The Virtual University for the Small States of the Commonwealth – the first 9 years

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Abstract

The Virtual University for the Small States of the Commonwealth (VUSSC) is an initiative that was created by the Ministers of Education of Small States. The Ministers approved the initiative for implementation at their triennial meeting in 2003 and COL (The Commonwealth of Learning) was asked to provide the support to enable the initiative to build its base. The intention has been to build human resource capacity in the Small States, to stimulate an increase in the course offerings in those countries and to create a mechanism to enable the transfer of credits and qualified people across borders of countries.

The Initiative has been directed by representatives of the Ministries of Education who have to date, met on four occasions. The VUSSC Initiative has trained over one hundred professionals in six workshops from twenty-six of the participating countries, who have in turn trained colleagues. Ministries of Education frequently comprise less than six professional staff members. Each of the countries usually has one national university. The seemingly small numbers of people have made deep impacts, which a parallel monitoring and evaluation study continues to uncover.

Training of workshop participants has been practical and hands-on, with course materials being a by-product of the training. Course materials produced have been released under Creative Commons copyright licenses and have been included in courses offered by institutions in the Small States. The initiative has operated as a learning organisation by incorporating lessons learned throughout the implementation period from 2005 to 2009. A VUSSC Management Committee (VUSSC MC) was established to take over the leadership of the Initiative. A Transnational Qualifications Framework (TQF) was conceived and established with a TQF Management Committee (TQF MC) to lead its development. The TQF MC forms a sub-committee of the VUSSC MC.

The future of VUSSC depends on the ability of the VUSSC MC to take on its leadership role in directing the VUSSC, including the important role of raising funds to continue the activities they deem appropriate. Technology and bandwidth advancements in Small States limit the potential of the VUSSC only to the imagination and efforts of the VUSSC and TQF Management Committees and all who participate in its activities.

The Author

Paul G. West is the Director, Knowledge Management and Information Technology (KM & IT) at the Commonwealth of Learning (COL), headquartered in Vancouver. In addition to his role of providing technology leadership to COL, Paul was asked to lead the implementation of the VUSSC Initiative, a task that was delegated to COL by the Ministers of Education at their meeting in Edinburgh in 2003. COL is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources and technologies.

Acknowledgements

Introduction

Thirty-two countries from across the globe have begun to collaborate to strengthen their education systems. Instigated by the Ministers of Education, educators in existing institutions are participating in global workshops that expose them to practices and cultures of other small states, while they learn about using computers, the Internet and the creation of distance education learning materials. International training workshops have taken place in six countries to date, with participants from a total of 26 countries.

The VUSSC network has embarked on the establishment of a Transnational Qualifications Framework (TQF), to support the sharing of course materials, transfer of qualifications and qualified people. This framework promises to be a translation mechanism to assist existing national authorities responsible for accreditation and quality assurance rather, than to impose a system on any one of them.

The transfer of learning materials is encouraged through the use of Creative Commons copyright licenses, instructional design templates, an online Internet collaboration space and a wiki. This paper will describe the process that has lead to the establishment of the VUSSC, which led to the formalisation of a management committee, which will in future guide the COL in supporting the small states of the Commonwealth.

The practical under-pinning of collaboration for 32 countries, spanning the world, has been the use of technology and the Internet. Many of the people involved in education, had been used to working with email. Few, however, had begun to exploit the power of the Internet and specifically, the so-called 'web2' technologies. Training needed to be carried out initially in a face-to-face mode, to bring a cadre of professional educators to a level where it was be feasible for them to collaborate online, to train others and to join the online world.

Origins of VUSSC (2000-2003)

The idea for VUSSC was germinated during the boom of the Internet Age in the year 2000, at the triennial Conference of Commonwealth Education Ministers (CCEM). In a meeting of Ministers from small states, the concern was raised of the rise of online universities and how this could negatively impact on small states, which stood at a disadvantage compared to larger countries. A suggestion to create a virtual university to serve specifically small states was suggested and supported. When the Ministers from the small states reconvened with the counterparts from larger countries, the suggestion was voiced and the Commonwealth of Learning (COL) was asked to take on a study to see if the idea was feasible.

From 2000 to 2003, COL engaged a Technical Advisory Group (TAC) under the leadership of Senior Consultant, Glen Farrell that comprised COL staff and representatives from the small states, to consider possibilities for the virtual university conceived at CCEM. The challenge was to find ways that a new initiative could add value to the state of higher education in small states at the time. A series of consultations resulted in a group of Ministers from small states asking COL to submit a report with recommendations to the CCEM that was held in Edinburgh in 2003(COL, 2003).

The TAC found that most countries have a range of institutions that offer primary to tertiary education and in most cases; they have at least one university. The issue of economies of scale prevent some countries from operating universities and this resulted in learners being sent to other countries for tertiary education. Some local providers started out in cooperation with foreign providers and subsequently became independent institutions, while others remain linked to these foreign institutions. The lack of economies of scale may be a factor to encourage Governments to allow foreign providers to operate institutions under a 'front' provided by the local government, or possibly without proper regulation (COL, 2003).

The Caribbean and the Pacific regions had already started regional universities with multiple local campuses, while the University Consortium of Small Island States (UCSIS) started out as a consortium of five institutions, including the two regional universities - the University of the West Indies (UWI) and the University of the South Pacific (USP). It was clear that the VUSSC could be neither 'an institution' nor a consortium of institutions. Forming one new institution that offers courses in multiple countries would put

it in a competitive position with local and national institutions. A consortium of institutions would risk becoming a competitor to UCSIS, USP and UWI. A consortium of institutions would enable existing institutions to get together and carve out 'territories' based on topic areas and geography, and these institutions would have little motivation to help develop small institutions and countries that do not have institutions.

The TAC report pointed out the lack of access to computers and the Internet. The implementation stage of VUSSC needed to take this into account and it was commonly found for a workshop participant to say that he or she would have to visit a computer lab once a day when there were no computer classes being held, to access the Internet or type a document. Thoughts of establishing a 'fully online' network had to be tempered with the reality of a lack of computers, the Internet and sometimes the understanding that access to these could improve teaching and learning. The Internet café and computer laboratory still remain the primary access point to computers and the Internet for many professional educators in small states. This challenge remains a long-term issue for Governments, since funders are reluctant to support hardware and software investments.

The TAC report proposed that the Virtual University should put emphasis on the creation of learning objects. The thinking around 'Learning Objects', which was popular in 2001 changed to 'Open Courseware' (OCW) with the publication of learning content by the Massachusetts Institute of Technology (MIT), to 'Open Educational Resources' (OER), a term coined in a discussion hosted by UNESCO. The VUSSC adapted as these terms changed and the outputs of the workshops were to produce OER in addition to building the skills of participants. Ideas of producing high tech or online learning content had to be tempered, due to limited access to computers and the Internet. Print materials can be developed in face-to-face workshops or by an online group. Once completed, they can be delivered electronically to close to the point of need via the Internet, printed and delivered for classroom use or used after being delivered to the learner online. This blend of technologies makes print materials very versatile.

The TAC proposed that the Virtual University should focus on adding value to higher education by (COL, 2003):

• *"Undertaking activities that will enable the small states to be "players" in the evolution of ICT applications in education.*

• *Playing an important role as a facilitator in helping the institutions of small states form consortia and partnerships to share existing course materials, develop new ones, plan new programmes for joint delivery and market existing programmes in content areas where a member institution has unique resources.*

• *Providing Access to knowledge that would provide a competitive edge for small states. For example, professional development courses for public and private sector staff could be available on a continuing basis from professional organisations.*

• *Providing services that enable students to plan programmes and take courses from a variety of quality-assured providers and have the credits earned accumulated towards an appropriate credential.*

• *Providing an accreditation system to develop quality standards, and ensure they are met.*

• *Enabling small states to have access to research and development capacity through which they would be able to assess various innovations involving ICT applications.*

The resulting proposal to Ministers proposed the vision of the Virtual University would (COL, 2003):

• *"Be an organisation or institution although not with a physical presence in the form of campuses as is the case with UWE and USP.*

• *Strengthen small states through the establishment of the shared ICT infrastructure that would be use to enable the creation and deployment of content databases based on learning objects.*

• *Be concerned with "adding value" to conventional on-campus instruction as it is with serving learners at a distance".*

The functions of the Virtual University were proposed as being (COL, 2003):

• *"To provide a vehicle for collaboration in the development and use of emerging technologies that are needed to develop virtual education models. Subject matter databases and learning management systems were suggested.*

• *To provide leadership in the planning and design of programmes, curricula and courses that is pertinent to the human resource development needs of the states involved and ensuring their delivery to learners.*

• *To provide support services to students, which would include assessment of current skills and knowledge, advice regarding academic plans, quality-assured access to courses, record of learning and the provision of awards where these are not available from other organisations".*

The report went on to state: "It will be necessary for the virtual university to be engaged in a number of core business activities in order to carry out the functions described above. These activities will need to be prioritised during the implementation period; however, they are the ongoing activities that are needed to guide the structuring, staffing and budget planning for the virtual university when it is fully operational."

Emphasis was placed on the establishment of academic teams, securing knowledge objects, curriculum development and course offering. A content database was to be developed, learning management system implemented and licensing mechanisms established, all of which would require the purchase of hardware and software. With the change of emphasis and the unavailability of funds, much of this changed during the course of the implementation phase that started in 2005. The estimated cost for the first five years of the initiative was estimated at USD21m and this was submitted to the Commonwealth Conference of Ministers held in Edinburgh in 2003 (CCEM).

Ministers were told that the benefits of creating a Virtual University would be to (COL, 2003):

• *"Enable small states to be contributors, as well as consumers, in the evolution of ICT applications in education.*

• *Provide a cadre of people with the skills and knowledge necessary to plan and implement virtual education systems.*

• *Create a vehicle for participation in global partnerships to develop re-useable content databases.*

• *Provide a capacity for collaboration in the development of shared programs.*

• *Enable existing providers of higher education to supplement and enhance current courses and programs, and to develop new ones, using knowledge content databases.*

• *Permit the delivery of courses in a variety of formats according to need and context.*

• *Enable small states to deal with issues of quality assurance and accreditation in a coordinated manner that is consistent with global standards.*

• *Provide enhanced services for learners.*

• *Complement the activities of existing organisations and institutions and enhance services to those states that currently do not have institutions of higher education".*

It is against these criteria that we need to measure the successes of the Virtual University to date. The TAC recommended that the Virtual University be created as a separate entity, even though some of its functions may overlap with those of the Commonwealth of Learning (COL). Initially, it was suggested that COL take a leadership role during its initial development and that VUSSC should be included as an initiative of COL, to enable 'incubation'.

Moving VUSSC from Concept to Initial Reality (2004-2006)

The report on the Virtual University was supported by Ministers at the CCEM, including the suggestion that the Commonwealth of Learning should lead the implementation process on behalf of small states. No provision was made for the funds outlined in the report. On this matter, the Chair of the meeting stated that the matter of raising the funds would be taken care of by the President of COL and the Secretary General of the Commonwealth Secretariat.

The immediate lack of funding to proceed caused some delay in 2004. The President of COL, Dato' Prof. Gajaraj Dhanarajan retired and the new President, Sir John Daniel took office in 2004. Sir John recounts that by this time, the concern over the 'dot com boom' had turned in to a 'dot com bust' and people did not feel as rushed to get into eLearning as they had in 2000(Daniel, 2005). From speaking with a few potential donors, he found that there was little support for what amounted to a new Commonwealth organisation with all the related head office expenses. There was however, support for the potential benefits of a virtual university.

The result was a mixed approach of working from the Ministers' request 'down' and from the 'bottom up', starting with the capacity building of professional educators. The immediate need was to begin to build capacity within a framework established by Ministries of Education. To get the process started, the

President of COL wrote to all Ministers of small states to ask if they were still interested in proceeding with the initiative and what they felt the main objectives of the Virtual University should now be.

Ministries of Education in two thirds of the small states of the Commonwealth responded, stating that they were still interested in creating a virtual university. They showed interest in a wide variety of possibilities with the Virtual University, most notably the building of human resource capacity in their countries. The term 'virtual' had to be understood as a characteristic of the network, rather than the only way that an institution would offer courses. Printed course materials are developed in a virtual format and remain that way for much of their existence before they are printed. Electronically offered courses are converted to a virtual format before they appear on screen in front of the learner. All materials that would be created, shared and stored, would be virtual, yet it was acknowledged that many f the participants in the capacity building and education programmes would need to do this in face-to-face settings rather than online.

Being called a Virtual University put pressure on COL to offer all capacity building entirely online. The reality of the situation was that many of the potential participants did not have their own computers, and did not have a computer allocated to them for their own work at their office. This required them to access a computer lab when there were no classes. Furthermore, bandwidth is provided to many of the participating countries via satellite making it expensive, slow and frequently dysfunctional. With these limitations, it was not surprising to find that participants of workshops did not have 'an online culture' as one would expect in high bandwidth countries. Gaining the understanding that face-to-face training would be needed to develop the use of online technologies, international workshops were arranged after senior officials had been given the opportunity to set the priorities.

Following the invitation to Ministers of Education that was sent by the President of COL in 2004, The Director, Knowledge Management and Information Technology of COL, Paul West, was asked to lead the implementation of the Virtual University for the Small States of the Commonwealth. A meeting of senior officials was hosted in 2005 to consider the concept and possible ways to implement the Ministers' initiative. Two meetings of senior officials nominated by Ministers of Education, now called 'Interlocutors' were held with the support of the Government of Singapore in 2005 and 2006, resulting in general consensus on a number of issues:

1. It was confirmed that the VUSSC would not be a unique or separate institution, but would rather be a mechanism to add capacity to existing institutions in participating VUSSC countries.

2. Institutions would eventually register learners from across their borders, thereby creating a globalised network of programmes, offered from the small states.

3. A mechanism would be needed to enhance the credibility of qualifications offered by institutions in small states and their transferability to other countries.

Although there were diverse ideas of the level and scope of courses that could be offered by the VUSSC, the consensus was that it needed to be pragmatic rather than idealistic. Practical and pragmatic courses were seen to be more urgent than theoretical courses. Course levels were pitched at being 'post secondary', or courses that could be incorporated into the lower levels of a tertiary-level qualification.

The topic areas to be initially focused on were equally pragmatic, being the kinds of skills that could bear positive impact on small economies, if the numbers of appropriately skilled people were increased, i.e.:

- Tourism
- Entrepreneurship
- Life Skills
- Fishing
- Construction
- Maritime
- International Development Management
- IT skills
- Agro-industry

With limited funding and uncertainty of where the next funding would come from, the Commonwealth of Learning (COL) provided the initial funds. The Director successfully applied for financial support from the William and Flora Hewlett Foundation and embarked on the hosting of a skills building workshop in Mauritius. The topics selected from the list mentioned above that were agreed with Interlocutors, were Entrepreneurship and Tourism.

VUSSC Activities Begin (2006-2009)

When planning the first VUSSC workshop for Mauritius, COL had just started using a wiki called WikiEducator. Initially, workshops were called 'bootcamps', following a trend in the IT world where IT skills are learned or where programmers meet and contribute code to the creation of a computer program.

To prepare for the first workshop and prevent COL staff from running the entire workshop at the expense of exclusion, the list of participants proposed by country interlocutors was reviewed and a group of four were asked to become team leaders. Team leaders were selected based on their subject knowledge, experience in open and distance learning (ODL), geographic representation and gender balance. These team leaders were invited to Vancouver, Canada where COL's Head Office is located, for a four-day orientation approximately a month before the workshop was held in Mauritius. During this orientation, the team leaders were introduced to the VUSSC initiative, and what they would be expected to do during the workshop in Mauritius. They decided on the broad subject area to be worked on by the groups and started online research to find learning materials that could be reused free of charge. From the first day of the workshop in Mauritius, the team leaders took the leadership role and ran the three-week workshop.

Team leaders expressed the need for computers to be purchased for all participants, highlighting that educators in developing small states usually do not own their own computers and have to share few computers in an office or wait for when they can use a computer laboratory. Since COL's policy is to not purchase equipment for participants of workshops, it was agreed that USB memory sticks would be purchased on which the participants' drafts of materials could be saved. Portable software called PortableAppsthat runs on memory sticks was also pre-installed, making the memory stick as near to a 'virtual computer' as one could create at the time. By plugging in the memory stick into almost any computer with the Microsoft Windows operating system, the user immediately has access to his or her

computer programs and files. Proving to be very popular, this was repeated with each subsequent workshop, with the devices increasing in size each time the workshops were hosted, as the cost per unit reduced over years. Where feasible, pocket hard drives were purchased at a similar price as the memory sticks massively increases the volume on the storage device.

During the first three workshops, the concerns over potential Internet outages during workshops were outweighed by the potential of the new wiki technology. Participants from fourteen countries participated in the first workshop, which was hosted at the University of Mauritius' Virtual Centre for Innovative Learning Technologies (VCILT) in August 2006.

One participant showed himself to be skilled in wikis and took a natural lead in teaching others the wiki code, or wiki syntax they all needed to learn. With the workshop planned to run for three weeks, there seemed to be ample time for a full agenda of presentations and for the participants to be exposed to technologies they might not otherwise have seen. Presentations included topics such as Moodle and how the VCILT was developing virtual education in Mauritius.

The enthusiasm of the evolving wiki community helped the group of educators to learn new wiki syntax each week. Some participants thrived on this stream of information while a few spoke about their state of confusion by the end of the workshop. Learning materials were produced within the wiki. An example of 'wiki syntax' is reproduced below:

{{activity |""Brainstorming Exercise""
In groups, discuss the role of assessment in general. Apply this to ODL situation. Report to plenary}}

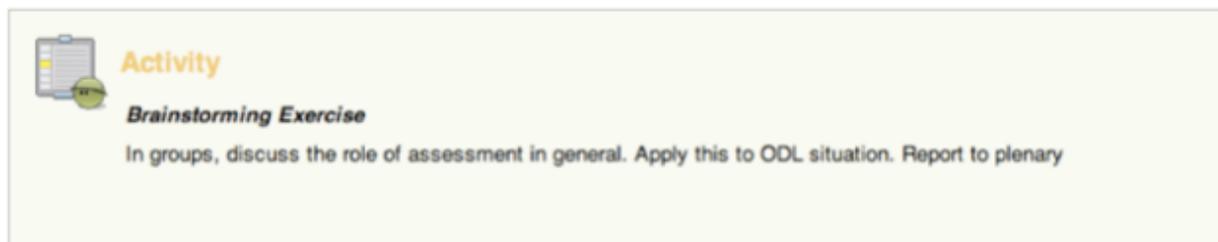The above code would be used in the wiki to create the text box below:

Figure 1: Wiki template

While the use of characters like "" and {{ are picked up quickly by some participants, others asked why they need to write using it rather than formatting the materials in the word processor they usually use at their office. Initially, the naming conventions which affect the structuring of pages as a website within the wiki were overlooked and pages appeared without a logical structure. The wiki culture expects that people will naturally participate, improve the language and layouts. During and after the workshop, it was found that participants had worked on their own sections of the course without sufficient, productive collaboration. The copyright license selected for the materials was CC-BY-SA. This meant that the materials would be sharable, customisable and available for both cost recovery and profit usage by anyone.

The participants learned many skills in the workshop and positive reports were recorded in later monitoring reports (Dunlop C. , 2008)(Dunlop C. , 2008), but the planned learning materials were not completed during the workshop. In one case, a participant from Botswana contributed an entire book to VUSSC, which was added to the website.
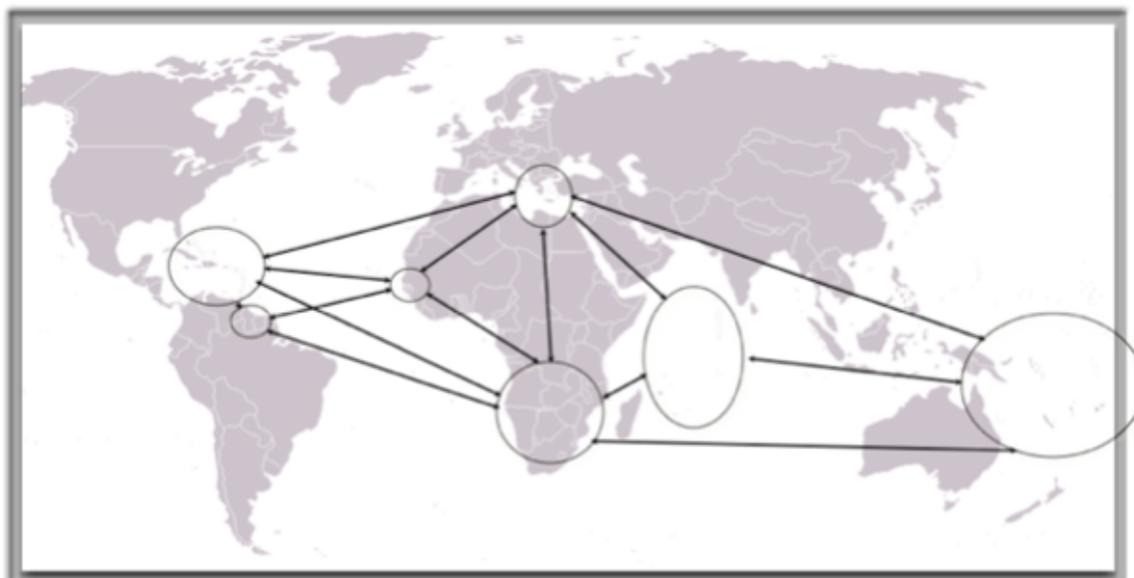
. . . a linking structure . . .

. to help build human capacity and strengthen countries

Figure 2: The geographic spread of the VUSSC Diaspora

The experience of the VUSSC workshop inpired Professor Alain Senteni of the University of Mauritius to describe a process he titled "Building up diasporas from scratch" (Senteni, 2006). Professor Senteni described how people would come from many different places, come to know each other and then return to their homes having created a new group or diaspora that had not previously existed. This thinking reinfoced the need to continue to host international workshops with participants from as many participating VUSSCcountries participating as possible.

The second VUSSC workshop was held in Singapore in March 2007, with the support of the Government of Singapore. The topic selected was ProfessionalDevelopment of Educators and for the purpose of the workshop, the topic was focused on the materials to run a workshop on the design and development of ODL materials. The workshop ran smoothly with inter-cultural exchanges and small group events beginning to take shape in the evenings, such as cultural dinners and discussions. Some members of the group expressed that they would feel more comfortable if they had the opportunity to work online in small groups without worrying that anyone around the world could 'watch them' and alter their work,

which is normal wiki culture. While there were no reports of unsolicited changes being made to the groups' work, this was noted and later contributed to a decision to no longer use the wiki as the primary collaboration tool for VUSSC.

A presentation on the use of Creative Commons liceses was included in every workshop to explain the issues surrounding the re-use of pictures and diagrams found on the Internet. Every picture or diagram's copyright needed to be checked and could only be used if it was appropriate licensed.

The third VUSSC workshop was held in Trinidad and Tobago (T&T) in June 2007 and focussed on the topic area of Life Skills. Whereas the first workshop had a nearly even balance in gender, this workshop was attended by almost all women. After this, we continued to find that the gender balance would be clearly influenced by the topic. In T&T, the wiki was used again, but the participants were clearer about their disinterest in working with what they described as program code. A divide seemed to be growing between the technically strong and those who wanted the technology to be a tool to get the job done. The result of this was to convert from using the wiki as the course development technology, to using the COL Instructional Design Template for the next workshop. Another aspect that was identified for change was the term 'bootcamp'. People who were not familiar with the term in the IT world, tended to relate to it as a military term and so did not like it. The workshops were renamed: International Training and Materials Development Workshops, a lot longer, but much more suitable for a wider audience of participants.

The fourth VUSSC workshop held in Samoa in November 2007, focused on Disaster Management. Source materials that were found as a starting point for the development carried either 'non commercial' restrictions or were available for 'educational purposes'. It was decided at this point that VUSSC could no longer remain rigidly with the CC-BY-SA license and would need to also use the CC-BY-SA-NC license where appropriate. An implication of this decision was that materials could not be uploaded to the WikiEducator website, because of its restriction against using non-commercial materials. Non-commercial materials could, however, be uploaded to COL's website or other sites that allowed a range of copyright licenses.

The use of the COL Instructional Design Template also required that materials in future be stored on websites other than WikiEducator, as this particular wiki community had chosen to restrict the permissible format to non-proprietary formats only. That meant that Microsoft Word formatted documents could not be uploaded to WikiEducator. A new way of online collaboration was needed. An online or cloud service called 'BaseCamp' was introduced. BaseCamp offered the teams a private space to collaborate in, much like a regular workshop. Services include Messaging (replacing face-to-face talking), Milestones (project deadlines for individuals and team members), To Do (each person can have multiple to-do lists to keep them on track while working toward a milestone), Writeboards (the online equivalent of a flipchart and somewhat like a series of single wiki pages, where multiple people can remotely edit the same page), Time (if time needs to be monitored) and Files (a useful space to save copies of all files needed by the team, much like a reference library).

Even when the Internet lines went down, which is something that needs to be planned for in many countries, the teams were able to continue working offline because of the offline ID Template. When the Internet lines work, versions of the draft learning material can be shared via BaseCamp, whether the team members are in the same room or 20,000km apart. The format of files was standardised on Microsoft

'DOC' as this most closely matched the existing technology in participating countries. The methodology for creating content had broadly evolved into (West, P., Daniel, J., 2009):

1. *"search for good source materials that may be used free of charge for the topic and create a draft of new materials with the necessary customisations;*

2. *apply the instructional design template to it; and*

3. *share the result using the BaseCamp online project management tool".*

The fifth workshop was held in The Seychelles in March 2008 and focused on the fishing industry. The workshop progressed smoothly and the lessons learned from the previous workshops appeared to be well implemented. The host organisations in each country arranged one external site visit that related to the topic of course material being created. The visit served to improve morale in the second week of constant pressure and work, gain a first-hand experience of the industry in one of the small states and to take photographs that could be used in study materials.

We realised that when trying to be a learning organisation, one needs to listen attentively and honestly and implement suggestions made by participants and stakeholders. At times, one's favourite systems and tools may be found to be less popular amongst the target group of people and so need to be changed. The risk at this point in the project is the level of ownership by the project implementers, rather than the participants and clients or stakeholders. Change as a result of being a learning organisation can be most difficult for the educators and project managers. By making the changes outlined above, the VUSSC Initiative could progress and gain popularity. By the end of the fifth workshop, positive feedback was being received from participants and senior officials in participating VUSSC countries on the way the workshops were being run and the impact participants were having in their home countries.

The sixth workshop, held on the Exuma Island of the Bahamas in October 2008, provided a different experience from the previous workshops. In all previous workshops, the computer laboratories had already been established and were based at institutions. The group of 20 to 25 people would be transported daily by bus between the accommodation and the institution. In the Exumas, the organisers decided that the proposed venue would not be appropriate for the whole group and made arrangements with the hotel where the group was accommodated, to provide a meeting room.

A computer was provided to each participant and a wired local area network established with a broadband Internet connection. There was, however, the risk of the occasional participant taking a siesta when their team members needed them to be working. During the regular first-day sessions of the workshop, a session on the topic: Search using Google, was presented to participants. One of the facilitators who had previously participated in a VUSSC workshop, offered to run an unplanned additional session on search engines starting at 8pm. The hotel staff reported the next day that they normally lock up the meeting areas at 10pm. They waited until 10:30pm and then asked everyone to leave. It was clear that there was not much of a problem with people taking siestas, but rather with people working too much. The hotel management and participants came to an agreement that they were welcome to continue working after supper, but would leave the venue by 10pm. This experience showed us how committed participants of VUSSC workshops are and that if it is possible to create a computer lab at the hotel where workshop participants are staying, rather than at a remote venue. This helps to make participants more productive

during the workshop, and also to socialise and get to know each other, with the benefit of more regular contact once the face-to-face workshop ends and online collaboration becomes the only form of contact.

Up to this point, over one hundred educators had participated in six workshops. Each participant was asked to pass on the skills learned through informal means and small workshops in their own countries. If each person would at least improve the skills of five other people, this would increase the number of educators with improved ICT skills in small states by 500. While the numbers might sound small to many people, in countries with populations as low as 10,000 people, training one person in an Education Ministry staff of five professionals can have a significant impact in the long run.

Having hosted 6 workshops and with the majority of participating VUSSC countries now having had one or more educators' skills improved, the VUSSC was beginning to move toward the hosting of online capacity building. This change needs to take into account that some countries are still critically short of ICT-skilled educators, while some countries have not yet participated in the workshop process. Reasons for this include both that the country may have joined the network late and that the country may not yet have had the human resources available to send to capacity building workshops.

For at least five years, the VUSSC would offer the opportunity for participating countries to send participants to face-to-face training in a computer laboratory. In preparation for a reduced travel model to follow the initial years, online training was introduced in 2008. Costs of travel, accommodation and visas for the Interlocutors' meetings and training workshops were paid for from funds received from the William and Flora Hewlett Foundation, The Commonwealth Fund for Technical Cooperation (CFTC) and the Commonwealth of Learning. Funding from CFTC was provided for the years July 2006 to June 2010.

While the workshops would need to decline in frequency toward June 2010 when the CFTC funding would end, the online training was planned to increase at the same time (see Figure 3). The transnational qualifications framework (TQF) would simultaneously be developed to provide additional credibility to qualifications acquired in participating VUSSC countries.
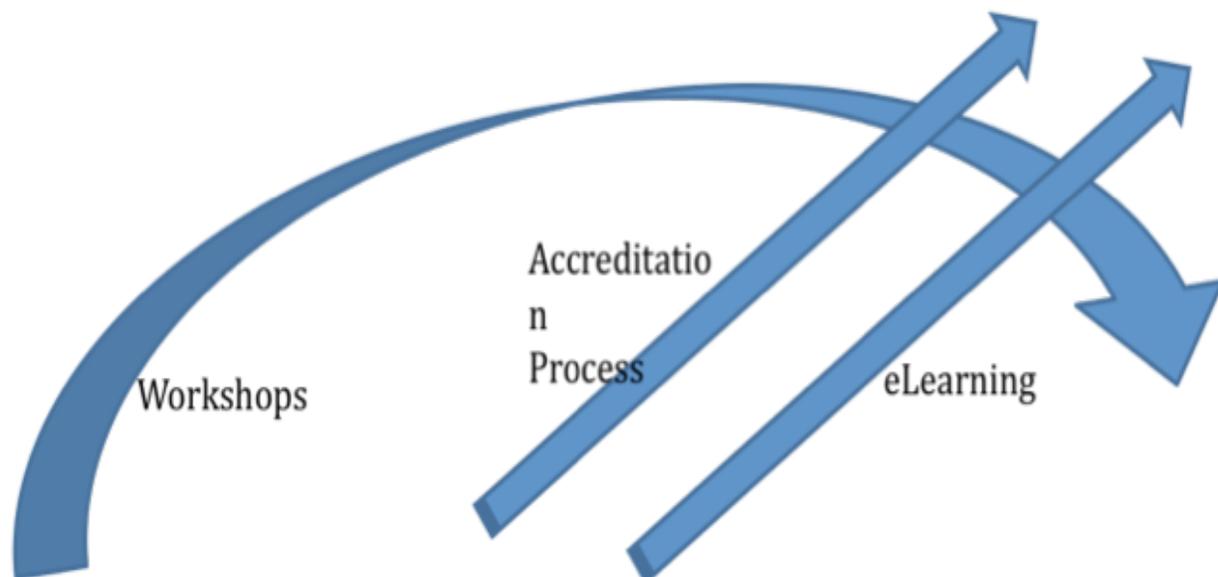
Figure 3: From receiving to offering

It was necessary to time the capacity building workshops so that online training could begin once there were sufficient human resources to absorb the online training. Also, the credibility of locally offered programmes needed to be improved, but this could not be done before capacity building had started to be built up. By 2008, institutions reported that they were using materials developed in the capacity building processes and one institution had started to offer a course entirely online.
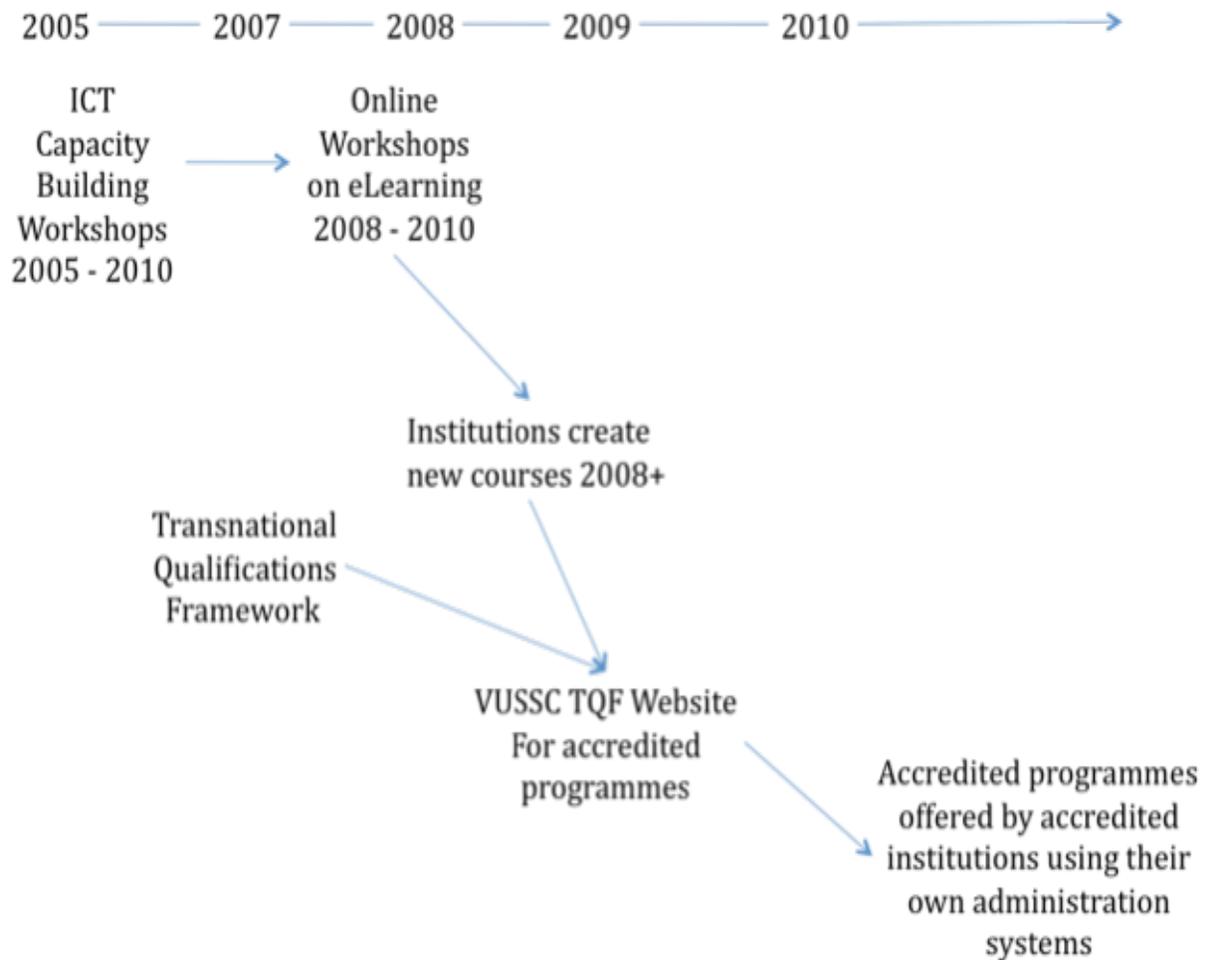

Figure 4: The timing of VUSSC activities

The development of the TQF in 2008 and 2009 was timed to match the growing expectations of institutions that were beginning to offer new courses (face-to-face or online) with the hope of increasing registration numbers. The VUSSC website launched in 2009 began to promote the network and the institutions participating in the initiative.

Creating a Transnational Qualifications Framework

The process to create a National Qualification Authority is within the domain of national Governments and is not done by non-governmental organisations. A Transnational system for the recognition of qualifications across borders may be approached through processes such as the Bologna Process, which strives to promote the European system of higher education. A process like this would have been well beyond the financial means of the VUSSC Initiative and so a more cost effective alternative was conceived. The Transnational Qualifications Framework (TQF) is not an equivalent to any existing national or regional qualifications authority, nor is does it carry any executive authority over any national government's quality control system.

To begin the process, expertise was needed to conceptualise a way that the small states could voluntarily recognise the qualifications from each other's countries. This would require a basic qualifications framework that could be used to map any country's qualification framework. A country may have one, two or even three qualifications frameworks and this would normally have to be compared on a bilateral basis between countries (See Figure 5).

If a 'central' framework could be created, this could be used to map against the qualifications levels of any of the countries and so could provide a quicker way of mapping between multiple countries (COL, 2008).
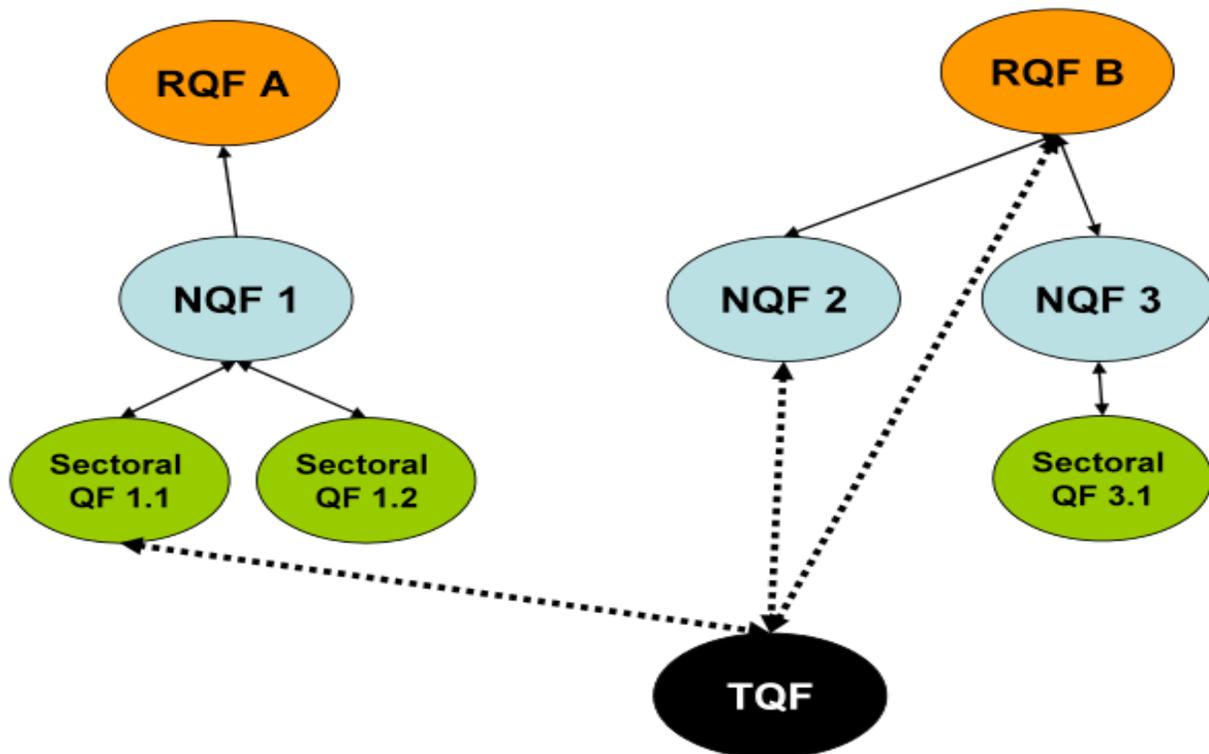
Figure 5: The TQF Concept

A meeting of all senior officials responsible for national accreditation was planned for early 2008. In preparation for this, a draft concept document was needed that could be presented to officials and improved on before agreeing on how to meet this expectation in this ministers' initiative.

The identification of expertise to lead the drafting of the concept document required careful balance. Expertise drawn from the high-income countries that had implemented national qualification frameworks might not have been acceptable to small states due to their colonial history. Selecting one of the small states that we felt was most advanced with the establishment of a national qualification framework could have set one small state in a superior position compared to the others.

It was eventually decided that a developing country in the southern hemisphere, that is not in the group of small states and had experience in the creation of qualifications frameworks, would be most appropriate. The South African Qualifications Authority (SAQA) was approached to provide leadership to a TQF Task Team and to coordinate the drafting of a concept document, including the facilitation of a meeting of senior officials. Members for the team were selected from prior experience, not necessarily from small states. It was clarified at each meeting that SAQA was providing expertise and facilitation and would not have a role in implementing a system for small states. Implementation would have to be by the small states.

The process started with a request being sent to all Ministers of Education of the small states, asking them to send COL a copy of any national qualifications documentation that was available and to nominate a person to participate in the meeting of senior officials responsible for the accreditation of national qualifications. Copies of these documents were shared with the drafting team via BaseCamp. The team created a concept document with the many iterations being shared via BaseCamp. The electronic version of the document was sent to senior officials nominated to meet and printed copies of the document were provided on arrival at the TQF meeting. The meeting was held in Singapore in February 2008, with the support of the Government of Singapore. In the request to the TQF Task team to create a concept, they were asked to avoid existing issues in any particular country and to focus on a common framework that could be mapped against any country's national qualifications system.

The research showed that countries were at various stages of development regarding the establishment of national qualifications frameworks (COL, 2008). Twenty-four countries were compared in terms of their progress toward creating frameworks using the following criteria:

• *"Stage 1: No progress: two countries (Rwanda, Vanuatu)*

• *Stage 2: Background work under way, such as national discussions and advocacy: nine countries (Antigua and Barbuda, Bahamas, Barbados, Belize, Bermuda, Cyprus, Grenada, Guyana, Lesotho)*

• *Stage 3: Initial development, such as the establishment of task teams and drafting of concept papers: two countries (Kiribati, St Kitts and Nevis)*

• *Stage 4: Draft legislation formulated and some structures in place: four countries (Malta, Mauritius, Samoa, Tonga)*

• *Stage 5: Legislation passed, structures established, standards being developed, quality assurance under way, national information system developed: five countries (Botswana, Brunei, Jamaica, Namibia, Seychelles)*

• *Stage 6: Advanced implementation and system functional for five or more years: none*

• *Stage 7: Continuous review conducted and adjustments applied: two countries (Papa New Guinea, The Gambia)".*

The average state of development was estimated to be between 3 and 4 on the scale, that is, they had started the appointment of people to work on the establishment of frameworks and authorities. Only two countries stated that they were well advanced with the implementation of qualification frameworks.

The team that was assembled was led by a specialist from the South African Qualifications Authority and staff of the Commonwealth of Learning. Participants were heads of national qualifications authorities or government officials responsible for the implementation of national qualification systems. The meeting agenda needed to rapidly move the participants from a full briefing of how the VUSSC was established, to the present and then to explain the possible future of a TQF.
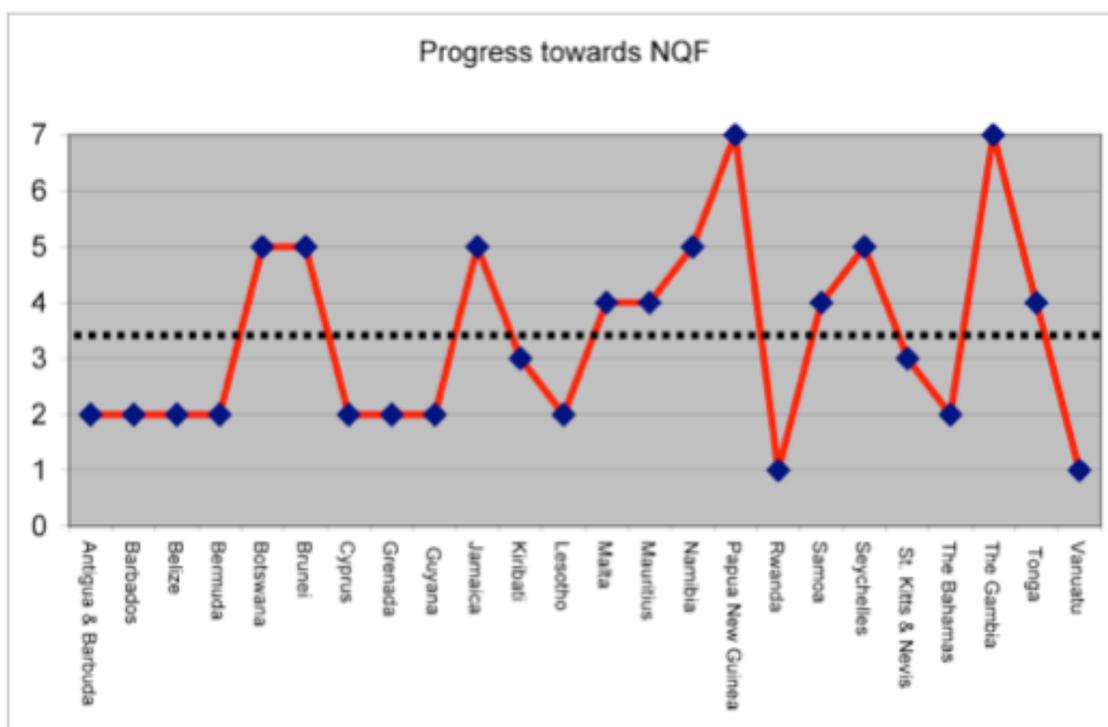

Figure 6: Progress toward NQF

Regional groups debated the national and regional systems they had in place and what added systems might be of help to them. The diversity of countries was quickly evident, as some countries had no internal qualifications authorities; some were collaborating to use a regional authority, while others already had fully developed systems of accreditation. Participants agreed that a non-binding mechanism that would enable countries to facilitate transfers of qualifications would be a help to them and went on to refine the wording of the concept document (COL, 2008).

The appointment of a TQF Management Committee (TQF MC) was agreed during the Interlocutors meeting of 2008. Two regional groups were nominated from each of the VUSSC regions. The following VUSSC regions were decided upon, because of the geographic spread of countries and there being few participating countries in some parts of the world:

•Africa and the Mediterranean
•Asia and the Pacific
•The Caribbean

Advancing the VUSSC Plan

The initial two meetings of Interlocutors in 2004 and 2005 gave COL a mandate to begin work in a pragmatic way. The initial workshops were arranged to give more educators the skills to enable them to work online more effectively and to begin to develop learning materials. By 2007, two aspects needed attention, that of beginning the process of transferring management of VUSSC to the small states and creating a mechanism to support accreditation.

The Interlocutors met for the third time in Jamaica in 2006, where a business plan was produced to help guide the future of the initiative. This meeting was held in concert with the 5th Pan Commonwealth Forum on Open Learning (PCF5) and participants participated in both events. The fourth meeting of interlocutors was held in London, United Kingdom in 2008 in concert with the 6th Pan Commonwealth Forum on Open Learning (PCF6).

The fourth meeting of Interlocutors in London was a turning point for VUSSC. Firstly, the Interlocutors agreed to form a Management Committee that would begin to take responsibility for the VUSSC initiative in cooperation with a new Education Specialist who would be appointed in 2009. The group asked COL to nominate the first committee members and for the committee to finalise its own terms of reference, based on what had been discussed in the meeting.

The chair of the TQF MC participated in the 4th meeting of Interlocutors in London, at which they took centre stage. COL staff did not appear on stage with the Interlocutors, who presented the idea of VUSSC with their plans and hopes. Interlocutors briefed the Forum on the progress, including the concept document that had been produced by the TQF process. By doing this, Interlocutors demonstrated that they were ready to take hold of the initiative and provide leadership. The concept document was unanimously supported by the group and the TQF MC was asked to proceed with their meeting scheduled for later in 2008 to begin drafting an implementation plan for the TQF.

It was proposed and approved at this meeting that the Interlocutors establish a VUSSC Management Committee that would work closely with the COL staff member appointed for the implementation of VUSSC. The Management Committee was asked to:

• Manage the development of a VUSSC business plan and budget

• Implement programs

• Promote VUSSC to stakeholders, including national and regional bodies; get all Commonwealth small states involved in VUSSC; advocacy; ensure ongoing political support

• Monitor and evaluate progress (including development of course materials)

• Identify funding sources and carry out fund-raising initiatives; collaborate with other bodies to leverage funding

• Form regional committees and other sub-committees (where necessary) for special projects; review and evaluate sub-committee reports; ensure each VUSSC country member has a national VUSSC committee

The following guidelines were given to the committee:

• Committee members (6) from Interlocutors; representation from all three regions (2 from each) and skill sets (also can co-opt necessary expertise)

• Chairperson (elected/by consensus of members; rotated annually)

• COL staff - ex officio member

• Term: 3 years

• Meetings: virtual (quarterly) and face-to-face (annually)

Figure 7 clarifies the reporting lines for VUSSC agreed by Interlocutors at their meeting in London in July 2008.
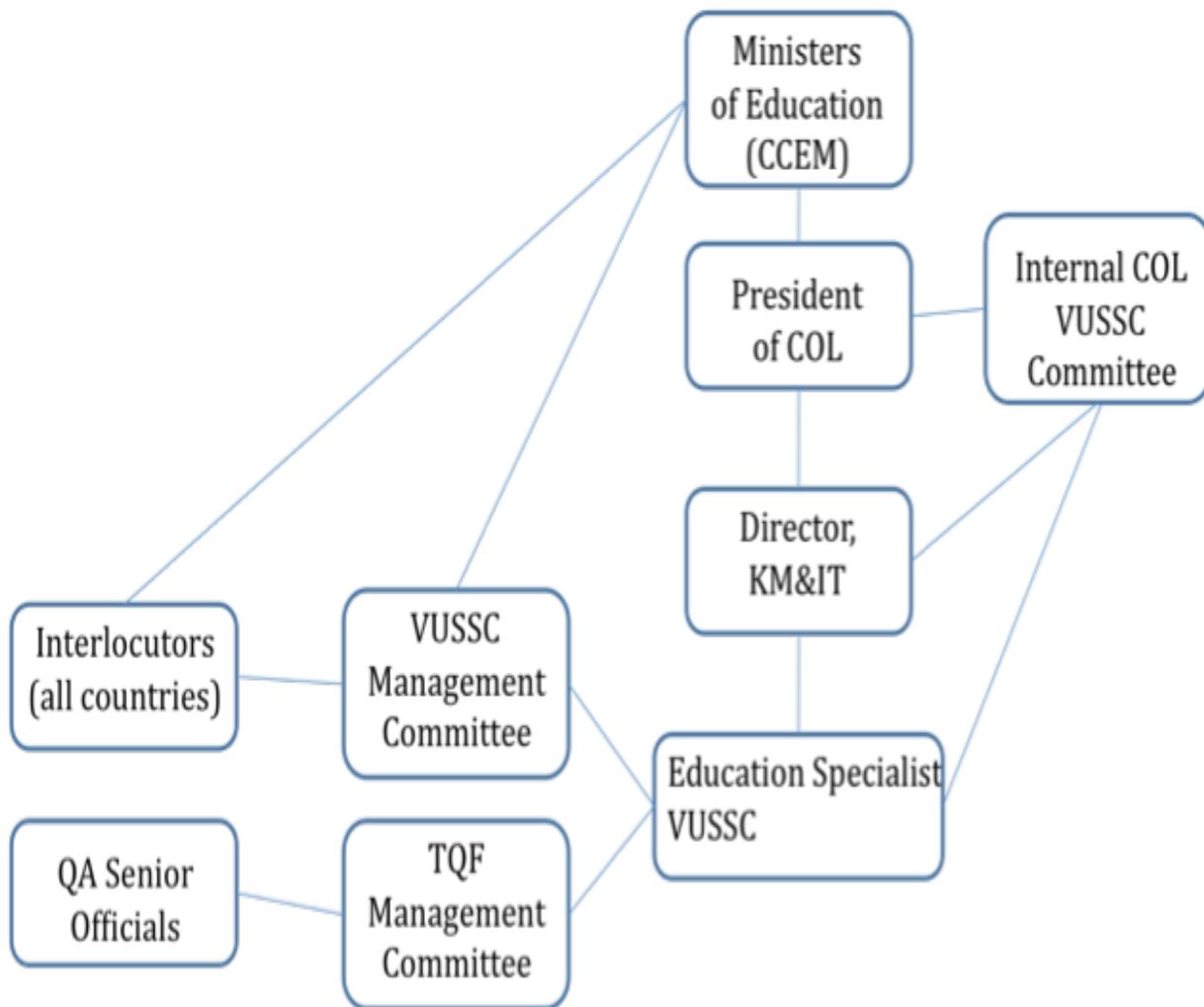
Figure 7: VUSSC reporting lines

The Education Specialist for VUSSC (ES), John Lesperance,was recruited from The Seychelles, one of the participating countries and started working at COL in Vancouver, Canada in January 2009. From that time, he worked in close collaboration with the author who had led the development of the initiative outlined in this paper. Since he grew up and worked all his life in a small state, he came to COL with a thorough understanding of issues facing small states.

Having been a participant in the first VUSSC workshop in Mauritius in 2006, and hosting a workshop two years later in The Seychelles in 2008, he had a thorough understanding of the VUSSC initiative. The ES began consulting the new management committees for VUSSC and the TQF and made a visit to the Caribbean to begin his orientation. He conducted a series of regional cluster meetings in Southern Africa, the Caribbean and Singapore (for the Pacific) to discuss and finalise the draft TQF discussion document on implementation of the TQF.

In July 2009, both the ES and the Director responsible for the implementation up to 2009 participated in the Commonwealth Conference of Education Ministers (CCEM) held in Kuala Lumpur, Malaysia. Here,

Ministers of Education and Ministry officials spoke warmly and favourably of the initiative, its progress and impact and asked for the initiative to be continued.

At the end of July 2009, the reporting line for the ES was transferred from the Director, KM & IT, to the Vice President and Programme Director of COL, fully incorporating it into the new three-year plan for the organisation. The VUSSC Management Committee is scheduled to meet for the first time in Vancouver, Canada in August 2009, having conducted discussions online using BaseCamp. Their objectives for the meeting include the structuring of the Committee to take on the management role of VUSSC in collaboration with the ES.

Monitoring and Evaluation

Monitoring by the Research Unit of Simon Fraser University in Vancouver, Canada, was included from the beginning of the VUSSC implementation. The Director of the Research and Evaluation Unit participated personally in two VUSSC workshops and the TQF meeting of senior officials. She made arrangements for COL colleagues or consultants to represent her at other events to interview participants and administer questionnaires. Meetings were held by the Director, KM & IT from COL and the Director, Research from Simon Fraser University at regular events. The first interim report was published in June 2009 . The comments below illustrated the responses from participants (Dunlop C. , 2008):

• *"Well worth the time, energy, and other resources expended. Time well spent!*

• *My confidence level regarding my computer and WikiEducator has risen and I will be diligent in further collaboration.*

• *Helped me individually in my confidence to develop materials. A 360 degree turnaround in my confidence in the use of WikiEducator, not like the level I was before arriving here. Now I can work together with my colleague who attended the second Bootcamp in materials development. A first class hands-on training on Life Skills issues.*

• *It definitely built on capacity. Amazing links with like-minded people who can help in other spheres.*

• *The opportunity to learn and be part of something quite innovative that promotes quality learning for everyone. This is the epitome of collaborative work.*

• *An overall productive workshop, my expectations have been realized, for someone from and working in a resource poor institution, this form of interactive and shared learning goes a long way in delivering quality and relevant courses for online and face-to-face students. The "other" part of this workshop which I think is very successful is the fellowship with other participants and learning their cultures and appreciating it.*

• *In the process of documenting information to enrich prospective learners, I also enhanced my own knowledge base, especially in areas that are outside of my direct job experience. I also formed a bond with other disaster management professionals and educators across the Commonwealth and developed even higher levels of respect for cultural diversity.*

- *COL did all that was necessary for me to have had a great workshop".*

Commenting on what was beneficial about the workshops, participants responded positively (Dunlop, 2008):

- *"All parts of the program were beneficial. I found some of the new skills were totally new to me. Even if it was not that new, I found myself helping others and that benefits both me and my college. We learned from each other and that helped me recall and retain the Wiki skills.*

- *The group work and peer review because I was able to learn from others and the feedback contributed to improvement and quality.*

- *Skills and knowledge acquired will enable me to perform efficiently and effectively in my organization. Institutional visits and excursions were very helpful and enabled me to gain more insight and reflect on our organizations - not only entertaining but also educational.*

- *Leadership skills…learning to be patient and provide support for people who are on your team and give them opportunities to utilize their strengths and talents and help them to get involved and own the process.*

- *I'm more positive and mature. I can work with people on a collaborative nature, whereas before, I was more of a individual oriented worker.*

- *I have a more global perspective and appreciation for the things that I have in common with people from other countries, the ways we are different and our potential for helping move each other forward".*

One participant in particular commented (Dunlop C. , 2008):

"I have been able to see new possibilities and change my paradigm about open content. I don't think before being a participant of this I would really have considered just putting content online for anyone to use and change. Now, having done the workshop my perspective has changed. Now I see that I can move from providing training for a few persons in my country or becoming a teacher of many, across nations. I have gained new skills, a new perspective, a vision of what is possible and how limitations of size, money and distance can be overcome if people are willing to work together and share resources. I am very glad that I was able to do all of this in Singapore too because I can relate to their size and I see that they have been able to accomplish".

Key outcomes were stated in the report a (Dunlop C. , 2008) (Dunlop, 2008):

"VUSSC is performing heroically in getting people with some technical skills to ramp up their personal skills and commit to moving things in their countries. The materials being produced are probably less important than learning how to do it – and the experience of working together."

The smaller participating VUSSC country ministries reported informally that they typically had three to seven professional staff members in their ministries. When one or even two of these people receive capacity building, this represents a far greater proportion of staff than a Ministry of Education in a large

state. The benefits to the individuals who participated therefore have a direct effect on the national Ministry of Education regarding (Dunlop C. , 2008):

- *"Enhanced computer skills and confidence levels*
- *Capacity building in ODL and ICTs*
- *Involvement in the Wiki community*
- *Enhanced teamwork and collaborative skills*
- *Increased appreciation for diverse cultural contexts*
- *Exposure to a range of technologies including the COL Design Template and BaseCamp*
- *Expanded global network of professional educators*
- *Empowered practitioners - able to adapt curriculum freely*
- *Participation in an ongoing collaborative learning community"*

Corresponding benefits to countries that participated in VUSSC were listed as (Dunlop C. , 2008):

- *"Content developed for various courses to be adapted and accessed in local context*

- *Expanded pool of local capacity through ongoing training from Bootcamp participants*

- *Local educators become more competent in the use of ICTs in education*

- *Empowering students through additional open and distance course offerings*

- *Increasing access to education through free content - helping to achieve MDGs by 2015"*

Due to the ongoing discussions between the COL Director and the Research Director, each item that was highlighted as an area for improvement, was addressed. This was an attempt at demonstrating being a learning organisation and provided for continued improvement throughout the initial implementation period up to 2009. Typical examples of changes and improvements were (West, 2008):

- The online collaboration platform was changed from a wiki, which required an uninterrupted Internet service, to a word processor template plus BaseCamp, an online technology that did not require participants to be connected to the Internet at all times,

- Pressure on participants to learn what they perceived to be too much computer code was focused to a more manageable volume,

- Materials that are produced during the capacity building workshop are reviewed online by a course developer in consultation with the participants, after the workshop ends; and

- Increased efforts have been made to encourage Ministries of Education to ensure that returning workshop participants have the opportunity to train colleagues in the skills learned and to apply their skills in the development and offering of new programmes.

An update to the Monitoring and Evaluation Report conducted by the Research Unit of Simon Fraser University was published in September 2008and included recorded interviews with VUSSC Interlocutors held during the Interlocutors' meeting and Pan Commonwealth Forum on Open Learning held in London

in July 2008. The following excerpts indicate the responses from Interlocutors representing national Ministries of Education (Dunlop C. , 2008):

• *"I see this initiative as one of the best things that has happened in the area of tertiary education in the Commonwealth in a very, very long time. It is opening up opportunities for a lot of people to participate who have not participated before. What VUSSC is doing is very, very important for us in terms of delivering education to the whole Bahamas. So I think it's a wonderful idea. I think it's a wonderful concept. (The Bahamas)*

• *I think up to now I think VUSSC has progressed extremely well. I think Paul has done a marvelous job in terms of pushing forward VUSSC. VUSSC should remain with COL but maybe have more management authority to the countries as well…. We don't have the resources to start all these programs but coming together, and through VUSSC, we can move forward. (Swaziland)*

• *VUSSC is doing a good job - we are networking more now. Since the intro of VUSSC I find small states really actively participate and even go back to their own countries, particularly their institutions, to implement and even teach the content that they would have done in the Bootcamps. So that is helping. I can make an example. We have had started Business and Entrepreneurship – we are supposed to develop material because we want to offer it as distance learning. Because of the VUSSC content developed in Mauritius we can adapt the material without improvement. It is not only that. The very same people who participated in the Bootcamps, they are highly involved within their institutions even outside the institutions in the country as a whole. So that is why I see VUSSC as very, very helpful. (Lesotho)*

• *It was a good experience to have linked up with so many people all over the world. It is a way to expand knowledge, to share knowledge… The idea of being linked to people all over the world and being able to share experiences is phenomenal. In that way it was very helpful. (Antigua & Barbuda)*

• *The concept of developing a virtual university for the benefit of small island states isvery crucial to Tuvalu. Particularly because it is quite costly for us to go to other universities out of Tuvalu. Our Minister of Finance is very cautious dealing with students sent overseas in terms of budgetary allocations. (Tuvalu)*

• *What has been happening is since about a few years ago there has been a new interest in expanding tertiary education in Mauritius. So VUSSC is fitting nicely. We are trying to see that as a complement to existing face-to-face education in Mauritius. So, one, we see it as a distance education structure which is worth exploring in Mauritius which as a small island state the provision of distance education is limited and expensive. So it is a first step into distance education which will certainly help us to grow in terms of capacity building. (Mauritius).*

• *VUSSC has been good for us enhancing that global perspective idea, which doesn't come easy with isolated states, you know, you're really looking at yourself most of the time and how you're going to survive within. And yet, there's that big world out there but now, it's opened and we're actually saying "Oh yeah, right there in Africa, over there in the Caribbean…" and you know people there. And the interesting thing is when we know people, it makes all the difference. Once you have that good relationship and knowing each other, then you can move to the professional. And the professional*

becomes so much easier. You're able to help each other more and contribute and share, and that contribution and sharing has been good for VUSSC too. (Samoa)

• Another big deal of VUSSC is the leadership. Leadership, again, it has been a really great by-product of the VUSSC … And when the Bootcamp participants went, they came back and had much more confidence, were able to assert themselves more as leaders, and asking people to do this, do that, and hey, this is all for the good – this is not about me being a big boss, it's about leadership, leadership encompassing everyone, enabling the collaboration rather than just top-down kind of strategy saying "Do it". You know, it's not about just having choices, it's about taking choices and making something of it that betters you as well as your institution, community, and so on. So I think for me personally, that's been a great add-on to our own staff. And not only the team leaders, but also, the other people that were part of the bootcamp because they too had to go out and spread the word and share the skills that – say, this is another way of doing it. (Samoa)

• It's bigger than ODL. It's the whole notion of ICTs in education. So as we are now moving into implementation phase, we can use all of the participants in the VUSSC Bootcamps as ambassadors, really, to sell the whole notion of web 2 technologies, wiki – people now speak about Wikieducator, people speak to some of the things that we learnt in VUSSC. (Trinidad & Tobago)

• VUSSC is the best opportunity we have ever had to be able to come together as a Commonwealth. A lot of these countries, I would never have known – not even by name – if it hadn't been for VUSSC….VUSSC has brought together people in a new way and not just any people, but people who are involved in education and people who have a drive to see their people become better. I'm listening to things at VUSSC from people who are in education who are having the same troubles I'm having even though we are so many miles apart. I'm listening to people speak in a language I know. Different accent, but the same language. And I'm hearing that there are things that they can do or have done that I have even not thought of or have thought of and thought it couldn't happen. So, I see every reason now to attempt it again. Even if it had failed once before, it worked somewhere in the world, so it can work for me. So the whole idea of VUSSC gives one a sense that you can. So it is very positive. (Belize)

• I think VUSSC has helped me to focus. And not only me. Without VUSSC we would not have had that influence at the College level. With VUSSC, we have realized the place of technology in education. VUSSC has pushed us in that direction. (St Kitts & Nevis)

• I am feeling very positive about VUSSC. I think it is a wonderful opportunity for us to collaborate and bring education where it is in other parts of the world and make it more accessible and really help our people to develop. VUSSC is something we should really push as a Commonwealth region. If we get it right in the next couple of years we will be amazed at the results. I think we are on the right track. (St Kitts & Nevis)

• Possibilities. That is the word to describe what I have got out of this. There are so many possibilities from VUSSC. For me personally, for my school, for my country, for my region, globally. The perspective has gone from the classroom to global now. (The Bahamas)"

Of all the Monitoring and evaluation and feedback on VUSSC, the communiqué issued by the 17th Conference of Commonwealth Education Ministers(CCEM) was the highlight(COMSEC, 2009):

"Ministers commended the Commonwealth of Learning on its work since 16CCEM; endorsed the three year plan for 2009-12 "Learning for Development"; and reiterated commitments to continued financial support. Ministers especially praised the work of the Virtual University for Small States of the Commonwealth (VUSSC), and encouraged its expansion in terms of capacity-building in the use of ICTs in education, and the development and delivery of courses, with particular emphasis on mechanisms for quality assurance."

Glimpses into the future of VUSSC

Considering what has happened up to July 2009, the future of VUSSC will now lie in the hands of the VUSSC Management Committee, its sub-committee, the TQF Management Committee and the Education Specialist, VUSSC. COL's support for the initiative is essential in the provision of at least one full-time Education Specialist to support the committees and carry out their requests for the network. As from the end of July 2009, the Director, KM & IT transferred accountability for COL's role to the Vice President with the President still holding the requirement to report to Ministers of Education of the Small States of the Commonwealth. If the Management Committee is able to take on its role as envisaged by the Interlocutors at their July 2008 meeting, the VUSSC will develop into a self-managing structure that is supported by COL, rather than an initiative created by COL following its usual consultation process. The success of this will provide an indication of how successfully COL could incubate future projects for Ministers of Education.

If the VUSSC continues to operate as a capacity building network, it is likely to continue to play a supportive role to national institutions of education. Should it wander into other roles, such as becoming the provider of courses rather than supporting national institutions to do this, it could become a competitor to national institutions. If it changes focus to foster consortiums, this would run the risk of benefiting stronger or larger institutions, while leaving the institutions that need support further behind.

Monitoring and evaluation (M&E) has been an essential aspect of the VUSSC. It provided opportunities for participants and officials to express their needs and feelings about how the Initiative progressed, and provided critical assessment to continually re-design activities. Ongoing M&E is likely to continue to help to guide the Management Committee, the ES and COL to better serve the Commonwealth Small States.

The TQF that has shown progress to date will provide the tools needed for participating countries to recognise each other's qualifications, not only for the Small States, but also within the wider community.

The limited bandwidth of 2000, when the idea of VUSSC was germinated by Ministers has changed significantly in many countries and continues to improve. During implementation of the VUSSC Initiative, some countries have experienced improved access to the Internet, some by undersea cables, while many countries still use satellite links. Small states pay many times the cost for bandwidth than do industrialised countries. Working against significant disadvantages of distance, having small economies and higher costs relative to larger countries, the small states have made strides toward improving access to the Internet, managing the flow and caching of Internet data, and the management of acceptable uses by end users in institutions.

While improvements in access to computers have improved in small states, strides are likely to be made in the future to improve the ratio of computers to learners and institutional staff in the future. The introduction of NetBooks at much lower cost than traditional computers is likely to help increase personal ownership of computers.

Where end users are able to combine higher levels of bandwidth with higher powered computers, new options will continue to emerge: The Commonwealth of Learning created a venue in Second Life to complement its other options for exhibition and holding meetings, which could become the central attraction for education and tourism, drawing people from the three-dimensional world, to real-world visits in small states.

The advances in cloud computing will give small states the opportunity to collaborate real-time across any distance, only having to take time differences into account. This will enable institutions to employ, on a part-time basis, the skills they need for a particular task, teaching or in other specialisations, through real-time and asynchronous technologies. This will improve small state governments' access to needed skills without the cost of repatriating expertise.

3G cellular networks are migrating to 4G in 2009 and will increase in speed and will further lower costs of bandwidth. The change that has been underway for the last few years from 2G to 3G reduced the cost and increased the speed of Internet connectivity dramatically. Future advancements may be harnessed to the benefit of small states. Computer operating systems are being updated in 2009 and 2010 to better utilise multi-core computer processors. While a high-end computer has a dual-core processor in 2009 (that is, two computer processors in one chip), a high-end machine in only 10 years may have 32 processors. The newer operating systems that are beginning to emerge in 2009 will be able to take better advantage of this increase in computing power and combined with improvements in Internet access, this provides potential for small states to both import and export expertise that is hard to imagine in 2009.

The future of the Virtual University for the Small States of the Commonwealth is limited rather by the imagination of its management and participants than by technical constraints.

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