org/ProjectDetails.aspx?ProjectId=03c6c0876b1d43238757c36a3cc126c4>

**12. How does the proposed project address the JISC eLearning vision, principles and objectives? (500 words)**

The project addresses the aims of the JISC e-learning programme as stipulated in the initial call. Although the project focuses on Blind cricket and has the potential for extension to other sports played by blind and visually impaired sportspeople, it is situated within a Foundation Degree for Community Sport Coaches that recruits students with a wide range of abilities and disabilities. Therefore, the course is neither exclusively for people who are blind or have visual impairments, neither does it make this presumption. Community Sport Coaches, whatever their abilities or sports will benefit from engagement with learning in an aural environment as well as learning to play disability forms of sports, because they can expect some part of their professional activity to be with learners with disabilities and special needs. Therefore, the project will facilitate this learning for all students on the course as well as make unique provision for blind students.

The project opens up a new and unique online learning and research space that is built around preferred learning styles for players of Blind cricket, and by extension other sports for people who are blind or visually impaired. The potential to populate the virtual space with the objects and processes found in Blind cricket is matched by the potential to build up a wide range of coach-led learning resources that are accessible, adaptable and transferable.

On conclusion we will have created :

- A specific Blind Cricket orientated exemplar of a scalable learning space applicable across HE in a range of contexts where kinaesthetic learning styles and ear / hand coordination may be appropriate.
- A 'space' that can be integrated into regular learning environments and e-learning contexts.
- A generic virtual space which can be applied in a range of curricular areas to include physics as well as sports coaching.

We see our work as contributing to JISC's objectives in the area of Learning Resources and Activities of creating environments which offer:

- Technology rich physical and online learning teaching and research spaces are accessible and flexibly designed to reflect an understanding of the learning styles preferences and diversity of their users;
- A wide range of learning resources is freely available, easily discovered and routinely re-use

Starting with the two institutions involved in this project, we expect our work to be more widely adopted across HE in the UK and beyond.

**13. Give brief details of the project timescale, project team, key work packages and outputs. (500 words)**

	May-09	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10
Work Package 1											
<u>Integration of technologies and initial UI development</u>											
Developer London											
Met	20										
Developer Nottingham Trent	20										
Academic London											
Met	10										
Academic Nottingham Trent	10										
Work Package 2											
<u>Basic activity development and interactive user trails</u>											
Developer London											
Met		20									
Developer Nottingham Trent		5									
Academic London											
Met		10									
Academic Nottingham Trent		5									
Work Package 3											
<u>Cognitive issues in relation to user models</u>											
Developer London											
Met			10								
Developer Nottingham Trent			10								
Academic London											
Met			30								
Academic Nottingham Trent			5								
Work Package 4											
<u>Integration into coaching programme</u>											
Developer London											
Met				10	10						
Developer Nottingham Trent											
Academic London											
Met				20	20	20					
Academic Nottingham Trent											
Work Package 5											
<u>Dissemination</u>											
Developer London											
Met							10				
Developer Nottingham Trent							5				
Academic London											
Met							5	5	5	5	5
Academic Nottingham Trent							3	3	3	3	3
WP	Description	Output									
1	Integration of technologies and initial UI development	Wii control of audio space including haptic collision response. Evaluation									
2	Basic activity development and interactive user trails	Initial definition of control parameters. Evaluation									
3	Cognitive issues in relation to user models : <ul style="list-style-type: none"> <li>Ball dynamics</li> <li>Audio elements : Ball sound, impact sounds</li> <li>Haptic responses</li> <li>Soundscapes</li> </ul>	Full user experience description with optimal parameters with usability assessments. Evaluation									
4	Integration into coaching programme	Evaluation of pedagogy and usability.									
5	Dissemination	Publications and conferences plus web-site with on-line demonstrator									

## Budget Information

14. Please enter amounts for the entire year your project will run. (for directly incurred staff, please include details of staff member, grade and FTE under other information.) Please see annex C of the circular document for an explanation of terms.

(Enter overall totals for each line of the budget where indicated. List staff members, FTEs or details of spending (etc) in the "other information" column. You will be given the opportunity to submit a full budget at the interview stage. Note that the purchase of hardware or software is not permitted with JISC LTIG funds.)

	Amount	Other information:
a. Directly Incurred Staff:	████████	0.5 FTE across two developers, one at each institution London Met and Nottingham Trent
b. Directly Incurred Travel and Expenses:	£4500	includes journeys between London Met and Nottingham Trent plus attendance at programme meetings.
c. Directly Incurred Dissemination:	£7500	Currently an estimate of expenses additional to work package 5 which is the dissemination work package.
d. Directly Incurred Evaluation:	£0	Evaluation costs are embedded in development work packages
e. Directly Incurred Other:	£3700	
<b>Subtotal</b>		
f. Directly Allocated Staff:	████████	0.7 FTE researchers across two institutions London Met and Nottingham Trent
g. Directly Allocated Estates:	£3400	
h. Directly Allocated Other:	£5200	
<b>Subtotal</b>		
i. Indirect Costs:	£26000	FeC in relation to researchers
<b>Subtotal</b>		
j. Total Project Costs:	£124000	
k. Amount Requested from JISC:	£72000	
l. Institutional Contribution:	£52000	(note that bids that do not refer to an institutional contribution are ineligible)

### Key personnel :

Martin Wright *	Director Gamelab London	London Metropolitan University
David Blundell *	Senior Lecturer Education	London Metropolitan University
Richard England **	Senior Developer	London Metropolitan University
Barbara Zambrini *	Deputy Director Gamelab	London Metropolitan University
Simon Schofield *	Senior Lecturer	Nottingham Trent University
AN Other **	Developer	Nottingham Trent University

\* indicates researcher    \*\* indicates developer