

Can Online Learning Boost Academic Performance? A Microeconomics Study

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ABSTRACT

This study of the 2007 cohort of Durban University of Technology students enrolled in its introductory microeconomics course examines whether the length of time they spend in the online economics classroom is associated with different levels of academic performance. The study, using linear regression analysis, finds that performance is significantly correlated not only with gender and academic ability, but also with the length of time students spend productively in the online classroom as reflected in their achievement in online assessments. A cautious interpretation of these results is that the study offers at least modest evidence of how motivation to engage in online learning may impact on performance.

Keywords: Economics performance; blended learning; online learning; synchronous learning; asynchronous learning

1. INTRODUCTION

The historically high failure rate of South African first-year economics students, as well as the consequences thereof, is well documented (Horn and Jansen, 2009; Van der Merwe, 2006 and 2007). Smith (2009) observes that various academic interventions, such as parallel courses, bridging courses, extra tutorials and other special courses, have been widely implemented in South African higher education institutions over the past 25 years or so with the objective of improving students' general academic performance. He notes, however, that relatively little research - both locally and internationally - has focused on the efficacy of these interventions.

An alternative, if not supplementary, approach to boosting students' academic performance is to adapt the mode of instruction. The advent of the internet, together with the increasing adoption of ever-improving instructional technologies, has prompted a new emphasis on online education and training (Bartley and Golek, 2004). This development creates the opportunity for educators to move beyond the traditional face-to-face classroom and chalk-and-talk approaches to experiment with various mixes or "blends" of teaching and learning styles. Again, however, it seems that - at least as far as the online learning dimension of these innovative instructional styles is concerned - there is uncertainty about the depth of learning achieved (Bali, El-Lozy and Thompson, 2007). Bartley and Golek (2004) lament the lack of conclusive research in respect of the effectiveness of online education. As far back as 1999, Vachris (1999), and more recently, Van der Merwe (2007), among others, encouraged closer study of performance issues related to online instruction.

This paper is a response to scholars' various invitations to examine the strength of association between academic performance and aspects of online instruction more thoroughly. Specifically, the study examines whether students' duration of use of the online economics classroom (one element of the blended instructional approach employed), measured in months, is significantly associated with different levels of academic performance. Subsequent sections offer a brief review of the literature, description of the online classroom, discussion of the study's research design, presentation of the data, analysis, limitations of the study, and the conclusion.

2. OVERVIEW OF THE LITERATURE

2.1 Factors Implicated in Economics Performance

Various factors have been identified as potential determinants of academic performance in economics. These include - in no particular order - age, gender, mathematical ability, English language proficiency, class attendance and pedagogic interventions (supplementary courses and materials). Table 1 reports correlations observed between these variables and academic achievement – in economics for a sample of South African studies.

Table 1: Factors Influencing Economics Academic Performance

Relationship between economics achievement and...(variable)	Identified correlation with economics achievement
Student age	<ul style="list-style-type: none"> • Older students may perform better than younger students (Parker, 2006). • No significant relationship detected between student age and economics achievement (Van der Merwe, 2006).
Gender	<ul style="list-style-type: none"> • Males generally perform better than females in multiple choice assessments (Horn and Jansen, 2009; Parker, 2006; Van Walbeek, 2004). • No significant relationship identified between gender and economics achievement (Van der Merwe, 2006).
Mathematical ability	<ul style="list-style-type: none"> • Robust and positive relationship between economic performance and mathematics scores (Edwards, 2000; Horn and Jansen, 2009; Smith, 2004; Van Walbeek, 2004,).
English language proficiency	<ul style="list-style-type: none"> • High school English language performance is not associated with university economics performance (Van Walbeek, 2004). • English as a home language is significantly associated with economics performance (Edwards, 2000; Smith, 2004). • English language verbal proficiency is a significant predictor of success in introductory microeconomics (Parker, 2006)
Class attendance	<ul style="list-style-type: none"> • Lecture and tutorial attendance contribute positively to academic performance (Horn and Jansen, 2009).
Pedagogic interventions	<ul style="list-style-type: none"> • Special supplementary modules and tutorials impact positively on students’ performance (Parker, 2006; Smith, 2009)

Pedagogic devices that, notably, seem to have enjoyed comparatively little attention in the field of economics instruction are those of online and blended learning (Arbaugh, Godfrey, Johnson, Pollack, Niendorf and Wresch, 2009).

2.2 Concept of Blended Learning

Blended learning has been variously defined as the mixing of instructional modalities and methods (Graham, 2005). Carman (2005) identifies five elements of a blended learning process. These include live events, self-paced learning, collaboration, assessment and the availability of performance support materials. Graham (2005) considers the combination of online and face-to-face instruction, in particular, to best reflect the historical emergence of blended learning systems.

2.3 Weighing the Evidence in Support of Online Learning

It is by no means a settled matter that online learning (even as an element of a multimedia/blended learning technique) automatically translates into improved performance (Astleitner and Wiesner, 2004). Several studies have found, on balance, that there are no significant differences in academic performance when comparing traditional face-to-face classroom instruction with an online mode of delivery (Anon., 2008; Vachris, 1999). In fact, the literature records findings indicating that learners who employed only online learning fared worse in terms of academic achievement than their peers who received instruction only in a traditional classroom setting (Arbaugh et al., 2009; Karr, Weck, Sunal and Cook, 2003; Molae, 2007; Vachris, 1999). An intriguing nuance of some of these studies, however, is their common conclusion that blending online and traditional modes of instruction is associated with superior academic performance compared to that produced by exclusively online or traditional classroom instruction (Karr et al., 2003; Molae, 2007).

Various studies report favourably on the expected direct link between online learning and academic performance. St Clair (2009), for instance, states that online economics grades were generally higher than what he would have expected using a traditional classroom approach. Similarly, Bali et al., (2007) find that an innovative instructional style with an online component produced better results than the traditional equivalent of the course. Snipes (2005) concludes that the US Navy's adoption in 2004 of a blended learning training approach resulted in, among other benefits, a 44 percent improvement in knowledge retention. Oellermann (2009) reports improved pass rates for various management courses following her employment of certain online assessment tools as part of her instructional technique.

A common deficiency of studies of the effects of pedagogic interventions on academic performance is that they may not account for the potentially large number of intervening variables and so their results may not be interpreted accurately or even correctly (Bali et al., 2007). Several scholars have highlighted the need to study the dynamics associated with online learning more robustly (Alstete and Beutell, 2004; Bali et al., 2007; Van der Merwe, 2006). Thus what effect might the following variables, for instance, have on academic performance in a blended learning environment: gender, ethnic/cultural background, ability, language proficiency, learner motivation and so forth?

While it is unlikely that each potentially confounding variable can be considered in every analysis of the link between instructional approach and performance, at least some effort to this end should be expended for the sake of greater analytical rigour. Some studies have moved in this direction. Thompson (2000), having controlled for prior ability in economics and mathematical ability, finds that repeating students who accessed the relevant computer aided learning modules improved their learning outcomes as measured by their performance on examination questions. However, for non-repeating students this relationship was found to be statistically insignificant.

A meta-analysis of the literature published between 1996 and 2008 prepared by the United States of America Department of Education (2009) suggests that - on average - students in online learning conditions performed better than those receiving face-to-face instruction. The study observes that the performance dividend extracted by online learning was enhanced when some of its elements were blended with components of traditional classroom teaching. It is worth noting, though, that these blended instructional approaches invariably included supplementary learning time and instructional elements not received by learners in traditional face-to-face settings. It follows that one cannot confidently attribute the positive effects of blended learning solely to the media employed. Alstete and Beutell (2004), for instance, find that online course grades, controlling for gender and age, are significantly positively correlated with online course activity but not with previous academic performance achieved in synchronous teaching and learning environments. They speculate that this result points to the possibility that online course performance is a unique type of academic aptitude that is not well understood. Alstete and Beutell (2004) conclude that, in the case of their undergraduate sample, neither age nor gender is related to online course performance. In the case of their postgraduate sample, though, they find that women enjoy superior online grades over men.

Studies such as those reviewed here which set out to explore the association between academic performance and pedagogic interventions often, somewhat gratuitously, rely on the assumption (whether explicit or implicit) that such interventions motivate learners. The appealing idea that such endeavors depend on is that improved academic performances are attributable to improved learner motivation. In fact, very few scholarly works have attempted to explore rigorously the link between some metric of learner motivation and consequent academic performance.

Thus it is that studies making specific claims that systematically designed technology-mediated instructional strategies can boost motivation and performance (Gabrielle, 2003; Rienties and Woltjer, 2004) have mostly not been tested. Van der Merwe (2006) finds no evidence to support this proposition. However, his results may have been tainted by his reliance on self-reported data in respect of the motivation levels of respondents. Doubts have been cast on the validity and reliability of such data (Alstete and Beutell, 2004). Song and Keller (2001) report somewhat stronger empirical evidence to support the hypothesis that improved learner motivation is significantly associated with increased achievement. In particular, they find that learners using motivationally adaptive (geared strictly to the indicated needs of learners) computer aided instruction (CAI) performed significantly better than those using motivationally saturated (indiscriminate provision of motivational tactics) or motivationally minimized (stripped of motivational tactics) CAI.

Following a process of approximation, the blended learning style employed in this study falls between Song and Keller's motivationally saturated CAI and motivationally minimized CAI. Thus, while it does not claim to offer an optimal, nor adaptive, array of motivational tactics, it does create a learning dimension that is simply not possible in a purely traditional chalk-and-talk approach. In this particular instructional blend, online learning functions such as threaded discussions, self-assessments with immediate feedback and interactive tutorials and lessons punctuated with reporting on current economic affairs, among others, are likely to attract learners' attention, demonstrate the relevance of course material more obviously and so promote learner confidence and satisfaction. A learning environment of this nature can reasonably be expected to be motivating both for learners who commence the course already motivated and also for those whose motivation must be coaxed into life. It is in this sense that learner motivation may be implicated with some confidence in variability in economics grade achievement associated with length of productive time spent in the economics online classroom.

3. DESCRIPTION OF THE BLEND

Economics 1 at DUT is offered as a compulsory minor course for candidates majoring in either three-year accounting or management degrees. Most students take Economics 1 in their first year of tertiary study with the exception of students enrolled in the Management Studies programme who take it in their second year. Economics 1 at DUT, in common with other tertiary institutions, has a significant failure rate so that a large proportion of students tend to repeat the course. The Economics 1 course comprises two modules: microeconomics offered in the first semester and macroeconomics in the second semester. Students may not register for macroeconomics without first having attempted microeconomics. Both modules are taught in a traditional face-to-face lecture situation as well as online using the Blackboard Learning Management System interface. Learners are expected to attend scheduled traditional classroom lectures and, outside of formal classes, to follow these up by asynchronously consolidating their learning, at their own pace, in the online economics classroom.

Available online resources comprise electronic textbooks, comprehensive course notes, interactive lessons and tutorials, marking guides for tutorials, discussion topics and assessment/self assessment tools which include questions from past test and examination papers. Traditional classroom lectures are used to discuss sufficient theory so as to tackle synchronously exemplar exercises, problems and tasks that are designed to prepare candidates to achieve competence with respect to the prescribed learning outcomes and assessment criteria. Students are expected to compile their own detailed notes which can be checked against the notes supplied online. In addition, students are encouraged to attempt the online tutorials, exercises, tasks, past tests/examinations and quizzes with a view to consolidating content and concepts introduced in the physical classroom. The online quizzes are formative assessments and may be attempted multiple times. They are automatically marked and also offer limited feedback. Marking guides are provided online for all other assessments with the expectation that students will mark their own work. Unfortunately, however, many students regard the online economics classroom as an "optional extra" and so

either do not use it as recommended or do not use it at all. As with many first-year economics courses, the DUT introductory microeconomics assessments consist of primarily multiple choice items (approximately 80%) while the balance are of the short question variety.

On commencement of classes all candidates enrolled in the microeconomics module are required to attend an orientation session in one of the institution's computer laboratories at which they are introduced to the Blackboard Learning Management System interface. Students use this once-off introductory session to learn how to log into the online classroom and to gain familiarity with its layout and functions such as the chat, discussion, calendar and announcement tools and other facilities. The expectation is that candidates enrolled for the microeconomics course will, following their introduction to the online classroom, voluntarily begin to make regular use of it to supplement their traditional classroom lectures. Given that DUT offers adequate access to computer laboratories for all of its students, this is not an unreasonable requirement.

4. METHODOLOGY

This analysis is based on a study of the 2007 cohort of DUT Riverside campus students enrolled for the microeconomics module of its introductory economics course. As such, its sampling frame comprises the total population of 250 students registered for the microeconomics module. The sample, following data cleaning, totals 174 students or cases (69.6% of the population). The data cleaning process focused on purging cases (outliers) where the number of hits on the online classroom deviated significantly from the mean. Thus if the number of hits per case was too few (<15) it is likely that the student in question had forgotten his or her password relatively early on in the semester and had started using friends' passes to access the online economics classroom which would then account for abnormally high (>250) numbers of hits per case.

The analysis was conducted using the Statistical Package for Social Sciences (SPSS) programme. Cases with missing relevant variables were excluded listwise as per its default setting with the result that the number of sample cases used in the regression exercise was reduced to N = 100. A brief descriptive analysis of the data is followed by a discussion of the results of the multiple regression exercise.

The study employs the student's introductory microeconomics course mark (MicDP), as opposed to his/her final mark, as the metric of performance in terms of gauging academic achievement. The reasons for this are to preserve the largest possible sample size and also to minimize the risk of selection bias. Ordinarily a student's final mark determines whether he/she passes the module/course. The final mark is a weighted average of the student's course mark and final examination mark. However, an institutional academic exclusion rule prevents the student from sitting the final examination if he or she has not scored a course mark of at least 40%. A significant number of students, in any given academic year, are thus prevented from scoring both a final examination mark and final mark. The strategy of using the course mark as the primary measure of students' academic performance ensures that the impact of online learning on achievement can be tested for more candidates and not only for those who might be predisposed to good performance for reasons unrelated to their use of the online facility.

5. FINDINGS AND DISCUSSION

5.1 Descriptive Analysis

DUT student records were used to secure sample data pertaining to gender, age, academic record in the final year of high school, whether students were repeating the course and academic performance in introductory microeconomics at DUT in 2007. Additional student-specific data were harvested from the Blackboard system which automatically logs online classroom activity. The two sets of data were subsequently reconciled and incorporated into an SPSS database.

The sample is reasonably representative of the population. Thus, with respect to age, for example, the sample mean age of females is 23.3 yrs (population = 23.4 years) while that of males is 23.8 yrs (population = 23.8yrs). The sample proportions of first, second and third year-and-older students are also similar to that of the population (36.8%, 33.6% and 29.9% respectively) as are the sample gender proportions (sample males = 41.4%,

population males = 42%). Individuals included in the sample are predominantly second language English speakers (66.9%) and most (89%) took mathematics at some level in their final year of high school. That introductory microeconomics is something of a problem subject for students is evident from the consideration that most students as represented by the sample were repeating the course (54%). This is also true of the population (52.4%).

Table 2 displays the descriptive statistics of students' online activity, the pedagogic intervention and focus of this study. Rounding to the nearest whole number, the mean number of hits on the online classroom (halfhits) per student, over a roughly 4 - 5 month period leading up to the final examination in late May or early June, was 91. Over the same period, the mean number of specially posted online economics and related current affairs articles read by students (Read) was 3 with a negligible mean number of responses in terms of posting (Posted) responses to these items using the online discussion tool. The mean number of online multiple choice quizzes attempted (tASS) by students was roughly 8 and the mean total number of marks accumulated from these formative assessments was 20 (OnlineMicperFT). The average duration (durationhalf) of time spent online with respect to the microeconomics module was about 3 months.

Table 2: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
hitshalf	148	17.00	249.00	90.6622	45.71734
durationhalf	147	.00	5.00	3.0034	1.35926
Read	148	.00	52.00	3.4392	8.26206
Posted	148	.00	11.00	.1757	1.00147
tASS	174	.00	18.00	7.6207	5.60603
OnlineMicperFT	174	.00	132.00	20.3908	30.20139
Valid N (listwise)	147				

5.2 Regression Analysis

5.2.1 Model Specification

Using multiple regression analysis it is possible to test whether a set of independent variables explains the expected variance in the dependent variable, in this case, academic performance in introductory microeconomics. Drawing on the literature, likely predictors of economics performance were selected for inclusion in a significant linear regression model ($F_{6, 93} = 4.990$, $p < 0.0005$ and Adjusted R square = 0.195). This model specified performance (MicDP) as a function of gender (dummy variable "genderscale", male = 0/female = 1), high school mathematics marks (mathmarksct2), high school English marks (engmarksct2), duration of online activity in months (durationhalf), total number of online quizzes attempted (tASS) and total marks accumulated from completed online quizzes (OnlineMicperFT). The variables of student age and whether an individual was repeating the course were excluded on the basis that they are indicated as insignificant factors whose inclusion reduces the variance in performance that the model can potentially account for.

The model's online variables were incorporated in the expectation that, if students spent more time (durationhalf) in the online classroom, this development could play out in improved performance provided this time was used productively. Whether supplementing their own notes from online sources, reading and discussing posted articles or attempting online tutorials and quizzes, students have the opportunity to consolidate, online, their grasp of economics content introduced in the physical classroom. The total number of assessments attempted (tASS) was introduced as a variable in the expectation that certain types of online activity, such as doing tutorials and quizzes, may yield more immediate returns in terms of performance than, say, checking notes or reading/discussing posted articles. Thus, irrespective of achievement in the online exercises and assessments, the mere effort of plodding through them provides students with valuable experience and confidence to tackle the module's summative assessments. The inclusion in the model of the tASS and OnlineMicperFT variables therefore serve as rough, and imperfect, measures of student productivity in the online classroom.

An important factor not specified in the model, yet implied and possibly represented by proxy variables, is student motivation. It is not unreasonable to suppose that students who, in addition to formal economics classes, do voluntary online work are generally more motivated than those who spend less or no time in this way and are consequently likely to achieve relatively better performances. This assessment accords with Parker's (2006) finding that students who do extra work outside of scheduled classes generally perform better than those who do not. It is also conceivable that the online experience, inspired by the creative effort of instructors, is motivational in itself and may therefore coax more effort out of students.

The potential of online learning to create, and boost, motivation gives rise to the longstanding conundrum of how to gauge the efficacy of pedagogical devices while also accounting for the moderating effects of variables such as student motivation and ability. While one may reasonably expect direct relationships between the latter two variables and student performance, the notion that motivation and ability probably also share a direct association cannot be discounted. Thus, in an online medium, a virtuous cycle may be kicked off in which motivation (to engage in online work) feeds performance and performance, in turn, nurtures motivation. In such a potentially complex relationship, how does one isolate the effect of a variable such as student motivation on performance if it is significantly a product of the teaching approach that is employed? A possible solution to this riddle may be to press into service variables representing aspects of the online intervention as proxies that reflect at least some approximation of the variance in performance that might be explained by student motivation. This prospect was a further consideration in the incorporation of the “durationhalf”, “tASS” and “OnlineMicperft” variables into the regression model to act as “double agents” insofar as they may also offer at least a crude compound expression of student motivation.

5.2.2 *Regression Analysis and Discussion*

Table 3 sets out the regression model’s coefficients and Table 4 its descriptive statistics.

Table 3: Coefficients

Model	Standardized Coefficients Beta	t	Sig.	Correlations		
				Zero-order	Partial	Part
1	(Constant)	2.994	.004			
	*genderscale	-2.494	.014	-.073	-.250	-.225
	*mathmarksct2	2.135	.035	.158	.216	.193
	**engmarksct2	2.815	.006	.229	.280	.254
	**durationhalf	2.925	.004	.240	.290	.264
	tASS	-1.868	.065	.123	-.190	-.168
	**OnlineMicperft	2.672	.009	.235	.267	.241

a. Dependent Variable: MicDP b. *p<0.05, **p<0.01

Table 4: Descriptive Statistics

	Mean	Std. Deviation	N
MicDP	53.2100	12.33317	100
genderscale	.6300	.48524	100
mathmarksct2	4.2100	1.39476	100
engmarksct2	4.8600	.85304	100
durationhalf	3.0700	1.33715	100
tASS	8.6600	5.09549	100
OnlineMicperft	24.4000	32.50237	100

Gender is significantly associated with microeconomics performance (MicDP). The indicated negative relationship between the gender dummy variable and performance suggests that males generally outperform females. This result is consistent with that reported in the literature (Section 2). Mathematical proficiency

(mathmarksct2) and English performance (engmarksct2) in the final year of high school are significantly and directly associated with microeconomics performance. This finding, too, largely accords with others reported in the literature (Section 2).

Other significant predictors include the duration of use of the online classroom (halfduration), and achievement in these assessments (OnlineMicperfT). Thus when the duration of use of the online classroom increases by one standard deviation, predicted performance will increase by 0.286 standard deviations. Similarly, if online achievement increases by one standard deviation then microeconomics performance is predicted to increase by 0.415 standard deviations. It is notable that the beta weights of both of these variables exceed those of the other predictors while their respective correlations with microeconomics performance are also, with the exception of engmarksct2, relatively stronger.

A cautious interpretation of the regression model's results is that students who are sufficiently motivated to spend time (halfduration) in the online economics classroom investing productive effort in voluntary online work and formative assessments, as evidenced in their online performance (OnlineMicperfT), are apt to improve their microeconomics performances. These findings generally support the assessment recorded in the literature that blending online and traditional modes of instruction is likely to produce improvements in academic performance (Section 2). The indicated significant correlations for the relationships between these online variables and microeconomics performance suggest that they will largely maintain their strength irrespective of students' gender, mathematical ability and English language proficiency. Indeed, the model suggests that a significant direct association between performance and length of time spent in the online classroom will prevail even when controlling for online performance. One could speculate from this latter result that other elements of the online classroom, besides the number of assessments attempted and performance in these assessments, may benefit students' overall microeconomics performances.

The total number of online assessments attempted (tASS) is indicated as insignificant and negatively associated with microeconomics performance. This might be explained by the possibility of motivated, but unprepared and/or weak, students attempting online assessments with limited success. Indeed, Parker (2006) observes that weak students are more likely to have less productive studying techniques so that a sample that includes a large proportion of less able students may yield insignificant or even negative effects of out of class study time. Against the background that the mean course mark is 53.1%, that over a third of the sample (35%) scored less than 50% and that 54% of the sample comprises students who are repeating the course the possibility of a sizable sample proportion of poor students must be conceded.

6. LIMITATIONS OF THE STUDY

The case research design employed in this study implies that its results may be generalized with a measure of confidence only to the 2007 population of DUT students enrolled in its introductory microeconomics course. Future studies of a similar nature could profitably seek to extend the generalisability of findings by drawing larger samples from larger and more diverse populations. A further limitation of the study is its narrow definition of "performance" as gauged by a mean summative assessment mark. This device potentially fails to score achievement in other areas of learning. Finally, while the study attempted to limit the risk of selection bias by controlling for gender, mathematical ability and English language proficiency, it failed to systematically isolate the impact of learner motivation on performance. Future studies could examine the learner motivation-performance nexus more closely than the essentially intuitive approach employed in this analysis.

7. CONCLUSION

Against the background of allegations of a deficiency of conclusive research in respect of the effectiveness of online education, this study set out to test the strength of association between academic performance and length of productive time spent in the online classroom as a significant element of a blended learning approach. The risk of selection bias was managed as far as possible by creating a large sample relative to the population and by the device of using the microeconomics course mark as the measure of academic performance.

The study's regression model indicates that student characteristics, such as gender, mathematical ability and English language proficiency, are significant predictors of microeconomics performance findings that support those generally recorded in the literature. The model's results suggest, in addition, that performance is directly and significantly associated with the length of time students spend in the online classroom and also with their total value of marks accumulated for completed voluntary online formative assessments. These indicated relationships are robust while controlling for gender, mathematical ability and English language fluency. Controlling for learner motivation remains an elusive achievement insofar as it may be a function of the online learning medium.

The apparent potential of the online medium as a pedagogic tool has important implications for instructional design. The consideration, for instance, that the duration of online visits is significantly and directly related to overall performance irrespective of either the number of assessments attempted or performance in these assessments, suggests that other aspects of online learning may yield worthwhile dividends. Thus, perhaps more thought should be given to the design of online learning environments to attract visits that last longer than the minimum time required to merely complete assessments. This may, for example, entail drawing students into well thought through activities, interactive tasks and online discussions/forums as opposed to employing the online medium primarily as a repository for quizzes, notes and assignment/test solutions. Thus particular, creative, patterns of online activity are more likely to influence learning achievement.

While this study provides modest evidence that the online dimension of a learning blend can potentially deliver improved academic performance, it was more difficult to explain the mechanism by which this occurs. Intuitively, one might anticipate that those who, in addition to traditional classroom lectures, avail themselves of the online economics facility gain an added learning dimension and greater scope for contextualizing and consolidating subject content. If this is indeed the case, then students who are regular users of the online economics facility may, all things being equal, gain a performance advantage over those who are not. Such an eventuality could create a virtuous cycle in which improved performance inspires motivation in a mutually reinforcing fashion.

Given the ubiquitous reach of the internet and ever expanding access to it, the dynamism and immediacy of the online world seems a logical forum in which to demonstrate the relevance and currency of economic theory. Indeed, this is likely to become students' expectation (Anon., 2010) and the delivery of economics content needs to adapt accordingly if the discipline is to escape its bleak reputation and grow in stature. As in life, the key to academic success is motivation. The online component of a blended teaching style, if reasonably well designed, offers that much more scope to ignite and nurture learner motivation.

AUTHOR INFORMATION

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