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The Educational Triage Model

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Abstract

The purpose of this paper is to develop an approach to assessing the requirements of students and identifying the most appropriate teaching methods and aids to support their learning needs. The model derives concepts from the medical triage system leading to the development of an educational triage approach for application in the tertiary education setting.

Key words*: Educational triage; blended learning, learning styles.*

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Introduction

Within the Australian tertiary education sector, a great deal of attention has been given to identifying ways of retaining students (retention) and reducing attrition. Effectively, they are two sides of the same problem the literature and methods for dealing with each have however, produced distinctly different approaches to solving the problem. Regardless of which problem one claims to be concerned with the bottom line is about finding ways to keep students within in the tertiary education sector.

A variety of arguments have been raised pertaining to the reasons for the loss of students and how best to redress this negative flow. Suggestions such as the need to change the methods of teaching and to recognise the students as customers have proliferated in the literature. What has emerged is a disparate and confusing set of guidelines and rules all of which have some merit but have failed to resolve the problem (Hofmann, 2006).

The obvious reason for the failure to solve the retention/attrition problem is that the concept of providing a blended learning environment (where one size fits all) is inherently complex and ignores the fact that all students do not learn in the same way. That is students have very different needs and learning styles and what may appeal to one is more than likely to be rejected by another. In the meantime, the primary purpose of education is eroded and effectively cast aside in an endless narrative of pedagogical discourse that fails to produce valid results.

With the primary focus of the higher education sector seemingly concerned with finding ways to retain students and educating them to the point of completing their degree all constrained by the need to keep costs under control. The concept of attrition in the literature has evolved to such an extent that universities are so concerned with the loss of students that the discourse has taken on a medical aspect where students are being lost in much the same way as a patient would be lost to some illness. The loss of students from the university perspective is more about the loss of income (Schneider, 2010) than of the physical loss but the language being used is a typical example of the rise of the metaphor. The language is about finding an appropriate way to treat the attrition and subsequently, attrition becomes portrayed as some form of medical condition the outbreak of which needs to be treated. In the case of a medical emergency involving a large number of people having been injured, as might be expected in a train derailment, or a passenger aeroplane where there are various types of injuries it is imperative to assess the injured and determine the most appropriate form of treatment as well as assigning the level of urgency to the treatment required by each individual. This analogy of a medical scenario where there are patients and casualties may by implication be dealt with by adopting an approach to assessing and evaluating the priorities of the medical needs of the patients, in this case however, the patients are students and the medical needs are educational needs. It would be inappropriate to treat everyone as if they all had broken arms or legs without determining the actual type of injury and the severity of their injury.

Thus, what emerges is the prospect of taking the medical triage model and adapting it to an educational triage model as a means for dealing with the attrition and educational needs of each individual student. Just as treating everyone as having the same medical condition would not be appropriate for treating the survivors of a large accident it would be incongruent to treat all students as if they all require the same generic educational support.

Literature Review

Blended learning as a term can be traced to on-line learning techniques or approaches as a means for dealing with the growth in higher education student numbers (Riffell & Sibley, 2005; Iverson, Colky & Cyboran, 2005; Clark & Mayer, 2007). As a consequence of the COVID-19 pandemic all levels of education are implementing on-line teaching to accommodate the isolation requirements. What the eventual outcome of this global change will have on the future of education at all levels is yet to be determined.

Starting with the notion of blended learning there is an obvious disconnect between the two components that form the name. Firstly, the notion of "blended" infers that the approach should some how be a mixture that when blended will produce the outcome of "learning". Secondly, there is the concept of "learning" which infers that achieving the right mixture "blend" will result in learning outcomes, presumably for all students. The disconnect is further exasperated by the research with one focus being directed to evaluating student satisfaction on the assumption that satisfaction is synonymous with learning outcomes (for example, Summers, Waigandt & Whittaker, 2005). There is also the ever-present managerial emphasis in higher education institutions across the global community to reduce costs and increase revenue and in this regards blended learning has shown to be effective (Twigg, 2003).

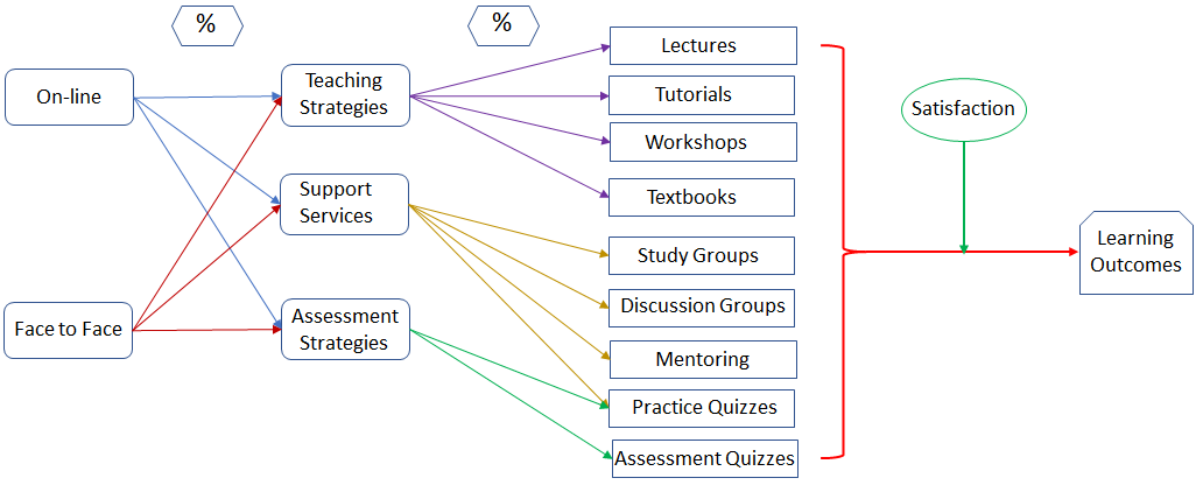
Research focusing on student satisfaction deals with the evaluation of on-line learning and there is virtually no attention to a blending of the methods to achieve learning outcomes (Woltering, Herrler, Spitzer & Spreckelsen, 2009; Wu, Tennyson & Hsia, 2010). There is also a very limited amount of research that compares on-line learning against traditional face to face learning methods (Iverson, Colky & Cyboran, 2005; Larson & Chung-Hsien, 2009) that claims to support the benefits of so called blended learning. The criticism of this research is simply that it merely compares student cohorts and makes no allowance for any moderating, confounding or intervening variables that might explain the findings. For example, there is no pre-test post-test conducted to determine the extent of the knowledge, no consideration of the capabilities of the students in the cohorts (was one cohort comprised of students with a higher GPA than the other or were there students who had previously studied the material); then there was also a lack of consideration for possible variations in the study habits of the cohorts (did students engage in study groups or undertake mentoring). In effect the research may seem beguiling, but the validity remains dubious, the question has to be asked - is it science fact or science fiction. Interestingly, the art critic Berger (1972) coined the phrase "A way of seeing is also a way of not seeing" and this analogy can be applied equally to teaching "*A way of teaching is also a way of not teaching".*

Empirical research is also lacking when it comes to the means by which learning can be measured the common convention is that merely conducting exams will determine the level of achievement of individual students and this in turn is a proxy for learning. This ignores the fact that different students start with different levels of knowledge. Consider the difference between one individual who may have some learning disability a small increase can be a greater achievement than for another student who has a higher level of achievement. Further, to assume that an examination even if combined with continual assessment conducted during the period of education is somehow a meaningful measure of learning borders on being asinine.

One problem with the blended learning notion is that it is not a theory per see since it does not provide the essential elements of a theory – "to explain and predict some observable phenomenon". Since it is not a theory with any definable or testable variables this would explain why the research has been less than satisfactory and far from conclusive in any production of sustainable outcomes. The literature which attempts to define blended learning fails to achieve a united and clear definition

producing what is more like a rather convoluted blurring of ideas that is subsequently open to interpretation (Graham, 2006; Garrison & Kanuka, 2004; Clark, 2003). There seems to be an absence of argument about blended learning with negative findings and dissatisfaction not being reported in the literature. Even the various components of blended learning are dealt with in a piecemeal fashion. That is not to say that these components are not of value to the learning and teaching. An especially interesting component is the generic model community of practice which encompasses a broad spectrum of approaches such as study groups, discussion groups, and mentoring with appeal to adult students not just the younger cohort (O'Donnell & Tobbell, 2007) as well as having application for use in an on-line setting (Gray, 2005). For the purpose of exposing the complex nature of what blended learning encompasses the following diagram is an attempt to present a model of the elements and the issues involved (Figure 1).

Figure 1:
Blended Learning Model

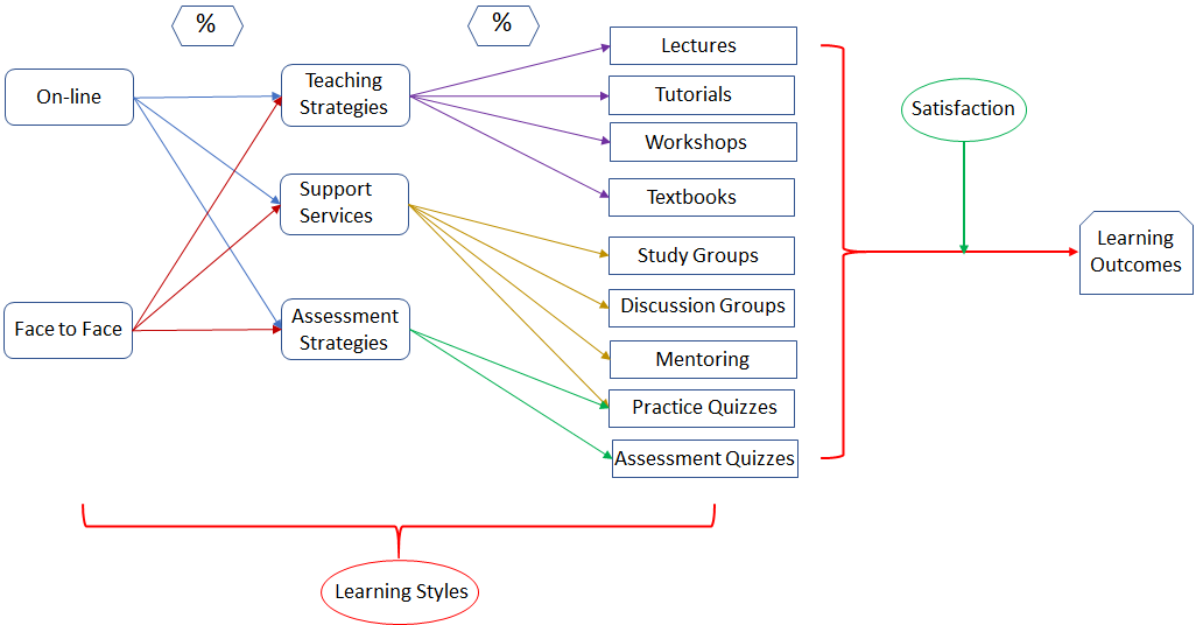


There has been some research which incorporated the learning styles of the students (Aragon, Johnson & Shaik, 2001, 2002). Research has emphasised the importance of learning styles in achieving successful educational outcomes (Beck, 2001; Loo, 2002, 2004). The most common model for considering learning styles is the theory developed by Kolb (1984) which basically is that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situations.

"*Learning is the process whereby knowledge is created through the transformation of experience*" (Kolb, 1984, 38).

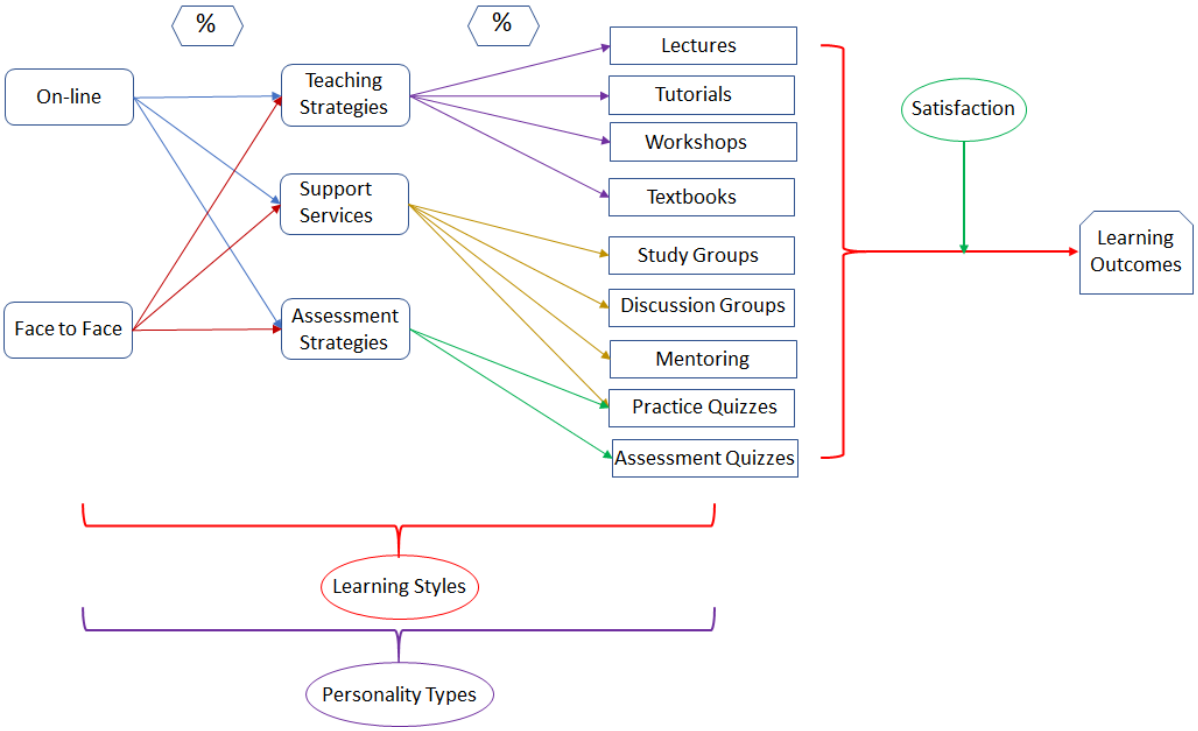
It is not the intention of this paper to go through the Kolb Learning Styles, the reader should make him or herself conversant with the literature for a better perspective. However, the inclusion of learning styles recognises the importance of additional variables that can help to better relate to the complexity that occurs because of the differences that exist in the individuals that make up the student cohort in any given semester or year (Figure 2).

Figure 2:
Blended Learning Model with Learning Styles



Not only do individuals have different learning styles they also comprise different personality types that inevitably influence the way they learn and retain knowledge (Booth & Winzar, 1993; Jessee, O'Neill & Dosch, 2006). The addition of the personality types is therefore added to the model as a further moderating variable (Figure 3).

Figure 3:
Blended Learning Model with Learning Styles and Personality Types



The diversity of learning styles and personality types of students in any given cohort explains the failure of blended learning to satisfactorily address the problems of attrition, retention, satisfaction and most importantly learning outcomes of the entire cohort. Merely providing a generic standardised treatment may appear to be useful however, returning to the medical metaphor treating everyone with the same antibiotics or pain reducing medication may initially also be mistaken as having achieved the desired result. Unfortunately, such treatment would in the long term prove to be ineffective to some one who has a broken arm or leg, internal injuries, or concussion etc. The medical triage involves examining the patient to determine what injuries a person has and the severity of those injuries in order to assign the proper treatment in an appropriate timeline consistent with the urgency of the treatment required. Triage is the term used to describe the process that involves determining when and where patients will be admitted in an emergency department of a hospital or dealt with on a military battlefield.

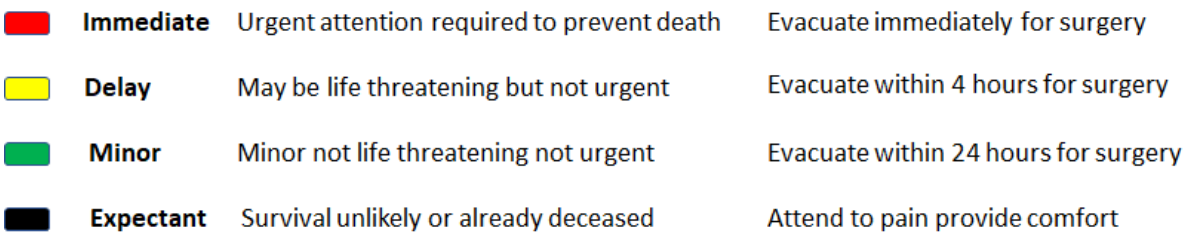
Medical Triage

The term "triage" is derived from the French word "trier" meaning "to sort" and the historical origins of medical triage systems can be traced back to the need to deal with mass casualty situations requiring the sorting of injured soldiers for surgical treatment in particular on Napoleon's battlefields. Napoleon's Surgeon Baron Dominique-Jean Larrey (1766-1842) is credited with having introduced a classification system for wounded soldiers which prioritised their evacuation from the battlefield (Mitchell, 2008).

For the most part the development and refinement of the medical triage has followed the military actions throughout history. The highest priority was initially to get the wounded treated and back into the action. Surgeons in World War I had more advanced medical and surgical treatments which allowed for forward aid stations where surgeons could perform a range of operations that had been far too difficult in the past. During World War II there were even more significant medical advances that enabled surgeons to perform more complex operations at forward stations. The other interesting development was the introduction of medical supplies carried by each soldier and a first aid medic that specialised in providing immediate attention to the wounded. This was referred to as "buddy care" since the first aid person would attend to those in their particular combat unit (Mitchell, 2008). The Korean War had surgeons moved even closer to the front line with the introduction of Mobile Army Surgical Hospitals (MASH). To get the wounded to these MASH units a new advancement resulted in the use of helicopters and this changed the emphasis of the triage with a greater focus on prioritising those who need urgent intervention to save their lives or limbs (Mitchell, 2008; Eiseman, 1967).

A modern phenomena is the occurrence of *large accidents* which are associated with trains, planes or ships; *natural events* such as earthquakes, tidal waves, volcanic eruptions and pandemic viruses; *terrorist attacks* such as suicide bombers and the like; all of these lead to mass casualties of civilian populations and the need for triage systems to address disaster situations (Mitchell, 2008). So, whilst the medical triage system has evolved the fundamental principles still apply. The basic classification can be summarised as encompassing the following categories which are portrayed in Figure 4.

Figure 4:
Generic Medical Triage Classification Model



Educational Triage

In much the same way as the medical triage system is used to classify patients according to their medical needs an educational triage needs to classify the educational needs of each student. That is determining the most appropriate form of teaching to facilitate learning. In essence, this means matching the needs of individual students to the most appropriate teaching methods.

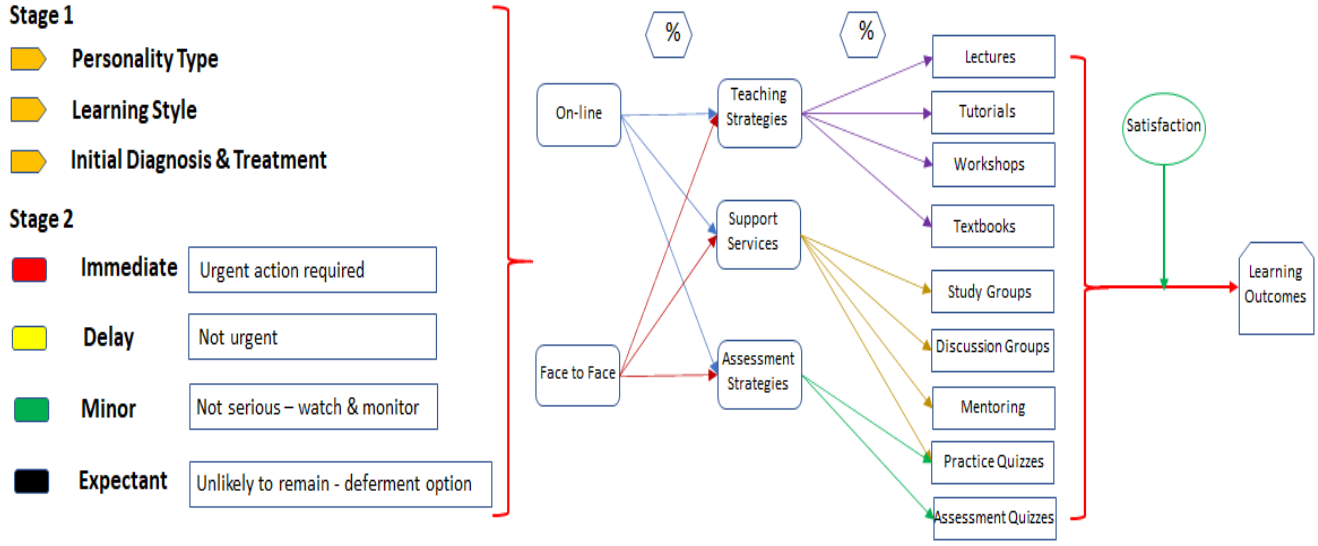
One difference is that the life of the student is not at risk so rather than seeking to identify injuries the starting point should be to identify the learning style and the personality type of the student. It should be noted that different discipline areas of study can pose problems for an individual to comprehend – a student may be gifted in comprehending music or creative studies but face great difficulties in dealing with subject matter that is routine or esoteric in nature. Prior research has identified the predominant personality types for specific disciplines (Booth & Winzar, 1993; Törnroos, Jokela & Hakulinen, 2019) and the learning styles most suited to specific disciplines. It should be noted that the medical triage model assumes that the person conducting the assessment possesses medical knowledge that allows him or her to judge the type of injury its severity and the appropriate treatment required. That means there are some additional issues for the commencement stage of the educational triage required to enable an assessment to take place. The model therefore takes on a rather longer more extensive view of the situation requiring a deeper examination of the problem that the individual student is confronting.

Stage one is aimed at establishing the educational needs and can be described as being proactive. Since prior research has shown that an individual's personality type and learning style are interconnected it is considered pertinent to the development of appropriate teaching methods and support systems. As with the medical model an initial diagnosis and treatment (first-aid) is also an important component and in the educational model this would likely involve the provision of mentoring programs such as PASS, SPAM (Kirkham & Ringelstein, 2008), MAPS (Laing & Perrin, 2013), study groups, buddy programs, engagement and skill support programs (Einfalt & Turley, 2009).

Stage two covers the conventional medical model in so far as they relate to the educational aspects. The *immediate* category is concerned with taking urgent action to deal with students who have displayed learning difficulties as evidenced through assessment and attendance, the appropriate responses are predicated upon the personality type and learning style of the individual student and the particular subject material or discipline being undertaken. Next is the *delay* category which involves the same assessment and actions as in the immediate category however, the nature of the problems do not require urgent attention. The third category is *minor* and may relate to problems being experienced or exhibited by the student that whilst not serious but may evolve as the semester progresses, watch and monitor. The final category is *expectant*, and this is where the problems have become so serious that the student may well be

better served by changing their degree for example move from a business degree to an arts degree or science or visa versa. As an alternative the student may be better off taking a break from study and defer to possibly return at some later date. This model is presented in Figure 5.

Figure 5:
Generic Educational Triage Classification Model



Summary

The model provides a means for future application when dealing with the assessment of appropriate teaching methods to meet the needs of students on an individual basis. That is in much the same way as emergency triage is applied to circumstances of individual patients in the field the educational triage is about diagnosing the needs and requirements for individual students as they grapple with the educational aspects of achieving learning outcomes. In much the same way as the emergency triage is about saving lives the educational triage is about saving students from attrition.

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