Using a maturity model to move student engagement practices beyond the generational approach

John Clarke
Ian Stoodley
Karen Nelson
Student Success and Retention
Queensland University of Technology

Abstract

This paper proposes that the generational approach to conceptualising first year student learning behaviour, while it has made a very useful contribution to understanding that behaviour, can be expanded upon. The generational approach has an explicit focus on student behaviour and it is suggested that a capability maturity model interpretation may provide a complementary extension of that as it allows an assessment of institutional capability to initiate, plan, manage and evaluate institutional student engagement practices. The development of a Student Engagement, Success and Retention Maturity Model (SESR-MM) is discussed along with Australasian FYE generational data and Australian SESR-MM data.

The current state of higher education in Australia

The Australian higher education context is in the midst of its second radical change in just over two decades. The first was the move from an elite system to a mass higher education sector under the Dawkins reforms (Dawkins, 1988) while the second is the outcome of higher education institutions (HEIs) addressing the Australian government's response (Australian Government, 2009) to the Bradley report (Bradley, Noonan, Nugent, & Scales, 2008). As a consequence of this activity, Australian HEIs have entered a new phase of regulation and accreditation which includes performance-based funding relating to the participation and retention of students from social and cultural groups previously underrepresented in higher education.

In addressing these participation and retention priorities however, it is critical that HEIs do not further disadvantage students from certain groups by identifying them for attention because of their social or cultural backgrounds—circumstances which are effectively beyond their control. In response, many HEIs are focusing effort on university-wide approaches to enhancing the student experience because such approaches will improve the engagement, success and retention of *all* students, and in so doing, will particularly benefit those students who are members of underrepresented groups.

In order to enhance the student experience, we need to understand it. The generational approach to conceptualising the first year experience (FYE) provides such a vehicle.

Conceptualising the first year experience

The generational approach

The generational approach has been useful in considering the evolutionary nature of the FYE conceptualisation. Details can be found in Wilson (2009), Australian Learning and Teaching Council [ALTC] (2009a, 2009b), Kift (2009), and Kift, Nelson and Clarke (2010). By using a post hoc analysis of existing teaching and learning practices, three generations have been identified and explored. A brief overview which draws heavily on Kift et al. (pp. 10-11) is provided here.

First generation approaches focus on co-curricular strategies such as support services, learning support, orientation and peer programs, academic advising, social activities and enrichment programs. There is general agreement across the sector as to what constitutes co-curricular activities and hence a first generation approach. There is also consensus that second generation approaches focus on curriculum which Wilson (2009) interprets as consisting of specific curriculum-related activities and strategies. Kift (2009) extends this notion, defining the second generation approach as an integrated holistic approach consisting of intentionally blended curricular and co-curricular activities. Both Lizzio (ALTC, 2009b) and Kift (2009) characterise the third generation approach as a coordinated whole of institution partnership and consistent message about student experience across the university. It only occurs when first and second generation approaches are brought together in a comprehensive, integrated, and coordinated strategy that delivers a seamless student experience across an entire institution. This institutional vision has to be shared by academic and professional staff who form sustainable partnerships across institutional boundaries. Kift and Nelson (2005) have labelled this third approach as transition pedagogy. A detailed case study of transition pedagogy in action in a large metropolitan university in Australia is described by Nelson, Kift and Clarke (2012).

Australasian data on generational approaches

A comprehensive review of Australasian FYE literature covering the period 2000-2010 was carried out by Nelson, Clarke, Kift and Creagh (2011). It demonstrates a developmental and evolutionary trend in generational approaches across the year clusters of 2000-2003, 2004-2007 and 2008-2010.[1]

2000-2003: The major focus of this period was on isolated or siloed *first generation* co-curricular activities, particularly orientation (e.g. Lintern, Johnston, & O'Regan, 2001)[2] and peer mentoring (e.g. Peat, Dalziel, & Grant, 2001). In the main, these were "designed to assist students to make the transition from previous to university educational experiences" (Nelson et al., 2011, p. v). There was also some evidence of *second generation* approaches (e.g. Snepvangers & Yorke, 2002).

2004-2007: While *first generation* co-curricular activities were still prevalent, they were subtly more sophisticated (e.g. Jarkey, 2004). However, they were overshadowed by a dominant *second generation* literature that reflected a student-centred philosophy (e.g. Ellis & Salisbury, 2004). Of significance, however, was the introduction and defining of the term *transition pedagogy* (Kift & Nelson, 2005) which "provided the opportunity to move beyond the second generation approach to understanding the FYE" (Nelson et al., 2011, p. vi).

---

[1] A rationale for this clustering is available in Nelson et al. (2011, pp. 5-6).
[2] The references for all of the examples cited in this and the next two paragraphs can be found in Nelson et al. (2011).

2008-2010: There was a dramatic increase in the amount of FYE literature available in this period, primarily due to an exponential increase in *second generation* activities, mainly in specific curriculum-focused approaches, many subject-based, aimed at facilitating student engagement (e.g. Exeter et al., 2010) and staff development (e.g. Donnison, Edwards, Itter, Martin, & Yager, 2009). There was also growth in a university-wide focus for research resulting in a surge in "serious attempts to operationalise the *third generation* approach to cater for the FYE through a transition pedagogy" (Nelson et al., 2011, p. vi)—there were five literature items in each of the 2000-2003 and 2004-2007 clusters but 16 in the 2007-2010 period. Further, Nelson et al. reported that "the quantitative evolution also reflected a qualitative change. … [In 2000-2003, the emphasis was on] work in progress" while from 2005 on, they reported on "robust, functioning, institution-wide programs" (p. 33), both empirically-based and conceptual/theoretical (p. 33).

Beyond the generational approach

While the generational model has been very helpful in conceptualising FYE, it is essentially descriptive and possibly of limited use in future theorising. It is difficult to conceptualise a construct that could extend the co-curricular, curricular and transitional pedagogy constructs to a fourth and subsequent levels. Further, the focus of the generational model is necessarily on the *student* and consequently, although the co-curricular, curricular and transition pedagogy programs and practices emanate from the institution, there is no indication of how *capable* the institution is in providing and implementing these programs and practices. What is required to complement the generational model's understanding of the student experience is a model that focuses explicitly on the institution's capability to initiate, plan, manage and evaluate their student engagement policies, programs and practices. The Capability Maturity Model provides that facility and can be used to extend beyond the generational model to give a more comprehensive and contextualised understanding of student engagement.

Conceptualising institutional capability

The concept of a capability maturity model

Capability is an indication of how well a process used by an organisation does what it is designed to do; while *maturity* is an indication of the collective impact of the capabilities on a given aspect of that organisation (Rosemann & de Bruin, 2005). *Maturity* is normative in the sense that an aspect can be "more" or "less" mature (Iversen, Nielsen & Norbjerg, 1999) and by becoming more mature, an organisation can *improve* or *evolve*. If a *model* is defined as a "theoretical representation that simulates the behaviour or activity of systems, processes or phenomena" (Theoretical model definition, n.d., para 1), then by ordering all of the theoretically possible incremental improvements into a continuum, it is possible to generate a *model* that summarises the maturity of the capabilities for that organisation—a *capability maturity model*. This represents a continuum of incremental improvements, evolving from a less to a more mature or effective level. Some commentators (e.g. Becker, Niehaves, Pöppelbuß, & Simons, 2010) suggest that these "increments" can be clustered into stages or levels with later or higher levels being superior to previous ones. By contrast, it is important to note that different functional units *within* an organisation could exhibit different levels of maturity with respect to their capacity to deal with a particular issue because the *capabilities* of the strategies used to address this issue may vary among the units.

The particular *capability maturity model*[3] presented here—the *Student Engagement, Success and Retention-Maturity Model* (SESR-MM)—had its origins in Nelson's innovative application of maturity model theory and practice to tertiary student engagement behaviour (Nelson & Clarke, 2011; Nelson, Kift, Humphreys, & Harper, 2006). Those initial ideas continue to influence the ongoing evolution of the model.[4] Its specific characteristics are discussed within the context of the general features of MMs.

Components of a maturity model

An MM has three essential components: (i) content, (ii) indicators of maturity status, and (iii) an assessment of the quality of the content.

(i)   *Content* is the most basic component. In the SESR-MM, the content consists of the practices associated with the policies, programs and activities related to SESR. As this is what is going to be assessed by the model, it is important that it be as comprehensive, representative, detailed and specific as possible. Hence, the basic units of content are specific practices. For example, a specific practice could be: *Feedback is provided to students about assessment.* For convenience and parsimony, other similar specific practices about assessment such as those related to the design of student-centred assessment and the provision of relevant assessment could be synthesised with this practice into a more general *process* of *assessment*. This process could then be coalesced with other processes such as the development and implementation of curricula, teaching techniques and pedagogical styles into a broader *category* of *learning*. However, as we have commented elsewhere, "it is important to understand that the practices-processes-categories synthesis is, in the main, for convenience. The *practices* are the essential focus of the model as they provide the evidence of how mature the processes are" (Nelson, Clarke & Stoodley, 2013, p. 31). The practices-processes-categories synthesis essentially provides a cognitive map of the content area.

As indicated above, the specific practices associated with the policies, programs and activities related to SESR constitute the content of the SESR-MM. This content was identified using the following process in which the model evolved from an *initial model* to an *interim model* and eventually to the current *working model* (Nelson et al., 2013).

(a) Development of an *initial model*: An extensive review of the theoretical and empirical literature associated with practices influencing SESR drew on the large body of national and international work reporting on the engagement, success and retention experiences of students in higher education. Details of the range and depth of the literature explored are available in Nelson et al. (2013, p. 33). The model derived from the literature consisted of 82 clusters of practices (e.g. *Alignment of objectives and assessment*).

(b) Development of an *interim model*: A pilot workshop led to a revision of the *initial model*, based on the accounts of SESR practices identified by practitioners in a

---

[3] *Capability maturity model* and *maturity model* are both used in the literature. *Maturity model* and acronym *MM* are used henceforth unless referring to a proper name.
[4] The SESR-MM is being developed as part of the Office for Learning and Teaching Innovation and Development Project ID11-2056: *Establishing a framework for transforming student engagement, success and retention in higher education institutions*. Details of the project are available at http://studentengagementmaturitymodel.net/

specifically designed workshop carried out in an east coast university in Australia. It was conducted *inductively* with participants grouping practices into clusters without reference to existing models. The pilot nature of this workshop provided the opportunity to trial workshop and evaluation procedures and to refine them for subsequent workshops. The participants produced 34 clusters (e.g. *Assessment*) which they synthesised from 416 practices (e.g. *Give timely feedback*). The authors integrated the *initial model* with this data to produce an *interim model.* The institutional data added nothing new to the 82 clusters identified in the literature, rather it embellished them by providing specific instances of the necessarily generic ideas in the literature. However, an advance on the *initial model* was the synthesis of the clusters into broader groupings. Using the terminology introduced earlier, the 82 *processes* were coalesced into 10 *categories*.

(c) Development of the current *working model*: Three institution-based workshops were conducted by the authors in three universities in Brisbane, Australia. The major procedural change based on the feedback from the pilot workshop was that these workshops were conducted *deductively* with practices being allocated by participants to an existing model. Details of the participants involved in this total process and their contribution are summarised in Table 1.

	Participants			Contribution	
	Ac	Pr	Total	N_c	N_p
Pilot workshop	15	20	35	82	416
Workshop Institution-1	6	9	15	28	284
Workshop Institution-2	6	6	12	54	173
Workshop Institution-3	7	11	18	32	228
TOTALS	36	47	80	196	1,101

Legend: Ac: Academic staff N_c: Number of clusters
        Pr: Professional staff N_p: Number of practices

Table 1   Summary of participants and their contribution

As summarised in Table 1, 80 academic and professional staff from four institutions (including the pilot workshop) generated over 1,100 practices. The SESR practices data was coalesced by the authors with the *interim model* to produce the current *working model.* Because of the large quantity of data, deliberate attempts were made to be as parsimonious as possible in generating processes and categories. The outcome is a current *working model* consisting of five categories, 18 processes and associated practices. As a content validity check, the authors affirmed this practices-processes-categories structure of the model by revisiting all the practices to check that they were represented in the *working model.* It is important to note that the model development is a dynamic and ongoing process and the *working model* is a work in progress. As new data becomes available, it will be juxtaposed against the existing model. Experience thus far indicates that the majority of new data will be accommodated within the existing structures but there is the possibility of new elements emerging, particularly if innovative practices are identified. The current content is summarised in Table 2.[5]

---

[5] Defining the model is an ongoing dynamic process. For example, the model presented here is a refinement of a recently published version (Nelson et al., 2013).

(ii)   *Indicators of maturity status* is the central component of the model. Indicators are derived from the Total Quality Management (TQM) literature (Clarke, Nelson & Stoodley, 2011; Huggins, 1998) and "pretty much fall into mainstream management thinking around

CATEGORIES	PROCESSES	PRACTICES in the areas of …
LEARNING *Students are provided with:*	*Assessment* that is designed to be student-centred and relevant	• design • feedback • relevance
	Curricula that are educationally sound	• design • enactment
	Teaching practices that are collaborative, real-world, student-centred and technology-enabled	• collaborative • simulation • student-centred • tools/technology
	Pedagogical styles that are enquiry-based and work integrated	• enquiry based learning • in situ WIL • mediated WIL
SUPPORTING *Students are provided with:*	*Information about* programs, courses, milestones and student support services	• courses / programs • key milestones • student services
	Services & resources related to assistance with finances, and personal and academic capabilities	• financial • personal • skills
	People rich access to personal advice, advocacy and peer support	• advising • advocacy • peers
BELONGING *Students are provided with:*	*Interaction* involving personal and engaging communication with staff, involvement with other students, and professional and social connections	• communication • organised • professional • social
	Inclusive activities that are equitable, culturally rich interactions in the university and wider communities	• cultural • diversity • extended community • internal community
	Identity development/formation opportunities in the areas of professional, student and leadership development	• apprenticeships • capacity building • celebrating success • cohort
INTEGRATING *Students are provided with:*	*Academic literacies* that focus on embedded peer-to-peer learning and academic skills development.	• peer learning • skills integrated • people integrated
	Personal literacies that develop personal and professional attributes within the curricula	• cohort development • inclusion • personal development • professional development
	Activities that cross staffing, student lifecycle, functional and student/staff boundaries	• academic-professional partnerships • managing transition • proactive outreach to students • shared process / understanding • student group involvement

RESOURCING Staff are provided with:	*Staff development* in student engagement	• academic staff development • development by staff of students as paraprofessionals • professional staff development • reward and recognition of teaching excellence • sessional staff development
	Roles & responsibilities which engender engagement	• providing tools and technology • specific roles • workload
	Evidence base which is collected, analysed and disseminated to influence staff practice	• corporate information • dissemination • research / innovation
Students and staff are provided with:	*Communication* which is enabled by procedures and social media tools	• online or social media • procedures
Students are provided with:	*Learning environments* where spaces, resources and access enable learning	• learning spaces • resources • student spaces • timetables • access

Table 2   Details of the content of the SESR-MM

quality improvement cycles" (eMM Transcript 1, 2011, line 1256).[6] They most commonly have five elements (see Figure 5 in Maier, Moultrie & Clarkson, 2009, p. 20).

The conceptualisation of the indicators varies depending on the type of organisational environment. A discussion of organisational environments and their associated indicators can be found in Nelson et al. (2013) but, in summary, the indicators are either
• hierarchical and sequential *levels of maturity* where movement from a lower level to the next is evidence of a growing maturity. The *Capability Maturity Model* (CMM) (Paulk, 1999) is a typical example where *levels* are used; or
• are not seen as hierarchical or sequential, but are referred to as *dimensions*, based on "the key idea of holistic capability, … [which] describes … capability … from synergistic perspectives" (Marshall, 2007, p. 6). Maturity is seen as a complex interactive product of all of the *dimensions* rather than a single global *level.* Marshall and Mitchell's *eLearning Maturity Model* (eMM) (Marshall, 2010) is an example where the *dimension* concept is used.

Keeping in mind that the model is continually evolving, at the time of writing, the current descriptions of the dimensions of the SESR-MM are summarized in Table 3.

To obtain an assessment of "holistic capability" or institutional maturity of a specific practice, it is necessary to obtain some interpretation of that practice for <u>each</u> dimension. For example, evidence on the practice of *feedback on assessment* would require an assessment of the cumulative or synergistic impact of practices such as:
• *Feedback is provided to students about assessment* [the practice interpreted through the dimension of Providing].

---

[6] Stephen Marshall and Geoff Mitchell led a training workshop with the authors on November 16, 2011. It was recorded and transcribed as eMM Transcript 1 (2011).

- *There are plans for providing feedback to students about assessment* [Planning].
- *Institutional policies and standards guide the provision of feedback to students about assessment* [Institutional framing].
- *Feedback to students about assessment is monitored or reviewed* [Monitoring].
- *Information is used to improve the feedback to students about assessment* [Optimising].

Dimension	Description
Providing	The institution provides the process.
Planning	Local objectives and plans are used in implementing the process.
Institutional framing	Institutional standards frame the implementation of the process.
Monitoring	The institution monitors the implementation of the process.
Optimising	The institution improves the implementation of the process.

Table 3   Descriptors of dimensions as indicators of maturity

(iii)   The third essential component of maturity models focuses on the *quality* of the *content*. The *quality* of the behaviours associated with each dimension is assessed by using a four-point *adequacy* scale (Not-adequate, Partially- adequate, Largely- adequate and Fully-adequate).

Summarising sections (i) to (iii), the practices, interpreted through the dimensions, provide a basis to gather evidence of institutional processes. This evidence, based on the quality of the practices as assessed using the adequacy scale, provides an indication of the "holistic capability" or maturity of the institutional processes.

Australian data from the SESR-MM

Even at this early stage of developing the model, there is evidence in the data collected of first generation co-curricular practices (e.g. *Peer support is available to students* in the *people rich* process of the *Supporting* category…), second generation curricular practices (e.g. *Assessment design is student-centred* in the *assessment* process of the *Learning* category) and third generation transition pedagogy practices (e.g. *Academic skills development is embedded in the curriculum* in the *academic literacies* process of the *Integrating* category). It is planned to collect further institutional data by looking for evidence based on the practices identified in the model development process. Maturity and quality will be assessed using the dimensional interpretations of generic practices assessed using the 4-point adequacy scale.

Moving beyond the generational approach

The practices identified and collected as evidence of *student* behaviour by researchers and practitioners exploring first, second and third generation approaches to conceptualising the student learning experience provide the basic essential element of the SESR-MM—the content. But while this is a not-insignificant contribution to our understanding of student engagement behaviour, the generational approach can be expanded upon. As indicated in the examples above, the SESR-MM can identify practices associated with all three generational

approaches but, beyond this, the model offers a tool to assess not only how much of each generational approach the institution provides but also its *quality* and how *capable* or *mature* the institution is in delivering those practices. The maturity model interpretation of student engagement provides a complementary extension of the generational approach as it allows an assessment of institutional capability to initiate, plan, manage and evaluate institutional student engagement practices.

Acknowledgement

References

Australian Government. (2009). *Transforming Australia's higher education system*. Canberra, Australia: Department of Education, Employment and Workplace Relations. Retrieved from http://www.deewr.gov.au/HigherEducation/Documents/PDF/Additional%20Report%20-%20Transforming%20Aus%20Higher%20ED_webaw.pdf

Australian Learning and Teaching Council. (2009a). Call for sector-wide FYE standards. *Communiqué, 2*, 42-44, 66.

Australian Learning and Teaching Council. (2009b). Ensuring a successful transition to first year. *Communiqué, 2*, 14.

Becker, J., Niehaves, B., Pöppelbuß, J., & Simons, A. (2010, June). *Maturity models in IS research.* Paper presented at the 18th European Conference on Information Systems, Pretoria, South Africa. Retrieved from http://aisel.aisnet.org/cgi/viewcontent.cgi?article=1096&context=ecis2010

Bradley, D., Noonan, P., Nugent, H., & Scales, B. (2008). *Review of Australian higher education. Final report.* Canberra, Australia: Commonwealth of Australia.

Clarke, J., Nelson, K., & Stoodley, I. (2011). *SESR-MM Report 001: Capability maturity models: A discussion paper and a work in progress.* Report prepared for an ALTC Project, Establishing a Framework for Transforming Student Engagement, Success and Retention in Higher Education Institutions. Queensland University of Technology. Brisbane, Australia. Manuscript in preparation.

Dawkins, J. (1988). *Higher education: A policy statement.* A report prepared for the Department of Employment, Education and Training. Canberra, Australia: Australian Government Publishing Service.

eMM Transcript 1. (2011). *Transcript of meeting between the authors of eMM and ALTC Project personnel. Meeting No 1, November 16, 2011.* Queensland University of Technology, Brisbane, Australia.

Huggins, L. (1998). Total quality management and the contributions of A. V. Feigenbaum. *Journal of Management History, 4*(1), 60-67.

Iversen, J., Nielsen, P., & Norbjerg, J. (1999). Situated assessment of problems in software development. *Database for Advances in Information Systems, 30*(2), 66-81.

Kift, S. (2009). *Articulating a transition pedagogy to scaffold and to enhance the first year student learning experience in Australian higher education*: *Final Report for ALTC Senior Fellowship Program.* ALTC Resources. Retrieved from http://www.altc.edu.au/resource-transition-pedagogy-report-qut-2009

Kift, S., & Nelson, K. (2005, July). *Beyond curriculum reform: Embedding the transition experience.* Paper presented at the 28th HERDSA annual conference, "Higher education in a changing world." Sydney, Australia. Retrieved April 27, 2011, from http://www.herdsa.org.au/wp-content/uploads/conference/2005/papers/kift.pdf

Kift, S., Nelson, K., & Clarke, J. (2010). Transition pedagogy: A third generation approach to FYE—A case study of policy and practice for the higher education sector. *The International Journal of the First Year in Higher Education, 1*(1), 1-20. doi: 10.5204/intjfyhe.v1i1.13

Maier, A., Moultrie, J., & Clarkson, P. (2009). *Developing maturity grids for assessing organisational capabilities: Practitioner guidance.* Un, University of Cambridge, Cambridge, UK. Retrieved from http://www.iff.ac.at/oe/full_papers/Maier%20Anja%20M._Moultrie%20James_Clark son%20P.%20John.pdf

Marshall, S. (2007). *E-Learning Maturity Model. Process descriptions.* Victoria University of Wellington, New Zealand.

Marshall, S. (2010). A quality framework for continuous improvement of e-Learning: The e-Learning Maturity Model. *Journal of Distance Education, 24*(1), 143-166.

Nelson, K., & Clarke, J. (2011). *Establishing a framework for transforming student engagement, success and retention in higher education institutions. An ALTC Innovation and Development Grant Proposal.* Queensland University of Technology, Brisbane, Australia.

Nelson, K., Clarke, J., Kift, S., & Creagh, T. (2011). *Trends in policies, programs and practices in the Australasian First Year Experience literature 2000–2010* (The First Year in Higher Education Research Series on Evidence-based Practice: Number 1). Brisbane, Australia: Queensland University of Technology.

Nelson, K., Clarke, J., & Stoodley, I. (2013). An exploration of the Maturity Model concept as a vehicle for higher education institutions to assess their capability to address student engagement. A work in progress. *ergo, 3*(1), 29-35.

Nelson, K., Kift, S., & Clarke, J. (2012). A transition pedagogy for student engagement and first-year learning, success and retention. In I. Solomonides, A. Reid, & P. Petocz, (Eds.), *Engaging with learning in higher education* (pp. 117-144). Oxfordshire, UK: Libri Publishing.

Nelson, K., Kift, S., Humphreys, J., & Harper, W. (2006). *Benchmarking transition practices in Australian universities. Carrick Institute for Learning and Teaching in Higher Education – Competitive Grants Program.* Queensland University of Technology, Brisbane, Australia.

Paulk, M. (1999). Using the Software CMM with good judgment, *ASQ Software Quality Professional, 1*(3), 19-29.

Rosemann, M. & de Bruin, T. (2005, May). *Towards a Business Process Management Maturity Model.* Paper presented at the 13th European Conference on Information Systems, Regensburg, Germany. Retrieved from http://www.informatik.uni-trier.de/~ley/db/conf/ecis/ecis2005.html

Theoretical model definition. (n.d.). *MedConditions.net. Dictionary of medical conditions terminology.* Retrieved from http://medconditions.net/theoretical-model.html

Wilson, K. (2009, June-July). *The impact of institutional, programmatic and personal interventions on an effective and sustainable first-year student experience.* Keynote address presented at the 12th Pacific Rim First Year in Higher Education Conference, "Preparing for tomorrow today: The first year as foundation." Townsville, Australia. Retrieved from http://www.fyhe.com.au/past_papers/papers09/ppts/Keithia_Wilson_paper.pdf