

**Peter Lennie**  
Jay Last Distinguished University Professor



December 8, 2017

Professor Joseph Sung  
Professor Martin Paul  
Professor John Hearn

Dear Joseph, Martin and John,

**Report of Working Group on Undergraduate Education**

On behalf of the working group I've attached for your consideration a copy of our final report.

Although we reviewed a broad range of opportunities for WUN to enlarge its mission, we did not discuss joint degree programs at a level that would permit us to make a recommendation. We think this might be worth study at a later date.

As you might expect from a group representing diverse universities, members had a range of views on what was most important. While we agreed on the recommendations, the group was clear that adopting all of them will not benefit all partners equally. This led to discussion of whether we intend that adoption of our recommendations obliges partners to participate in the resulting initiatives. We believe that partners should be free to participate or not. We consider it a matter for the Board to decide the extent to which the WUN contribution to the cost of initiatives is shared by all partners vs. just participating partners. We also consider it a matter for the Board to decide the extent to which the initiatives it adopts are funded by new vs. existing revenue sources.

Our financial recommendations are constructed so as to give the Board flexibility in allocating resources. For the pilot projects (the grants to faculty, the summer school, and the scholarships), the number and/or scale can be adjusted to accommodate different levels of commitment.

All good wishes

A handwritten signature in black ink, appearing to read 'Peter'.

Peter Lennie

# REPORT OF WUN WORKING GROUP ON UNDERGRADUATE EDUCATION

## ***Executive Summary***

We examined two ways in which WUN might strengthen undergraduate education: first, through direct provision (or sponsorship of) academic programs; second, through providing mechanisms that make it easier for students to study abroad.

### *Research-Related Academic Programs*

We considered academic opportunities in two areas: mobility with a research focus, and broadening access to courses. We concluded that the best opportunities lay in research-related mobility. We recommend that WUN invest in two pilot projects:

- Grants to faculty to engage groups of advanced students in substantial research projects.
- “Summer schools” that introduce undergraduates to research problems.

We do not at present recommend WUN involvement with co-branded courses, or course-sharing or co-teaching among partners, but recommend that this be reviewed periodically.

### *Enlarging Opportunities for Study Abroad*

WUN could help partners increase participation in education and research opportunities abroad by offering a consortium-wide exchange program, and we recommend that WUN invest now to establish machinery for consortium-wide exchanges. By developing standards for uniformly characterizing courses, WUN might make it easier for partners to award home institution credit for work undertaken abroad. We recommend that this be looked into at a later stage.

### *Resources*

We recommend that WUN commit £140,000-£192,500 to establish the undergraduate mission:

- As pilot projects: £30,000-£55,000 to support a summer school and grants to faculty to engage advanced undergraduates in research, plus an additional £35,000-£52,500 as scholarship support for 35 students.
- Annually: £55,000-£65,000 to establish in the secretariat a full-time permanent position responsible for undergraduate education, plus an additional £20,000 for information technology.

### *Administrative Organization*

To accommodate the enlarged mission we recommend that the AAG include members with expertise in undergraduate education, and that an additional standing group of specialists be established as a counterpart to the coordinators' group.

## ***Introduction***

At the 2017 Annual General Meeting in New York, the Partnership Board embraced a recommendation that the WUN mission be enlarged to include an explicit role in undergraduate education. All partners are committed to educating globally-aware citizens, and have made major investments in undergraduate education abroad. By extending its mission to embrace undergraduate education the WUN has the opportunity to add value to what individual partners currently do on their own while at the same time elevating the profile of the network. Moreover WUN can be made more robust. At present, the network's value to a partner depends greatly on the extent to which that partner's research portfolio intersects the global challenges. *Every* partner is deeply engaged in education in an international context, so by adding value here the network can strengthen the ties that bind partners to it.

The Board recognized that opportunities existed on two levels: 1) providing a distinctive WUN-branded educational experience; 2) providing network-level machinery for obviating some of the common obstacles to students experiencing education abroad.

The working group was established by the Board to develop a plan for enlarging the mission, and was charged to address the following:

- Recommend educational programs that:
  - Would be linked to research, with priority when aligned with the WUN research emphases.
  - Would be of distinctive quality and attract strong students.
  - Would ensure equal opportunity for students from high- and low-income countries.
- Explore models for supporting multi-institutional mobility across the network.
- Make budget recommendations.

Our group had two meetings by teleconference and one in-person, the latter at the EAIA meeting in Seville, at which we were joined by additional partner representatives.

## ***Educational Opportunities***

Potential opportunities fall broadly into two categories: mobility, and broadening access to courses.

### **Mobility with a research focus**

The group considered three different kinds of programs that could connect undergraduate education with the WUN research mission.

---

<sup>1</sup> The charge also flagged the need to have student input in shaping the program. This remains to be done.

*Faculty-supervised research projects*

There was broad agreement on the desirability of student engagement in individual or small group research projects under the supervision of faculty. Most partners have established mechanisms for their own students to do this, and two (Alberta and CUHK) also have summer programs aimed expressly at students from other institutions. We recognized that a program for students to undertake supervised research projects at partner universities abroad could provide a high-profile mechanism for WUN to engage the strongest undergraduates, and potentially build a pipeline for recruiting PhD students.

The administrative effort required to match students and faculty can be considerable. For this reason we recommend adopting a model used by the US National Science Foundation for its [Research Experience for Undergraduates \(REU\)](#) program. The REU model awards funds competitively and directly to faculty, who then select student participants from among those who have applied to join a project. Students learn about opportunities through individual institutions and also a through an NSF web site that publicizes them.

NSF provides two avenues of support for REUs:

1. The first REU mechanism provides funds to support a group of ten or more undergraduates on a project designed expressly to engage them in research. Projects typically last 6 weeks or more during long vacations. They can involve one or more disciplines as long as they are thematically coherent.
2. In the second mechanism, the faculty member applies for a supplement to an existing or proposed major research project, so that undergraduates can participate in it. In the WUN context, this might be an addition to an RDF application, or a stand-alone application for funds to augment support from other sources. This mechanism can work for projects undertaken during the academic year, or during vacations.

We think the first model could work well for WUN. It can engage students in significant numbers for relatively low management overhead and it provides a vehicle for faculty to promote opportunities for (and to vet) potential future graduate students. The second model might be attractive for the longer term, but we do not recommend adopting it now because for the same overhead as the first model it benefits fewer students and is likely to be less effective in engaging faculty.

*We recommend that WUN provide support for undergraduate research done under the supervision of faculty, through competitively-awarded grants to faculty for projects that will engage groups of students.*

We recommend that projects be designed so that students could receive academic credit, or an alternative recognition such as a certificate when a

student's home institution did not permit credit<sup>2</sup>, and we would expect projects to accommodate the complexities of ensuring access from both hemispheres.

To engage faculty sufficiently, we think that the program needs to appeal to, and select for, the strongest and best-prepared students. This can be achieved by providing scholarship support for undergraduates to participate in the research projects.

*We recommend that WUN establish a program of competitively-awarded scholarships for undergraduates to participate in research projects.*

To have the impact we seek, the program needs to be offered at sufficient scale. At maturity a successful program should probably support 100 or more students each year. It should begin small.

*We recommend that WUN commit to a pilot investment in two projects in different research domains, covering about 20 students altogether.*

#### *Summer schools*

In 2015 WUN sponsored at UWA a very successful summer school for PhD students/postdocs on Soil Science and Climate Change. Some particulars of its organization would be inappropriate for undergraduates, but a thematically coherent meeting hosted by an institution with special domain expertise could provide an unusual opportunity for undergraduates.

We think that short (2 weeks or less) summer schools (more broadly, schools offered during vacations) on topics falling within the compass of the Global Challenges or SDGs, and drawing on faculty from several partners, would offer distinctive opportunities that differ in important respects from the research projects commended in the previous section. Notably, summer schools can be offered at introductory levels (for example some might be designed to introduce students broadly to research in the summer following the freshman year; others might be designed to introduce students to specialized research areas they would be unlikely to encounter otherwise), and at different scales. The summer school hosted by UWA accommodated about 25 students. Universitas21 offers [one each year](#) that is thematically very broad, and accommodates 60-100 undergraduates. We prefer smaller summer schools, which make it easier to accommodate varied and potentially specialized themes, and also to stratify schools in ways that can be tailored for students at different stages in their careers.

*We recommend that WUN commit pilot support for a summer school (credit-bearing to the extent possible) on a topic related to its research mission and/or that provides undergraduates with a distinctive introduction to research problems.*

#### *Research conference*

An important part of undergraduate engagement in research is the public presentation of work, generally as a poster or talk. Our proposal for research projects (above) implies provision of a public forum for students to discuss their

---

<sup>2</sup> Some institutions forbid credit for work done outside the normal academic year.

work. Such a forum could be associated with the AGM, or it could be a stand-alone conference, or part of a larger, broader research conference that showcased the best of undergraduate research undertaken at partner universities (Universitas21 holds an annual [undergraduate research conference](#), hosted by one member, limited to 80-100 students from member universities, though some content is made widely available via streaming). The nature and scale of a research conference is probably best decided after we know about the success of the undergraduate research projects.

*We recommend that, after a successful launch of the program of faculty-supervised research projects, WUN sponsor an annual research conference at which undergraduates present their work.*

### **Course access beyond and across the network<sup>3</sup>**

Many universities offer credit-bearing distance learning and online degree programs for students in other countries. This is a crowded space, and it is unlikely that it offers opportunity for WUN as an organization.

Massively open online courses (MOOCs) have potential appeal. They can have long reach, and one might imagine a select portfolio of distinctive WUN-branded MOOCs that brought the network greater visibility, while also enlarging access. However, such courses can be very expensive to provide, and it is not clear that they offer direct benefit to WUN partners in educating their own students (managing MOOCs for credit is a particular problem).

The geographical dispersion of partners and the different national and regional contexts in which they work endow the network with distinctive resources that we might tap to enrich education, in disciplines extending from the sciences through the humanities. This could take multiple forms:

- Courses provided by a faculty member from one partner but made available for credit to others. These might be typical semester- or term-long courses, or possibly short courses.
- Courses co-taught or team-taught by faculty from two or more partners, where each faculty member brings distinctive specialist knowledge or perspective to the collaboration.

In both cases there are complexities of access and timing (if the teacher is in a different time zone and/or not physically present), and potentially of language. These logistical issues are surmountable, but they're also local to the particular courses and partners involved, and it's not clear that there is a role for the network in orchestrating/managing this kind of initiative. There might be a role for the network in maintaining a register of courses that universities want to make accessible to other partners.

---

<sup>3</sup> By 'course' we mean a course in the American sense (the modular building block of a degree program) not in the British sense of a whole degree course.

*Although we do not recommend that at present WUN provide or sponsor normal undergraduate courses or MOOCS, we do recommend that it periodically review the matter.*

### **Easing Access to Study Abroad**

Two substantial opportunities exist for WUN to help partners simplify and enlarge access to study abroad.

1. Student flows between institutions are often limited by the need to ensure that exchanges are balanced. The network could make a big impact by becoming the vehicle for consortium-based exchange accounting, so that partners balance outflows and inflows at a network level (across all partners), not bilaterally.
2. At present, study abroad does not always result in credit that is useful to a student. Some institutions do not allow credit for work undertaken outside the academic year. In other cases accrediting bodies don't recognize credit transfer from institutions outside the home country. These problems are eased if students can be awarded home institution credit for the work undertaken abroad.

### **Consortium-wide exchange balancing**

Although all WUN universities have exchange agreements in place with one or more partners (a study by CUHK earlier this year showed the average is 6, with a maximum of 14), flow between partners is in many cases limited by the need to keep exchanges balanced. This problem can be greatly eased by instituting a mechanism for balancing at consortium level (among all participating partners). We know about two models for doing this:

- [International Student Exchange Programs \(ISEP\)](#), of which 3 WUN partners are members, handles exchanges in all disciplines, but has relatively few members of the stature of WUN universities. ISEP is relatively expensive: \$4,100 annual membership, plus additional fees per student placed. We do not discuss it further.
- [Global E3 \(GE3\)](#), of which 4 WUN partners are members, handles only engineering exchanges. GE3 has a \$3,000 annual membership, and no per-student fees. GE3 offers a potential model for a WUN consortium-based exchange.

GE3 benefits members in three respects: a) it increases the flow of students into study abroad; b) universities don't (need to) enter into individual (bilateral) MOUs, but enter into a master agreement with GE3; c) it exists comfortably alongside bilateral exchanges, which it encourages. GE3 is often used by universities as an easy way to test what might later develop into bilateral partnerships.

#### *How it works*

Students apply online through their home institution, typically to around 3 host universities. After review and approval by the home-institution advisor the application goes to GE3 for technical review and potential placement.

Each potential host university gives advance indication of how many incoming students it can accept. A host can't specify the universities from which it will accept students—it must be open (or closed) to all comers—but *can* decide whether to accept individual students, based on their attributes and goodness of fit.

GE3 places students in twice-yearly cycles. Each cycle has ~300 applications from across ~70 member universities. GE3 staff assign students to their preferred universities where possible. When demand exceeds availability at a host university, GE3 will stratify placements based on a set of agreed principles. Of the ~600 students/year who enter the system, about 80% are placed. After a student has been placed, he/she is counted in the balance. Balances are updated if student leaves placement, etc. Balance accounting is over a three year window, and is 'flexible.' Each university stipulates the maximum imbalance it's willing to tolerate.

*We recommend that WUN establish a mechanism to support consortium-wide undergraduate exchange, covering placement and balancing, broadly along the lines of the system used by GE3.*

### **Home-institution accrual of credit**

The establishment of a consortium-based exchange program would naturally include academic credit from throughout the network being accepted by partners, in the way it is currently recognized on bilateral exchanges. Since home-institution credit is generally more valuable to students than credit from outside, the WUN-sponsored mobility initiatives—whether research experience, summer school or consortium-based exchanges—could be made more attractive to students if partners were able to recognize such experiences for home-institution credit. To make it easier for universities to evaluate the suitability of courses for home-institution credit, WUN could develop standards that partners could, if they wished, adopt for characterizing courses (syllabus, etc.) and how they are managed/assessed.

*We recommend that, in a second phase of expanding its commitment to undergraduate education, WUN look at the feasibility of developing standards for characterizing courses in uniform ways, to facilitate award of home institution credit for work undertaken at a partner university.*

### **Resource Needs and Allocation**

#### **Direct support for faculty and students (£65,000-£107,500)**

Programs to support undergraduate research and summer schools can attract support from national and international agencies (for example, in the US the National Science Foundation such support), but that that support will be easier to secure when we have proof of concept. When programs are established it might also be possible to augment income by opening summer schools to students from non-WUN universities, and using fees to subsidize WUN students. We have assumed that initially there will be no external revenue, and that all costs are met by WUN and member universities.

*Faculty grants (£15,000-£30,000)*

We think that an adequate pilot initiative should provide support for one or two awards of up to £15,000 each, for projects that each provide research experience for 10 or more students. Funds would cover costs of project preparation, including materials and technical assistance. We recommend that all of these funds be provided through WUN.

*Summer school (£15,000-£25,000)*

We think that WUN should sponsor one summer school as a pilot project. Funds would support general expenses, and also travel and related costs for faculty from outside the host university. We project the overall cost at £25,000, and recommend that the contribution from WUN be at least £15,000.

*Student support (£35,000-£52,500)*

To participate in research projects or a summer school, most students will need support for travel and subsistence. The cost will vary considerably with the location of the research experience or summer school, but in an expensive location could be as high as £4,000-£6,000 per student. We recommend that WUN contribute a fraction of this as 'honorific' component to the award, with the student and/or the home institution providing the remainder (we recognize that this can be difficult for students from low-income countries, and address it below). For a pilot program of 20 students participating in research projects and 15 students participating in a summer school, with an award of £1,500, the cost would be £52,500; if it were necessary to restrict expenditures, awards might be made at £1,000, bringing the net cost to WUN to £35,000.

**Administrative support (£75,000-£85,000)**

Establishing a WUN presence in undergraduate education will require a greater level of directed engagement from administrators in partner universities than is needed to sustain the WUN research presence. The RDF is a lightly-managed initiative, and the Global Challenge steering groups are sustained by engaged faculty. An undergraduate initiative cannot be correspondingly self-sustaining.

A substantial commitment of effort will be required in the secretariat to ensure coordination of research-related mobility, consortium-based exchanges, and scholarship programs. There will also be information technology needs.

*We estimate that 1 FTE position would be required to launch and support the mobility initiatives. Cost: £55,000-£65,000 per annum, including some travel and professional development.*

*We estimate that information technology for consortium-wide exchange management might cost £20,000 initially with a smaller continuing annual commitment.*

**Managing income disparities**

Although exchange programs generally neutralize the cost of tuition and fees, other costs (often related to travel, housing and subsistence) must be covered by students and/or their home institutions. This can be a major obstacle to students from low-income countries studying in high-income ones. It is often resolved in

bilateral exchanges by the university in the low-income country sending 1 student for every 2 or 3 it receives from its high-income partner. The high-income partner then uses funds saved through the imbalance to provide cash support for the students it hosts from the low-income partner. Although this mechanism can, in principle, be extended to consortium-level exchanges, legal restrictions in some countries would prevent it being deployed by several partners. More work will be required to find mechanisms that work for all.

The *N for 1* mechanism isn't relevant to ensuring access to summer schools and research conferences. Other mechanisms (external grants, or opening programs to students from non-WUN universities and charging a fee), might yield funds for subsidy, but not immediately. For the pilot projects (research and summer school) we recommend that the WUN-provided scholarship funds be awarded in larger amounts to students from low-income countries.

### ***Timing***

The summer school is probably the simplest initiative. It is discrete, with the bulk of the organizational effort falling to the host institution. If an early commitment were made (before the end of 2017) one might be developed for the northern hemisphere summer of 2018 or for the southern hemisphere summer of 2018-19.

A program to support research projects needs to give faculty significant lead time for planning, and needs machinery for receiving and reviewing applications for funds—probably several months from the time WUN committed to the program and publicized it. If a commitment were made by the 2018 AGM, machinery could be in place for handling applications in the autumn of 2018, for programs in summer 2019.

Establishing machinery for WUN-wide exchange balancing will require commitment of staff in the secretariat (and to some extent in partner universities), and on the acquisition of relevant information technology. This might take as long as year from the time of commitment.

### ***Administrative Organization***

We have thought about how responsibility for undergraduate education might best sit within the committee structure of WUN, and have concluded that, as presently constituted, the AAG and the Coordinator's group are not well equipped to cover undergraduate education at the level needed to ensure success of the expanded mission. For the AAG, it will be important that it evolve to ensure greater representation from academic administrators responsible for education, such as Senior International Officers. We are particularly concerned about the need to add operational expertise at coordinator-level, and recommend establishing a new standing group of education/mobility specialists.

Peter Lennie, Rochester (chair)  
Britta Baron, Alberta  
Lara Dunwell, UCT  
Shally Fan, CUHK  
Hilary Layton, York

December 8, 2017

Dörte Stevenson, Sheffield  
Kalpen Trivedi, UMass  
Tom van Veen, Maastricht  
Iain Watt, UWA