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This is the author's version of a work that was submitted/accepted for publication in the following source:

Nelson, Karen J., Clarke, John A., & Stoodley, Ian D. (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), pp. 29-35.

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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 standards framework¹ and performance funding. This paper 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.

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 retain or gain a competitive edge.

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. Australian Council for Educational Research (n.d.) has details of instruments used currently and previously and a new suite of instruments is being prepared (see Department of Employment, Education and Workplace Relations, n.d.). These instruments (will) 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

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

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 (i) 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 (ii) 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?

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 model*² 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

² *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.

practices about Orientation can be synthesized into a more general *process* (e.g. Students have access to Orientation programs). This process can then be 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).

Indicators of maturity status

This is the central component of the model. Indicators are derived from the Total Quality Management (TQM) literature (Huggins, 1998) and have between four and six elements with five being the most common (see Maier, Moultrie & Clarkson, 2009, p. 20, for an extensive list of examples). These 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).³

The specific interpretation of the indicators seems to depend on the type of organisational environments 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 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 process.⁴ 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, 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 “holistic capability, ... [which] describes ... capability ... from synergistic perspectives” (Marshall, 2007, p. 6). 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 is used.⁵ The eMM dimensions have been incorporated into the SESR-MM.

The generic descriptors for the five elements either as *levels* or *dimensions* are essentially the same and are shown in Table 1. It is in their interpretation as sequential hierarchical levels or as synergistic dimensions that they differ. For example, if the focus was on Orientation programs and 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.⁶

³ 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).

⁴ For detailed descriptions of the five levels, see Paulk (1999).

⁵ For detailed descriptions of the five dimensions, see Marshall (2010).

⁶ This process is detailed in Marshall (2006).

Table 1 Generic descriptors of indicators of maturity

Indicator of maturity		
<i>Level</i> (Based on Paulk, Weber, Garcia, Chrissis, & Bush, 1993, pp. O13-O17).	<i>Dimension</i> (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 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 manages the 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.

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).

Implementing the SESR-MM

Identifying the content

The specific practices associated with the policies, programs and activities related to SESR constitute the content of the SESR-MM. This is being developed from two sources: First, an exhaustive review of the SESR literature which has identified 82 processes coalesced into 10 categories; and second, SESR practices identified by academic and professional staff from four HEIs on the east coast of Australia. As data is gathered from workshops in each institution, it is being integrated with the literature to form an evolving corpus of practices, processes and categories. The first workshop identified two processes that were only

implicitly acknowledged in the literature. These have now been made explicit. Three more workshops are planned during 2012.

Developing the Survey and carrying out Case Studies

The aim of this project is to develop an instrument that will assess the *capability* of HEIs to *manage* and *improve* their SESR programs and strategies. Once the content is finalised, items that reflect the specific SESR practices will be generated for each dimension with appropriate response scales. The instrument will then be field tested and undergo the required validity and reliability checks. These processes are to be completed by mid-2013. Then, case studies both within and among 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 not. Essential elements of the maturity model concept have been discussed and seem 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" (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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