

Exploring the efficacy of blended learning and innovative assessments in town planning students at the University of Johannesburg.

Trynos Gumbo

University of Johannesburg, Department of Town and Regional planning, Office 6062, Sixth Floor, John Orr Building, Beit and Siemert Street, 2028. Johannesburg, South Africa
tgumbo@uj.ac.za

Siphiwe Given Mbatha

University of Johannesburg, Department of Quality and Operations Management
Auckland Park Bunting Road Campus, Johannesburg, South Africa,
mbathagiven@gmail.com

Emaculate Ingwani

University of Venda, Department of Urban and Regional Planning
Thohoyandou, 0950, Thohoyandou, South Africa
emaculate.ingwani@univen.ac.za

Abstract

The higher education fraternity in South Africa has been undergoing a metamorphosis in response to competing demands to modernise in line with the local and international standards. The efficacy of blended teaching and diverse assessment approaches in the field of town planning has not been well documented. This work investigates the impact of blended learning and innovative assessments on town planning students' performance and success rates. The study adopted the phenomenological case study research design and a mixed method approach where both quantitative and qualitative data were gathered, analysed and presented. Statistical, content, and document analyses were used to interpret data from students and teachers participating in blended learning and innovative assessments at the University of Johannesburg. Preliminary results reveal that blended learning and the application of diverse assessments methods to town planning students significantly increase and improve the success rates. The work concludes by acknowledging the positive impact of properly tailored and packaged blended learning approaches where both contact and online classes, and innovative assessments enhance understanding of town planning concepts. Town planning schools need to adopt teaching and learning approaches that incorporate both contact and online learning, and assorted assessments to enhance student understanding and success rate.

Keywords

Blended Learning; Innovative Assessments; Students Success; Town Planning, University Of Johannesburg

1. Introduction

The higher education is hugely concerned with the improvement of students' achievements through properly planned interventions. The 21st century has introduced technological advancement, which is a key to success as has proven in different fields. Technology has a great influence in education. The introduction of online learning made information distribution to students easier as all students can manage to access the information and at they are convenient space. The importance of the appropriate learning strategies to process new information should not be underestimated. Limited resources, technological advances, and the shift towards faculty accountability and assessment of student learning requires that institutions of higher education and faculty consider more attractive and successful models of teaching and learning (Howard et al. 2014; Lo and Prohaska 2010). Consequently, it is important when a module or a course is designed to use a blended approach by incorporating numerous modes of delivery as possible to accommodate different teaching and learning techniques (Luna and winters 2017). This article describes and analyses the activities and outcomes of blended learning, a research project conducted from the Department of Town and Regional Planning at the University of Johannesburg, in order to make a case for enhanced teaching and learning for the department.

2. Conceptual Framework

Blended learning can have different meanings for different people. However, for this study blended learning is described as a way of combining teaching through online learning (e-learning) and attending classes, face to face learning (Garrison and Vaughan 2008). Rao (2010) defines e-learning as a dynamic of instructional information that is delivered electronically through the web, by means of a firm's intranet, extranet, or through portative devices such as CD-ROM. On-line education is the most popular e-learning type which envisages almost all activities supported by electronic systems and that goes as far as tests activities set in interactive. E-learning is suited to distance learning and flexible learning that capitalises on multimedia, features of video and audio that illuminate's topics, navigation that is self-paced including hints, and hyperlinks to affiliated topics (Rao, 2010; Khan, 2013). Consequently, the concept of distance education itself 'was founded on the principles of flexible access and aimed to allow distance learners, who were generally adult learners in full or part-time employment, to be able to study at a time, place, and pace that suited their convenience' (Naidu 2003; Gravani and Karagiorgi 2014). In most cases, blended learning courses allow students to "first meet new information, concepts and procedures" before the class physically meets (El Mansour and Mupinga 2007; 243). Further, class attendance learning is a part of blended learning which is a part whereby students attend lectures physically and sometimes do important class assessments. Therefore, it can be said that blending learning is a combination of "face-to-face instruction and technology enhanced instruction" (Wang et al., 2015).

2.1. Efficacy of Blended Learning

Higher education institutions realized that holding onto the past learning and teaching practices is not congruent with the needs of students in the 21st century (Waha and Davis 2014). There is increasing evidence that the internet and information and communication technologies are transforming much of society and that it has an impact of transforming higher education (Garrison and Kanuka 2004). Blended learning has been introduced in tertiary institutions for more than a decade and has gained importance during the last six years with the development of online learning (source). Universities have sought ways to meet students' varied learning needs while adhering to fiscal demands. Accordingly, blended learning has become increasingly popular for several reasons: it is cost-effective because it frees up classroom space and encourages more in-depth processing of course content when the class meets (El Mansour and Mupinga 2007), it makes students more conscious about taking responsibility for their learning (Geçer and Dağ 2012), and it suits different learning styles (Auster 2016; Waha and Davis 2014). Terms that have been used interchangeably with blended learning are "mixed mode learning", "hybrid instruction" and "technology-mediated learning". Garrison and Vaugan (2008) argue that blended learning is "the thoughtful fusion of face-to-face and online learning experiences" such that the strengths of each mode are blended into an optimal learning experience within a unified course (Van der Linden 2014), leading to improve access to information. Blended learning combines the affordance of various digital technologies such as social networking, virtual collaboration, generating of online resources with the real-life social interaction of face-to-face teaching (Fregona and Sadza 2016). It is imperative to

ensure that each ingredient, individually and collectively adds to meaningful learning environment by delivering the right content to the right people at the right time (Singh 2003). This implies that blended learning requires the intentional redesign of learning material with appropriate support structures where the emphasis is shifted from assimilating information to constructing meaning and confirming understanding in a community of enquiry (Garrison and Kanuka 2004).

2.2 Innovative Assessments in Blended Learning

Authentic formative assessment activities motivate students to engage in decision making and problem solving and encourage metacognitive thinking and self-learning which promote engagement and transfer of knowledge to new situations as students are actively engaged in the assessment process. Involving students in peer assessments does not only benefit students from receiving feedback, but also learn how to give feedback to others (Purvis et al., 2011). Formative assessment relates to multidimensional approaches to provide opportunities for alternative approaches leading to different sources of evidence. This is enhanced by prompt feedback. If the formative assessment is online the possibilities of feedback is enhanced, and could include leading questions and hints, encouraging reflection which has a beneficial impact on learning, motivation and engagement of students who regularly engage with online assessments (Wong et al., 2014). Tailored feedback can promote self-regulated learning and encourage reflection to develop understanding. Innovative assessment can be used to identify strengths and weaknesses in order to take remedial action until the desired level of knowledge is reached (Chung et al., 2006). Ongoing innovative assessment helps to facilitate and sustain multifaceted interactivity with content and learning tools and self-reflectivity as proposed for a blended learning environment (Gikandi et al., 2011).

According to Porter et al. (2016) the advantage of improved student interest and learning provided during blended learning over traditional teaching outweighs the barriers of heavy workload on staff and lack of financial support from management. Blended learning provides various benefits over using any single learning delivery medium alone (Singh 2003). Blended learning helps to balance the lack of flexibility if face-to-face classroom assessment with the flexibility of online assessments; while still allowing for interaction with peers and facilitators (Osguthorpe and Graham 2003). It is however important to note that simply turning classroom courses into blended formats do not necessarily provided students with improved learning experiences; careful analysis of the preference of the learners regarding communication (asynchronous and synchronous), their abilities and expectations, the context and availability of technology need to be taken into consideration (So and Brush 2008; Denis 2003).

3. Methodology

The study adopted the phenomenological case study research design and a mixed method approach where both quantitative and qualitative data were gathered, analysed and presented (Creswell, 2009). Statistical, content and document analysis were used to glean information and analysis. The focus of this study is at the University of Johannesburg, department of Town and Regional Planning. The data collected from both students and the lecturers from the department of Town and Regional Planning are solid as non-random and random sampling procedures were applied.

Table 1. Sample Size

	Questionnaires		Informal Questionnaires	formal Questionnaires	Interviews		Formal Interview s	Informal Interviews
Sampling size	100				12			
	Random sampling size	Non- random sampling	50	50	Random sample size	Non- Random sampling	6	6
	50	50			6	6		
Total Participants	100 Students				12 Lecturers			

Source: Authors, 2018

The above table indicates how the data was conducted. A total of 100 questionnaires were administered to Town and Regional students in regards to what are the preferred methods that makes learning easier, efficient, and questionnaires were provided online and through hard copies after lectures. 12 interviews were conducted with academic staff members in regards to what have been the best methods thus far in regards to equip students with knowledge. The sample size of questionnaires was enough to solidify the results, and interviews with lecturers had a significance role that is discussed on the findings.

4. Findings and Discussions

Creating a blended learning programme is an evolutionary process, which needs to take into account the capabilities of the lecturers, the infrastructure of the institution, and the receptiveness of the learners to new learning formats. E-learning activities are good as a supplement to the current offering, this improve the structure of learning in the department of Town and Regional Planning and the academic world as a whole (Singh 2001). Developmental and individual characteristics that have a bearing on how students learn under specific conditions should be taken into account (Renzuli 2001). Both students and Lecturers have their own perceptions regarding blended learning.

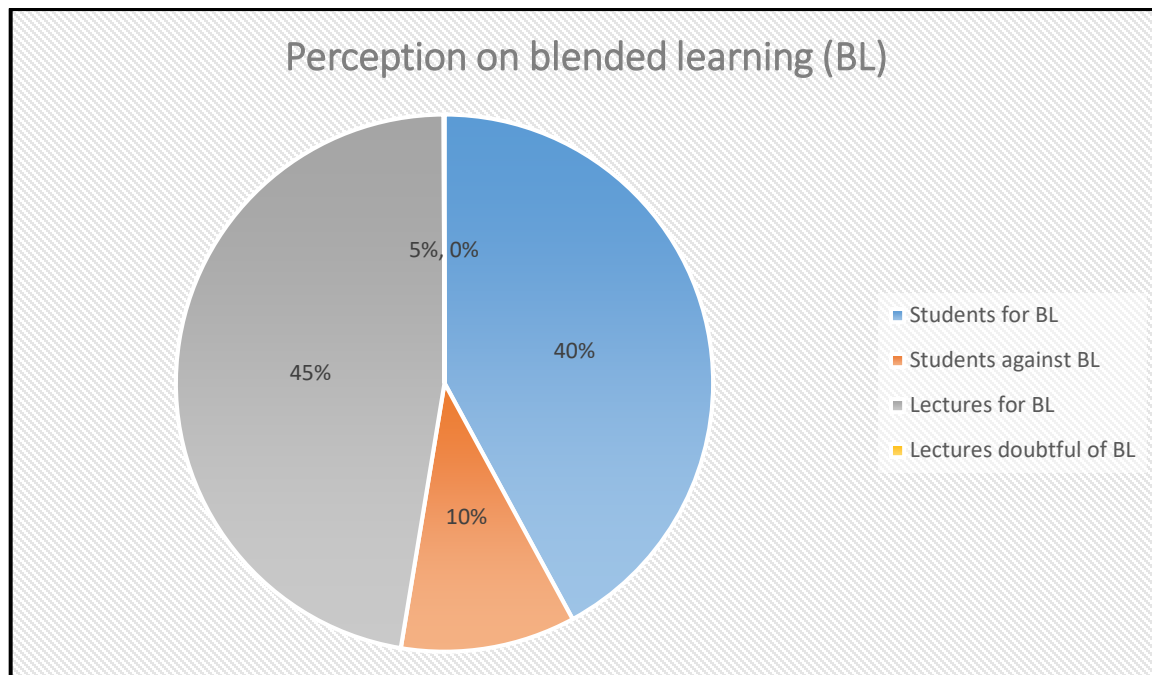


Figure 1. Perceptions on Blended Learning

Source: Author 2018

Based on the questionnaires that were administered and interviews that were conducted, Figure 1 indicates the different opinions of students and lecturers regarding blended learning. It was found that 45% of students agreed that blended learning increases access to information, as well as distribution and innovative assessments. In accordance with the mentioned, lecturers agreed that blended learning makes their work easier and it is good when information is distributed to students both in class and on-line. Only 10% percent of the students felt like blended learning gives them challenges and prefer doing everything in class, as there is enough assistance when they encounter challenges. On the other hand, there was a 5% doubt by lecturers regarding the blended learning. Their concern was that some students are not good with the dynamics of the on-line systems and processes.

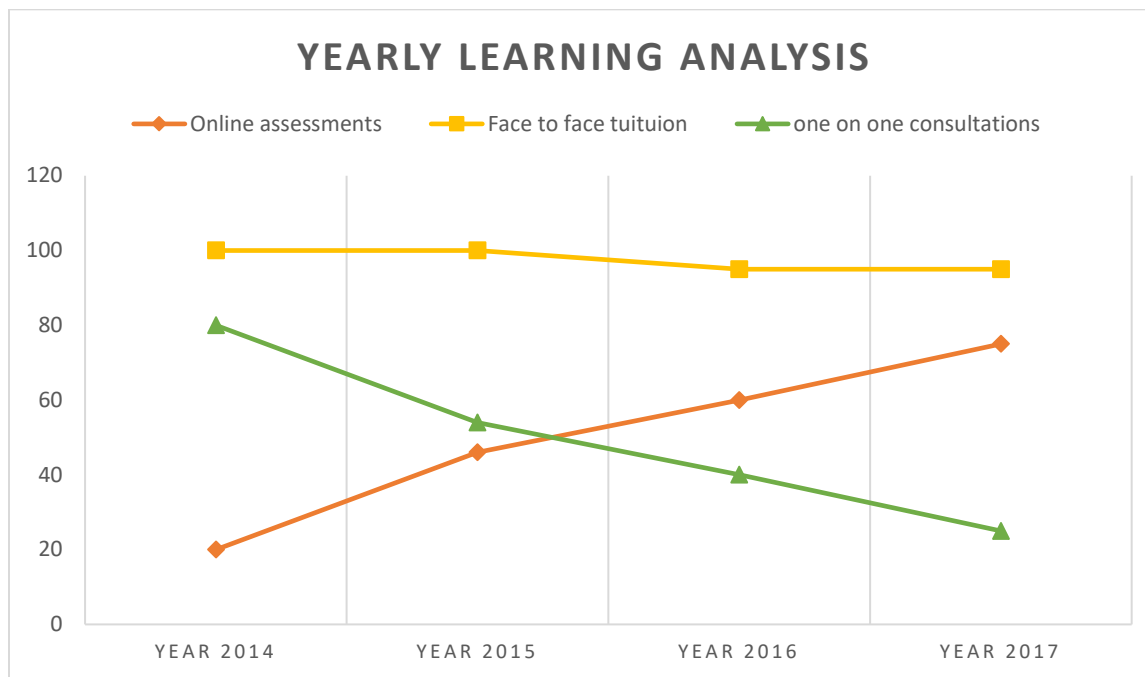


Figure 2: Yearly learning analysis

Source: Author 2018

Figure 2 shows the different years of how blended learning has been in operation in the department of Town and Regional Planning. In 2014 the use of online assessment was low due to many lectures preferred having one on one consultation as this was recognized as a method that assist students to understand better concepts which students did not understand well during face to face tuition. However, in 2015 and 2016 the use of online assessments increased as the method of learning online was being improved. Students and lecturers communicated efficiently online in any space suitable hence the decrease in one on one consultation over the years. However, students still book one on one consultations with lecturers. On the other, face to face tuition has remained constant with a high rate of favorable learning platform as students understand better when concepts are taught in a lecture. Therefore, this highlight that all the learning platforms that are indicated above are all beneficial to students and make teaching better as people prefer learning in different ways, and this allow students to have alternatives of learning.

4.1 Face to Face Tuition

Students are more likely to understand concepts better when they learn with others than when they learn alone. There are different approaches to facilitate activities where students learn together such as: cooperative learning, collaborative learning, peer learning, and problem-based learning. It is easier for students to solve problems when they are working together, they assist one another with ideas, share their understanding of the subject matter and that helps students who do not understand the task (Michael 2006). Class attendance-learning offer more chances of passing as the department of Town and Regional Planning have tutors for both undergraduate and postgraduate studies to assist students whom face challenges with modules enrolled in. Students choose the topics that need to be clarified. Individual participations during tutorials takes place to improve all student's performance. University of Johannesburg offers post-graduate studies through face-to-face learning and research-based studies. The University introduced master's programme that are offered online with no travel or contact sessions required. This indicates that a blended approach is recognized to have good benefits for students. The field of Town and Regional Planning in its teaching, it uses the blended learning technique. The programme offers everyday classes from morning until evening. Face-to-face learning is conducted by means of having lectures, bringing readings, group discussions, power point teaching using overhead projectors, dictation of notes on hard written copies.

4.2 Online Learning

According to Milthorpe et al., (2017); blended learning shows that online learning can enhance disciplinary modes of learning; increase accessibility for students in remote and regional areas; facilitate enhanced scholarly enquiry; and encourage staff to develop innovative, collaborative, and flexible teaching and learning practices. Blended learning is part of the University of Johannesburg's strategies to test students using a variety of ways thus increasing their chances of success. The use of online application known as U-link is the popular system, which the entire university uses for sharing different information. After class attendance, notes are posted on U-link for all students enrolled in the programme to access them. Students are given online assessments to be submitted online, and receive their results online. On numerous occasions tests are given and marked online. However, Town and Regional Planning does not offer any online programme or courses. However, with online learning programmes introduced more adult students can enroll for the course because of the distance and time. Courses that adopt blended modalities experience lower attrition and higher levels of student achievement (Moskal et al., 2013). At the heart of the push towards blended or technology-enhanced teaching are the opportunities these modalities create for interactivity, inclusivity, and access, and for increasing teaching efficiency (Milthorpe 2017).

4.3 Assessments Systems

Assessments given to Town and Regional Planning students are innovative. Different kinds of tasks are done. Some modules require the use of technology. Modules such as geographic information systems, computer applications 3 are done through the use of computer software packages and the assessment can be submitted either on-line through U-link or by emails and hard copies in class or at the department. All modules at the department require presentations by students to boost their confidence and get use to talking with the large crowd, as mostly, town planners work with public or communities. The assessments are done both in individual and group formats. Students are tested online from different modules through various individual assessments. Town planning students during the third year of study are given 4 projects work and an opportunity to go to the field for experiential learning. During that space student come to classes once a term and all information regarding the project is communicated to them on-line through U-link.

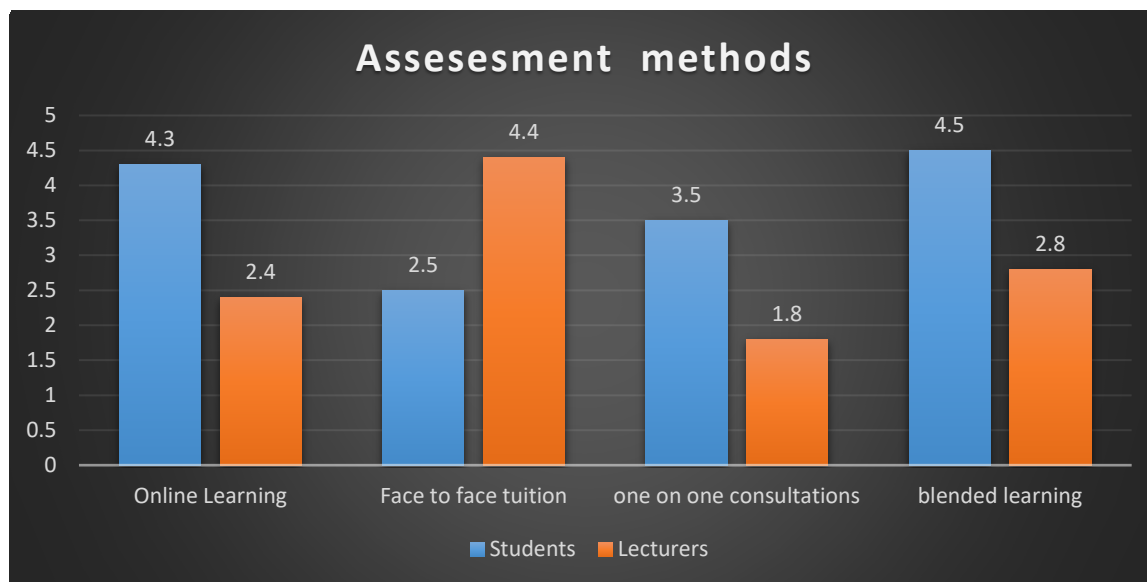


Figure 3: Assessment methods

Source: Author 2018

Figure 3 reveals the different assessments of blended learning of its effectiveness. Online learning is one of the convenient platforms of learning. A higher feedback from the students was received as mostly enjoy the online learning technique as they can access information anytime in their convenient space. However, a low feedback from the lecturers was received as they feel that it is good as all student can get access to information equally but students

on most occasions do not grasp the basics firmly and this leads to one on one consultations. A higher feedback of student enjoy the one on one consultations as they get to ask all questions they have in regards to any topic or assessments they do not understand. On the other hand, lectures do not mind the one on one consultation, however, the problem is, it can be time consuming as many students come to consult individually with the same challenge. In line with the above, a higher feedback from lectures in regards to the face to face tuition agree to be good as they can teach the whole concept in a classroom to all students at once and students who do not understand the concepts taught can ask questions immediately after a lecture. Some of the students, do not understand everything that is taught in class and are not confident enough to ask questions in class or in front of other students and they feel that one on one consultations with a lecture works well for them. Further, both lectures and students agree to blended learning to be a good approach as it covers all aspects and dimension and try not to leave any negative gaps in-between.

5. Conclusions

Blended learning is crucial since adult students have an individualistic learning and cognitive style for processing information, which demands that distance teaching programmes include a variety of activities and learning modes, and educators use teaching models responsive to individual styles, as face-to-face meetings have their own techniques of benefiting students (Brundage and MacKeracher, 1980; Cercone, 2008; Gravani and Karagiorgi 2014). Further, the judicious application of blended learning facilitates the development of students into team players, leaders and professionals who have connected their understanding and their new found skills. In fact, blended learning assists students to work well with people also manage to work individually (Twelves and Arasaratnam 2013). The work concludes by acknowledging the positive impact of properly tailored and packaged blended learning approaches and innovative assessments that enhance an understanding of town planning concepts and students' performance.

5. Recommendations

The paper ends by recommending that town planning schools need to adopt various ways of teaching and learning by incorporating both contact and online learning to improve both access and success rates of their students. It has been highlighted that all alternatives provided for learning can be beneficial in their own unique way, hence, it is recommend to strengthen blended learning. Further, as there are students that are interested in enrolling for the programme, however, cannot attend classes as most of them can come as they work, and live far. This could increase numbers of students enrolling for Town and Regional Planning.

References

- Auster, Carol J., "Blended Learning as a Potentially Winning Combination of Face-to-face and Online Learning." *Teaching Sociology* 44(1):39–48, 2016.
- Chung, G.K.W.K., Shell, T., and Kaiser, W.J. *An exploratory study of a novel online formative assessment tool to promote students' circuit problem solving*. JTTLA, 5(6), 1 – 27, 2006.
- Creswell, J.W. 2009. Research design. Qualitative, quantitative and mixed methods approaches. Los Angeles: SAGE
- El Mansour, B., and Mupinga, D. M., "Students' Positive and Negative Experiences in Hybrid and Online Classes." *College Student Journal* 41(1):242–48, 2007.
- Fregona, C., and Sadza, A., *Blended learning*. In Helen Pokorny and Digby Warren (Ed.). 467 *Enhancing teaching practice in Higher Education*. SAGE, London, 2016.
- Garrison, D. Randy, and Norman D. Vaughan. 2008. *Blended Learning in Higher Education: Framework, Principles, and Guidelines*. San Francisco: Jossey- Bass.
- Garrison, D.R., and Kanuka, H., *Blended learning: Uncovering its transformative potential in higher education*. Internet High Educ, 7, 95 – 105, 2004.
- Geçer, Aynur, and Funda Dağ. "A Blended Learning Experience." *Educational Sciences: Theory and Practice* 12(1):438–42, 2012.
- Gikandi, J.W., Morrow, D., and Davis, N.E. Online formative assessment in higher education: 475 A review of the literature. *Comput Educ*, 57, 2333 – 2351, 2011.
- Gravani, M.N and Karagiorgi, Y. Underpinning principles of adult learning in face to face (f2f) meetings employed by distanceteaching universities. *Journal of Adult and Continuing Education*. 1(20) ;53- 67, 2014.

- Howard, Jay R., Katherine B. Novak, Krista M. C. Cline, and Marvin B. Scott, "Another Nibble at the Core: Student Learning in a Thematically-focused Introductory Sociology Course." *Teaching Sociology* 42(3):177–186, 2014.
- Lo, Celia C., and Ariane P. "Creating an Environment Conducive to Active and Collaborative Learning: Redesigning Introduction to Sociology at a Large Research University." *Journal on Excellence in College Teaching* 21(4):75–98, 2010.
- Michael, J. Where's the evidence that active learning works? *Adv Physical Education*, 30:159–67, 2006.
- Milthorpe, N., Clarke, R., Fletcher, L., R Moore and Stark, H. Blended English: Technology-enhanced teaching and learning in English literary studies. *Arts and Humanities in Higher Education*. 0 (0); 1–21, 2017.
- Naidu, S., E-learning: A Guidebook of Principles, Procedures and Practices. New Delhi, India: Commonwealth Educational Media Center for Asia. Retrieved 13 January 2017 from http://cemca.org.in/ckfinder/userfiles/files/e-learning_guidebook.pdf, 2003.
- Osguthorpe, R.T., and Graham, C.R. Blended learning environments. Definitions and directions. *QRDE*, 4(3), 227 – 233, 2003.
- Porter, W.W., Graham, C.R., Bodily, R.C., and Sandberg, D.S. A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education. *Internet High Education*, 28, 17 27, 2016.
- programme. A case study: the DES-TEF. *Journal Educational Media*, 28(2-3), 115-127, 2003.
- Purvis, A.J., Aspden, L.J., Bannister, P.W., and Helm, P.A. Assessment to support higher level 515 learning in blended delivery. *Innovation Educational Teaching International*, 48(1), 91 – 100, 2011.
- Rao, S., *E-learning. Eastern Economy Edition*, 2010.
- Renzulli, J.S., and Dai, D.Y., Abilities, interests, and styles as aptitude for learning: a person situation interactive perspective. In: Sternberg RJ, Zhang L-F, (Eds.). *Perspectives on thinking, learning and cognitive styles*. London: Lawrence Erlbaum Associates, 2001.
- Sharpe, R., Benfield, G., Roberts, G., and Francis, R., The undergraduate experience of blended e-learning: a review of UK literature and practice. London: Higher Education Academy, 2006.
- Singh, H., *Building effective blended learning programs. Educational Technology*, 43(6), 51-54, 2003.
- Singh, H., and Reed, C. *A white paper: Achieving success with Blended Learning. ASTD State of the Industry Report, American Society of Training and Development*, 2001.
- So, H-J., and Brush, T.A., Student perceptions of collaborative learning, social presence and satisfaction in a blended learning environment: Relationships and critical factors. *Computer Education*, 51. 318 – 336, 2008.
- Twelves, J. and Arasaratnam, L. A., Blended Learning in Postgraduate Studies: A Contextualised Discussion. *Journal of Christian Education*. 55 (1). 59-69, 2013.
- Van der Linden, K. Blended Learning as Transformational Institutional Learning. *New Dir High Education*, 165, 75 – 85, 2014.
- Waha, B., and Davis K. University students' perceptions on blended learning. *Journal of High Educational Policy Management*, 36(2), 172 -182, 2014.
- Wong, L., Tatnall, A., and Burgess, S. A framework for investigating blended learning effectiveness. *Educational Training*, 56 (2/3), 233 – 251, 2014.

Biography / Biographies

Trynos Gumbo is an Associate Professor and Head of the Department of Town and Regional Planning within the Faculty of Engineering and the Built Environment in the University of Johannesburg (UJ). He Holds a PhD from Stellenbosch University, South Africa as well as masters and honours degrees from the University of Zimbabwe (UZ), Zimbabwe. He has previously worked in the Africa Institute of South Africa of the Human Sciences Research Council as a research specialist and Acting Manager for the sustainable development programme. Prof Gumbo has also worked as an international instructor in the urban management masters programme within the Ethiopian Civil Service University College (ECSUC) in Addis Ababa in Ethiopia. Before, Prof Gumbo had worked as lecturer and Head of Department at the National University of Science and Technology (NUST) in Zimbabwe. He has attended and presented at several national and international conferences and has published widely on urban development and management. His research interests include urban transportation planning and management, sustainable and smart cities development, housing and economic informality, green economy and renewable energy generation from waste and innovative building technologies and materials.

Siphiwe Given Mbatha is a registered masters student in the department of Quality and Operations Management within the Faculty of Engineering and the Built Environment in the University of Johannesburg (UJ). He holds a Bachelor of Technology and National Diploma qualifications in Town and Regional Planning from Department of Town and Regional Planning within the Faculty of Engineering and the Built Environment in the University of Johannesburg (UJ).

Emaculate Ingwani is a Senior Lecturer in the Department of Urban and Regional Planning in the School of Environmental Science at the University of Venda in South Africa. Emaculate is a holder of a PhD from Stellenbosch University in South Africa; MSc in Rural and Urban planning from the University of Zimbabwe. Emaculate is registered with the South African Planning Institute, and the Zimbabwe Institute of Rural and Urban Planners. She holds experience in teaching at universities in Zimbabwe, Ethiopia and South Africa.