Science & UniReady: Tailoring an Online Preparatory Workshop for Successful University Transition and Academic Performance in Health Sciences

Jacqueline A. O'Flaherty[1]

University of South Australia, Australia[1]

Abstract

Given that unsuccessful transition can incur significant cost to the student and to the institution in which they are studying, an online workshop, "JumpStart your Science and Online Learning", was designed to assist in narrowing the gap between high school and university studies to smooth the transition for first year nursing and midwifery students.Most Australian Universities offer similar bridging workshops or short courses in a number of the STEM disciplines that introduce the fundamentals of a complex subject. However "JumpStart" is unique in that's its design and instructor intentions are informed by pedagogical research that has identified three key indicators that can be used as predicators of both poor transition and subsequent low academic performance and/or a student being at risk of attrition, and aims to address these in the workshop. These indicators include the student's entry level of biological science knowledge and academic literacy, as well as their level of engagement with specific parameters in the online learning environment within the first two weeks of starting their University course.Of those students that have participated in the three Jumpstart workshops to date (2015-2017), 93% have successfully completed their first year program studies. Participants in the 2017 workshop achieved a 96% pass rate for their compulsory first year nursing and midwifery course (an introduction to Anatomy and Physiology). Additionally, all students participating in the workshop's academic writing skills module successfully passed all written assessments in three of their other major first year compulsory courses. This paper will discuss workshop design, access, learning effectiveness, student & faculty satisfaction, equipment necessary to implement the workshop, and scale (cost effectiveness and commitment).

Keywords: *higher education, first year, transition, nursing, preparatory workshop, retention*

Introduction

Typically, the university experience is deemed to begin when students arrive on their campus to enrol. Increasingly educators are realising that this narrow view of the first year fails to take account of the many factors that shape student aspirations and expectations regarding university study prior to enrolment. The first taste of university should begin with an active tailored transition program [1]. An Australian review of the first year experience [2] found the first two weeks of beginning a degree are critical to student's success and retention. Students who are engaged in their program by Week 2 persist at a higher rate than overall rates of attrition suggest, rates which range from slightly higher than the overall retention rate to a rate of retention of 96% after Week 2 in one program [3, 4].

Most Australian Universities offer bridging workshops or short courses in a number of the STEM disciplines that introduce the fundamentals of a complex subject. However *JumpStart* is unique in that's its design and instructor intentions are informed by pedagogical research that has identified three key indicators that can be used as predicators of both poor transition and subsequent low academic performance and/or a student being at risk of attrition, and aims to address these in the workshop. These indicators include the student's entry level of biological science knowledge and academic literacy, as well as their level of *online engagement* with their learning management system (LMS) supported nursing course by week 2 of starting their program.

Workshop design

The workshop particularly targets students starting university study with little-no science knowledge, returning or mature-age students following an extended period of absence and students from non-English speaking backgrounds.

JumpStart is open for 11 days, two weeks prior to official student transition to their University program. It offers flexible study options with students participating in as much or as little of these days as suits their needs (usually averaging 30 hours student contact time), including evenings and weekends, with access to staff for individualised support. They can also download the workshop timetable to guide

their daily study. *JumpStart* consists of four self-paced modules comprising videoed lectures and activities to introduce basic scientific ideas that students are both expected to know prior to starting their nursing degree and other content featured in their degree. *JumpStart* also introduces students to the Universities Learnonline Management System (LMS), where they learn to navigate a typical Moodle course website, familiarise themselves with its features and online jargon. Students can also participate in up to five academic writing activities designed to develop their writing, referencing and reading comprehension skills.

How effective is the workshop initiative?

We have measured the effectiveness of the initiative relative to five pillars: Access, Learning Effectiveness, Student and Faculty satisfaction, and Scalability (cost effectiveness and commitment).

Access

JumpStart is delivered exclusively online via an external Moodle Learning Management System, which can be accessed by students after they enrol in the workshop. No separate software is required.
Workshop tutorials are conducted in Virtual Classrooms (VC) delivered via an Adobe Connect platform, software licences for which have been purchased by the university; so there are no additional costs to students.
A virtual classroom (VC) is a feature of UniSA Learnonline course websites that allows students to attend a tutorial in the comfort of their own home "virtually" by using their home computer [5]. After completing the relevant topic module resources students are invited to complete the modules tutorial worksheets ready to discuss their answers in the VC with their tutor and fellow students to check their understanding of science content as well as engaging in group work extension activities. For those students unable to attend a live VC, the recorded session (mp4) is uploaded to the workshop course site for students to watch and listen to at a time that suits their needs. VC's are also used to equip students with the self-help skills of time management, help-seeking behavior and goal setting [6].
The VC are compatible with Windows and Mac platforms, and can be accessed on a desktop, laptop, tablet or smart phone so students are able to access and interact online even while commuting.
For extra support, students can use the online discussion forums, as well as email staff. IT and library online support systems are also available via links on the workshops website.

Learning Effectiveness

Evidence of the workshops learning effectiveness include high Stage 1 and Stage 2 *completion rates* by *JumpStart* workshop participants: 93% of our workshop students completed their UniSA Stage 1 and Stage 2 studies. This far exceeds the UniSA Health Science courses completion rate as withdrawal can be as high as 15% for some Stage 1 courses. In addition 96% of *JumpStart* students successfully passed their compulsory first study period anatomy and physiology based course. Students participating in *JumpStart's* Academic writing skills activities achieved success in a Stage 1 Study Period 2 Global and National Health course with all students successfully passing both written assessments. These two assessments accounted for 100% of the final grade (1500 word-and 3000 word- assessments). In a Stage 1 SP5 Mental Health course all *JumpStart* students successfully passed both written assessments. These two assessments accounted for >50% of the final grade (1000 word-and 2000 word- assessments).In a Stage 2 Professional Practice course all *JumpStart* students successfully passed both written assessments. These two assessments accounted for >50% of the final grade (750- word-and 2000 word- assessments).
JumpStart's data rich learning analytics dashboards allowed daily monitoring of non-engaging students and timely personalised email follow up by workshop staff.

Student Satisfaction

Students reported high satisfaction with the *JumpStart* workshop resources: 91.3% of students were very satisfied with the workshop; 8.7% satisfied. In addition, 100% of students reported they would recommend this workshop to fellow students.
The four most reported benefits of attending *JumpStart* workshops were: i. Increase in abilities to confidently start University: 96% very satisfied; 4% satisfied compared to 72% reporting lack of confidence pre-*JumpStart*; ii. Increase in science knowledge: 80.4% very satisfied; 19.6% satisfied iii. Increase in online navigation skills: 77.3% very satisfied; 22.7% satisfied and iv. Increase in academic writing skills abilities: 100% very satisfied.

The four modules that students found most beneficial to their learning were: i. Medical and Anatomical terminology; ii. Online navigation; iii. Academic writing skills and tailored individual feedback on writing attempts and iv. Introductory Chemistry.
Instructional methods students found most engaging in *JumpStart* were: i. Virtual Classroom participation; ii. Personalised academic writing feedback; iii. Self-assessment quizzes and instant feedback on attempts; iv. Podcasting/Lecture capture and, v. Cells and Tissues flipped learning approach module [7].

Faculty satisfaction
The *JumpStart* workshops' tailored design and positive student impact has been recognised both nationally and internationally. For example the *Jumpstart* workshop online initiative was awarded an USA International Effective Practice award in 2018 [8].
Our indigenous students, particularly those who live remotely on their homelands and outstations, have a very low program completion rate compared to our local students. Since offering the *JumpStart* program 15 of our indigenous students have all experienced a successful transition to University. Those students identified as "at risk" during *JumpStart*, based on their poor engagement using LMS *JumpStart* analytics, were referred to our Indigenous support team for ongoing tutoring and mentoring. Mr Dylan Hunter, Director of the Aboriginal Student Engagement Office, UniSA comments "I believe that the opportunity to participate in the *JumpStart* workshop has improved the engagement of our Indigenous students with Learnonline and the Aboriginal Tutorial Program"; "…most importantly, our Aboriginal students (W, X, Y, and Z) have been some of the most enthusiastic participants in the UniSA Aboriginal writing program, and I believe this is linked to the writing activities that were introduced in the *JumpStart* Workshop, and the emphasis placed on academic writing skills" ; "Thanks for your dedication to the Aboriginal students in the Division of Health Sciences, and improving the confidence, science knowledge and writing skills of students early so they produce better written assignments and move through their program of study with greater ease".

Scale
In 2017, the online workshop attracted 35 off campus and 32 on campus *nursing* students who entered UniSA through a traditional secondary education pathway. Due to the success of the workshop our Institution intends to extend *JumpStart* to all incoming UniSA Health Science students. In 2019 *JumpStart* will be offered as a *short course* with a dual offering- both an online/off campus presence as well as on campus where local students can choose to attend live lectures and on campus tutorials over a more intensive four day offering.

Equipment and costs necessary to implement Effective Practice
The workshop platform uses the Universities existing online learning management system (LMS) called Moodle where students can access resources. The only equipment students require to access the workshop resources and virtual classrooms are a computer, laptop or tablet device.
The *JumpStart* workshop was promoted by the UniSA marketing department via email to all enrolling nursing and midwifery students in early January. When students register for the workshop they are given immediate access to the workshops online Moodle platform.

Conclusion
The transition to nursing and midwifery programs is particularly challenging for our Australian students. To overcome this challenge our Institution has utilised a pedagogical research approach to strategically develop a tailored digital preparatory science and online learning workshop over many years that not only assists and empowers our prospective nursing and midwifery students to overcome their anxieties, leading to a more successful transition but also has resulted in increased first year academic success and retention. Instructional methods (e.g. flipped, virtual classrooms) developed in the workshop have since been disseminated both Division and University wide and have earnt recognition with International teaching awards.

References
[1] Bradley, D., Noonan, P., Nugent, H., & Scales, B. "Review of Australian higher education: final report [Bradley review (9780642778048)]" (2008). Canberra: DEEWR.
[2] ATLC Executive report (2009). Articulating a transition pedagogy to scaffold and to enhance the first year student learning experience in Australian higher education. Canberra: DEEWR.

[3] Macfadyen, L and Dawson, S. “Mining LMS data to develop an “Early warning system” for educators” (2010). Computers and Education.54, 2, 588-599.
[4] Anderton, R; Evans, T and Chivers, P. “Predicting Academic Success of Health Science Students for First Year Anatomy and Physiology” (2016). International Journal of Higher Education 5 (1):250-260.
[5] O’Flaherty, J.A and Laws, T. “Nursing Student’s Evaluation of a Virtual Classroom Intervention to Support Bioscience Learning” (2014). Nursing Education in Practice.14, 654-659.
[6] O’Flaherty, J.A, Scutter, S and Albrect, T. “Informing academic practise about how podcasts of lectures are used by diverse groups of students” (2010). Research and Development in Higher Education. 33, 529-539.
[7] O’Flaherty, J.A and Philips, C.” The use of flipped classrooms in higher education” (2015). Internet and Higher Education.25, 85-95.
[8] O’Flaherty, J.A. “Facilitating first year student success using a tailored online bridging workshop designed to enhance transition to a first year Australian University nursing & midwifery program” (2018). Online Learning Consortium Effective Practice Award, Florida, USA.