

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

Abstract

Gaining a competitive edge in the area of the engagement, success and retention of commencing students is a significant issue in higher education, made more so currently because of the considerable and increasing pressure on teaching and learning from the new Australian standards framework¹ and performance funding. This article introduces the concept of maturity models (MMs) and their application to assessing the capability of higher education institutions (HEIs) to address student engagement, success and retention (SESR). A concise description of the features of maturity models is presented with reference to an SESR-MM currently being developed. The SESR-MM is proposed as a viable instrument for assisting HEIs in the management and improvement of their SESR activities.

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¹ <http://www.teqsa.gov.au/higher-education-threshold-standards>

Competition and capability

The explicit focus on widening participation and equity issues in the Bradley Report (Bradley, Noonan, Nugent, & Scales, 2008) and the subsequent federal government response (Australian Government, 2009) has placed Australian higher education institutions (HEIs) under considerable pressure to increase the participation of traditionally under-represented groups of students.

Increased student diversity is an obvious consequence of this and brings with it a unique and complex set of issues which have to be resolved in a socio-political environment where, simultaneously, pressures on teaching and learning from the new standards framework and performance funding are intensifying. In this context, HEIs have to maintain or increase student engagement, success and retention in order to improve the university learning experience for all students, or in market terms to retain or gain a competitive edge.²

From a business perspective, Grant and Pennypacker (2006) cautioned that in pursuing the competitive edge,

the modern enterprise cannot afford to improve recklessly or randomly [but rather,] ... must approach improvement purposefully. Committing an organization to a significant improvement effort requires a thorough understanding of where the organization is and, perhaps more importantly, where the organization needs to grow. (p. 59)

As a starting point to achieving this understanding, HEIs need baseline data that provides some indication of both student experiences and the institutional influences on and responses to those experiences.

There is extensive student experience survey data collected sector-wide in Australian HEIs. The Australian Council for Educational Research (ACER)

(n.d.) has details of instruments used currently and previously, and a new suite of instruments is being prepared (see Department of Education, Employment and Workplace Relations (DEEWR), n.d.). These instruments provide a means to measure and an opportunity to benchmark student experiences and engagement. However, there is no comparable instrument to measure the capability of institutions to influence and/or respond to student experiences where capability is an indication of how well an organisational process does what it is designed to do (Rosemann & de Bruin, 2005). The collective impact of the capabilities on any given aspect of an organisation is an indication of the maturity of that aspect. These notions are the basis of the concept of a maturity model which is discussed below.

The question explored here is whether the maturity model concept can be usefully applied to fill the data gap by facilitating the development of an instrument that aims (a) to enable institutions to assess the capability of their current SESR programs and strategies to influence and respond to student experiences within the institution; and (b) to provide institutions with the opportunity to benchmark across the sector with a view to improving those programs and practices. In essence, is it possible to use the maturity model concept to produce an instrument that will indicate the capability of HEIs to manage and improve SESR programs and strategies?

² While the focus here is on the "competitive edge," this focus begs the question of whether HEIs should be focussing on improvement through competition or through collaboration. In the context of this article, how should data derived from the application of maturity models be used? Should maturity model data be used competitively to, for example, rank order HEIs for funding purposes or to cooperatively identify and disseminate best practice? These questions are of interest to the authors who have a philosophical affinity with the latter approach but such questions are beyond the scope of this article.

Capability maturity models

Introducing the concept

As indicated above, the maturity of an aspect of an organisation is indicated by the cumulative effect of the capabilities of the processes that make up that aspect. 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 all of the theoretically possible incremental improvements are integrated, the product is a theoretical simulation or model that summarises the maturity of the capabilities for that organization—a capability maturity model. Some commentators suggest that these “increments” can be clustered into stages with a distinctive set of “descriptors or benchmark variables ... characteris[ing] each stage ... [and] with each later stage being superior to a previous stage ...” (Becker, Niehaves, Pöppelbuß, & Simons, 2010, p. 2). By way of balance to this global notion of stages, 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 capability maturity model³ being developed by the authors is the Student Engagement, Success and Retention-Maturity Model (SESR-MM). It is referred to below in the discussion of the three essential components of maturity models.

Components of maturity models

Content

This is the most basic component. The content in the SESR-MM is made up of the practices associated with the policies, programs and activities related to SESR. It is crucial that this content be as detailed and specific as possible because it is what is going to be assessed by the model. Hence, the basic units of content are specific practices (e.g. Orientation programs are available to all commencing students in the Science Faculty). Since there will be a large number of specific practices, for parsimony and to facilitate discussion, other specific practices about Orientation can be synthesized into a more general process (e.g. Students have access to

Orientation programs). This process can then be further coalesced with other similar processes (e.g. access to programs that focus on students at-risk of dropping out) into a broader category (e.g. Student support programs). 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 the maturity of the processes.

Indicators of maturity status

This is the central component of the model. Indicators are derived from the Total Quality Management literature (Huggins, 1998) and are most commonly represented by five elements (see Maier, Moultrie, & Clarkson, 2009, p. 20, for an extensive list of examples). A typical example of five elements is shown in the left-hand column of Table 1. Such indicators of maturity status “pretty much fall into mainstream management thinking around quality improvement cycles” (eMM Transcript 1, 2011, lines 1259-1260; Speaker is Stephen Marshall).⁴

The specific interpretation of the indicators seems to depend on the type of organisational environment, which can range from relatively rigid, controlled and homogeneous to more socially and vocationally complex, flexible and variable. Maturity models had their genesis in the IT industry and software development organizations are considered to be representative of the first type of environment. The Capability Maturity Model (Paulk, 1999) is the archetypal example of a model for that type of organizational environment. It has five hierarchical and sequential levels of maturity summarising an effective software development process ranging from an ad hoc, immature process to a mature, disciplined and monitored process⁵ (see Table 1 for descriptions). Crucially, movement from a lower level to the next is evidence of a growing maturity and the maturity of the organization is represented globally by that particular level.

However, in more complex and variable environments such as HEIs, there may be some relatively autonomous sub-groups with, for example, vocationally different orientations and consequently a difference in the maturity of the same aspect. In these environments, the indicators of maturity cannot be interpreted as rigid, hierarchical or sequential, but are seen as indicators that interact to produce what

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 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).

⁵ For detailed descriptions of the five levels, see Paulk (1999).

Table: 1 Generic descriptors of indicators of maturity

Indicator of maturity	
Level	Dimension
(Based on Paulk, Weber, Garcia, Chrissis, & Bush, 1993, pp. O13-O17).	(Marshall, 2010, pp. 148-149)
1 <i>Initial or “ad hoc”</i> : The development process is characterized as ad hoc, and occasionally even chaotic.	<i>Delivery</i> : The creation and provision of processes and the extent to which they are seen to operate within the organisation.
2 <i>Repeatable</i> : Basic project management processes are established. The process is in place to repeat earlier successes on similar projects.	<i>Planning</i> : The use of predefined objectives and plans in conducting the processes.
3 <i>Defined</i> : Activities are documented, standardized and integrated into standard processes.	<i>Definition</i> : The use of institutionally defined and documented standards, guidelines, templates and policies during the process implementation.
4 <i>Managed</i> : Detailed quality measures are collected. The process and product are understood and controlled.	<i>Management</i> : How the institution administers process implementation and ensures the quality of the outcomes.
5 <i>Optimizing</i> : Continuous improvement is facilitated by feedback from the process and from piloting innovative ideas and technologies.	<i>Optimization</i> : The extent to which an institution is using formal and systematic approaches to improve the activities of the process to achieve pre-defined objectives.

Marshall (2007) calls “holistic capability” (p. 6). This describes capability from a synergistic perspective where the indicators are referred to as dimensions and maturity is seen as a complex interactive product of all of the dimensions rather than as a single global level. HEIs fit this mode of operation and Marshall and Mitchell’s eLearning Maturity Model (eMM) (Marshall, 2010) is an example where the dimension concept and holistic capability are used.⁶ The eMM dimensions have been incorporated into the SESR-MM.

The generic descriptors for the five elements are applied either as levels or dimensions and are shown in Table 1. They are essentially the same, it is in their interpretation as sequential hierarchical levels or as synergistic dimensions that they differ. For example, assume that the focus was on Orientation programs and the evidence suggested that the programs conformed to institutional standards. Interpreting this in terms of levels, the institution would be considered as being at Level 3. In contrast, interpreting the same outcome in terms of dimensions, the outcomes for all five dimensions would be considered and a holistic assessment of maturity would be made. Details of this process and examples of how it works are available in Marshall (2006, 2010).

The third essential component of maturity models focuses on the quality of the content.

Assessing quality

How the quality of the content is assessed depends on whether levels or dimensions are used as indicators of maturity. If levels are used, the descriptors associated with the levels are used as indicators of quality. The descriptors will be specific interpretations of the generic versions in Table 1, as they will be describing the specific content being assessed. Each level is matched to key aspects of the content in a matrix or grid called a Capability Maturity Grid (see Maier et al., 2009 for a detailed discussion) and the descriptions provide a “behaviourally anchored response scale” (Grant & Pennypacker, 2006, p. 62). When maturity is considered in terms of synergistic dimensions, where some indication of quality is required about all five dimensions, Marshall and Mitchell (Marshall, 2010) add an additional step and assess the quality of the behaviours associated with each dimension using a four-point adequacy scale (Not-, Partially-, Largely- and Fully-adequate).

⁶ For detailed descriptions of the five dimensions, see Marshall (2010).

Implementing the SESR-MM

Identifying the content

As indicated earlier, 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:

- (i) Development of an initial model: An exhaustive 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.
 - a. In North America, relevant literature can be found at the National Academic Advising Association Clearinghouse (NACADA, 2012); and, for example, in Pascarella and Terenzini (2004), and Ruiz, Sharkness, Kelly, DeAngelo, and Pryor (2010).
 - b. In the United Kingdom, see, for example, Harvey, Drew, and Smith (2006), and Yorke and Longden (2007, 2008).
 - c. And, finally, in Australasia, contributions focussing on Aotearoa (New Zealand) are available in Zepke and Leach (2005, 2010), and Zepke et al. (2005);

or on Australia in the quinquennial reports on the first year experience out of the Centre for the Study of Higher Education (CSHE) at the University of Melbourne (CSHE, 2012), or on both in, for example, the AUSSE annual reports (ACER, n.d.) and a comprehensive review in Nelson, Clarke, Kift, and Creagh (2011).

- (ii) Development of an interim model: A pilot workshop led us to revise the initial model, in light of the accounts of SESR practices identified by practitioners in a specifically designed workshop.
- (iii) Affirmation of structure: Eighty academic and professional staff from four institutions generated over 1,100 practices in institution-based workshops conducted by the authors. The first workshop was conducted inductively with participants grouping practices into clusters without reference to existing models. The remaining workshops were conducted deductively with practices being allocated to existing models. The outcome of these procedures affirmed the interim model consisting of five categories, and 15 associated processes. This affirmed interim model is detailed in Table 2.
- (iv) Development of a working model: The authors are currently verifying the correspondence between the interim model and the complete set of over 1,100 practices gathered from the stakeholders.

Table: 2 Details of the content of the SESR-MM

Categories		Processes What is it that the institution is doing in order to:	
1	LEARNING	L.1	Develop and implement authentic assessment
		L.2	Develop and implement educationally productive curricula
		L.3	Develop and implement collaborative and student-centred learning and teaching practices
2	SUPPORT	S.1	Make timely proactive contact with students to monitor engagement
		S.2	Provide information, advice and guidance on learning and life resources, activities and professional services
3	BELONGING	B.1	Enable sustainable learning as the result of interaction between and within student and staff groups
		B.2	Ensure inclusive practices and the valuing of diversity
		B.3	Develop a "successful student" identity in students
4	HOLISM	H.1	Promote whole-of-university activities
		H.2	Enable the connectedness of curriculum, support and belonging to develop student capacity to engage
		H.3	Promote academic-professional staff cooperation
		H.4	Recognise the centrality of curriculum in facilitating the connectedness of curriculum, support and belonging
5	RESOURCES	R.1	Develop staff responsibility for and capacity to provide effective student engagement opportunities
		R.2	Develop and implement university-wide evidence-based policy and practices for the promotion of student engagement
		R.3	Provide institution-wide physical and virtual facilities and resources to enable student engagement

A work in progress: Activities yet to be done

The aim of this project is to develop an assessment tool that will assess the capability of HEIs to manage and improve their SESR programs and strategies. Once the working model of SESR-MM is finalised, items that reflect the specific SESR practices will be generated for each dimension with appropriate response scales. The tool will then be field tested. These processes are to be completed by mid-2013. Case studies in HEIs will be carried out during the remainder of 2013.

Conclusion

Keeping in mind Grant and Pennypacker's (2006) cautionary advice to avoid approaching organisational improvement "recklessly and randomly" but to do so "purposefully" (p. 59) while pursuing the competitive edge, an organisation needs data both on student experiences which is readily available and on institutional capability to influence and respond to those experiences which is currently not readily available. Essential elements of the maturity model concept have been discussed and an interim model has been populated with data from literature and stakeholders. Although the interim model is to undergo a further modification to a working model, in its current form it already seems to provide the basis for a viable instrument—the SESR-MM—for assessing institutional capability in the area of student engagement, success and retention. Such an assessment would provide "a thorough understanding of where the organization is and, perhaps more importantly, where the organization needs to grow" (Grant & Pennypacker, 2006, p. 59). Finding and nurturing that as a competitive advantage can lead to the development of an institution "that is sustainable and successful" (Ehmke, n.d., para 1).

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