# Transactional Distance Theory and Total Quality Management in Contact and Distance Learning

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## ABSTRACT

Although our perceptions regarding distance education (DE) have changed significantly, there still remains a perceived lack of quality in the development, management and delivery of DE programmes. Unfortunately, DE offered in developing countries depends largely on first and second-generation delivery modes and relies heavily on print as form of information dissemination. Thus, technological drawbacks are often hailed as the main reason for such setbacks. This article discusses the findings of a comparative study involving an education programme that runs as both a contact and a distance programme. The assessment indices include *access*, *delivery* and *output,* while the Transactional Distance Theory is adopted to ascertain the extent to which the theory accounts for excellence in a given programme. Findings clearly support the importance of the relationships between *dialogue*, *structure* and *autonomy*. However, the researchers proffer that the Transactional Distance Theory should apply not just to learning material, but to the totality of a given programme. Finally, suggestions on enhancing the total quality of programmes in this context include: the introduction of generic courses; provision of bursaries; introduction and

decentralisation of pre-orientation programmes, provision of quality learning material; and workable tutoring and counseling systems.

## INTRODUCTION

We have seen a good deal of development in the theoretical assumptions and premises underpinning DE, and many attempts have been made by scholars over the years to provide a better understanding of the practical manifestations of distance education (DE) practices. The Independent Study (Wedemeyer, 1971), the Guided Didactic Conversation of Holmberg (1989), Moore's (1990) Transactional Distance Theory (TDT) and the Industrial Production Model of Peters (1993) are only a few examples of such attempts. This article also introduces a second dimension to the study, and that is the concept of Total Quality Management (TQM) described by Omachonu and Ross (2006), and illustrated, applied and investigated by Beskese and Cebeci (2001) in industry.

Interestingly, the majority of these DE theories and models have been modified, while many require further research. Of particular interest to this study is the Transactional Distance Theory, which has been chosen because of the association or interaction between the DE practitioner and distance learners, who are engaged in distance learning practices, activities and interventions. This measure of association can be used to ascertain the extent to which the theory accounts for excellence in DE programmes in general, and in the programme under investigation in particular.

The unit of study for this research is *print* (first generation) as delivery mode. Hence, it was part of the focus of this study to investigate the extent to which transactional quality impacts in totality on the quality of a study programme.

The research question that was raised was formulated as follows: *"To what extent does the Transactional Distance Theory account for excellence in a postgraduate BEd (Hons) degree programme that specialises in Education Management, Law and Policy?"*

It was the researchers' aim to compare the practices followed in the above postgraduate programme within the parameters identified through this study. This then led to a comparison of the two modes of delivery, with attempts to determine the extent to which DE complements, supports or disfavours the practices of conventional education.

**THEORETICAL FRAMEWORK**

Moore was the first to argue the idea of *transactional distance* in 1972, but did not *tag it* to education as such till 1980 (Stirling, 1997). According to Moore and Kearsley (1996), the term '*transactional'* is rooted in John Dewey's (Dewey, 1938) explanation that an experience is always what it is because of a transaction taking place between an individual and his or her environment. It also

denotes the special nature of the relationship between the learner and the instructor during learning (Stirling, 1997).

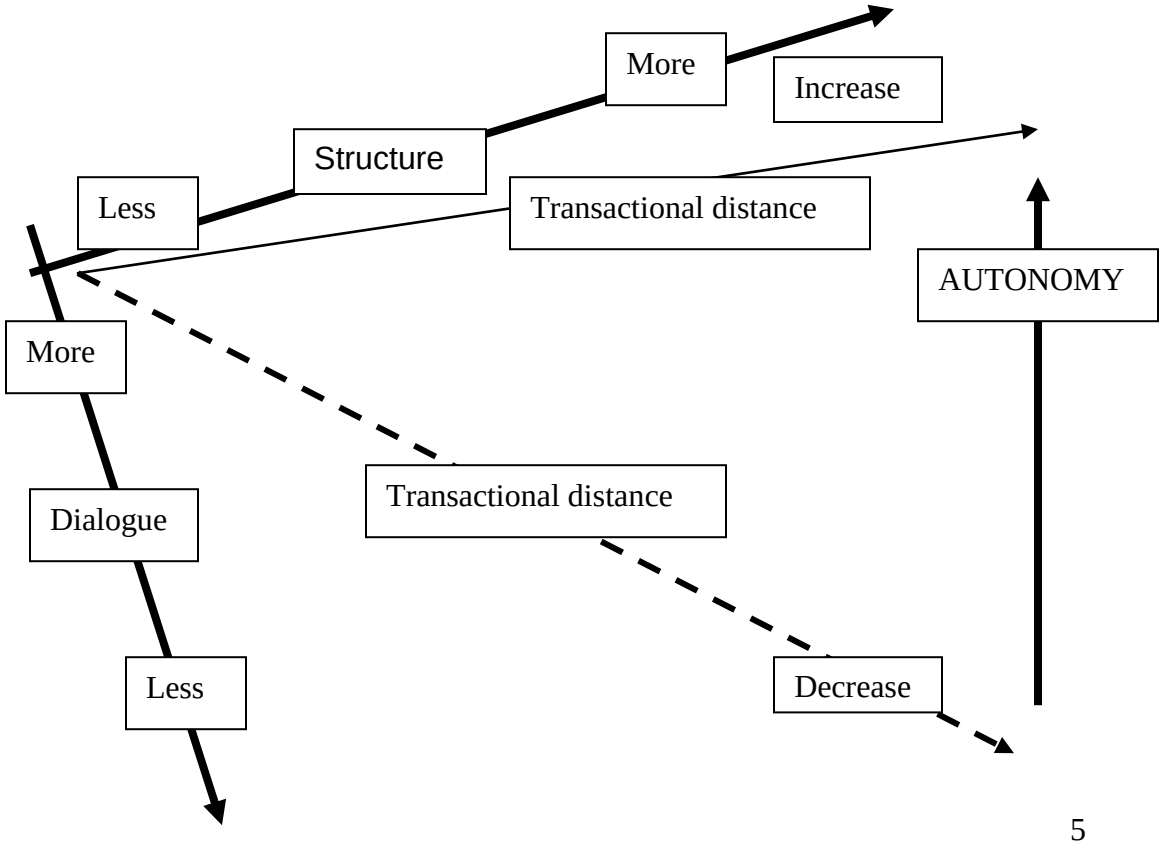
In an attempt to clarify and explain the concept, one has to explore the definition Moore added to the phenomenon in the early nineties. Moore (1993) defined *transactional distance* then in relation to the interactions that exist within an instructional programme. These were referred to as functions of *dialogue*, *structure* and *learner's autonomy*. Additionally, Peters (1998) referred to it as communication of mental distance. Also, it connotes the interplay among the environment, the individuals and the patterns of behaviours in a situation (Boyd & Apps, 1980). Above all, scholars assert that in any educational programme, even in face-to-face education, there is some *transactional distance* (Mueller 1997), which pertains to the separation of the teacher and the learner (Orapin, Dray & Williams, 2007).

Transactional distance is related to teaching and learning, and it involves three variables: *dialogue*, *structure* and *learner's autonomy* (Moore, 2002). *Dialogue* is developed by teachers and learners in the course of the interactions that occur when the one communicates information and the other responds (Moore & Kearsley, 1996). The relationship subsequently becomes purposeful, constructive and valued by each party. The content of the course, the nature of the medium of delivery, the philosophy and emotional characteristics of teachers, and the learners' personalities have a direct effect on the extent and quality of

the dialogue, and transactional distance will be overcome depending on the extent of this variable (Moore & Kearsley 1996; Orapin et al. 2007).

*Structure* on the other hand, refers to the ways in which the teaching programme is designed, and usually reflects 'the rigidity or flexibility of the programme's educational objectives, teaching strategies and evaluation methods, which in turn determine to what extent each learner's differences are taken into consideration (Mueller, 1997). Thus, structure is largely a function of the teaching organisation and communication media (Garrison, 2000). As dialogue increases, structure decreases and vice-versa (see Figure 1 below, adapted from Moore, 2006:[s.p]):

**Figure 1: The association between dialogue and structure in transactional distance theory**



It may be argued that every teaching programme needs to be *structured* since this refers to its organisation, but with regard to the theory, the extent of the structure would be determined by the proposed intervention between learning material and the learner, based on the envisaged learning outcomes. If the learner needs more direct instruction (for instance, a novice learner), both structure and transactional distance increase, while both again decrease as the learner acquires expertise (Saba, 2003).

The third dimension is the *learner's autonomy*, which refers to a state of affairs in which a person is no longer the object of educational guidance, influences, effects and obligation, but he or she is the subject of his or her own education (Peters, 1998). However, because learners have been trained to be dependent on the school system, autonomy becomes difficult and teachers are obliged to assist learners (Moore & Kearsley, 1996). Subsequently, the interactive nature of the medium is the major determinant of dialogue in the teaching-learning environment, and by manipulating the communications media, dialogue can be increased and thus transactional distance reduced (Mueller, 1997).

According to Stein, Wanstreet, Calvin, Overtoom and Wheaton (2005), relatively few studies have explored the Transactional Distance Theory (TDT). However, attempts have been made by Saba (1988) to verify the concept *transactional distance*, who later added the dimensions of the variables of learner and instructor control (Saba and Shearer, 1994). The latter's findings revealed that

there are patterned relations between transactional distance, dialogue and structure. Amundsen (1996) positively tested the hypothesis that the more distant the programme, the more autonomous the learners who will choose to participate. On the other hand, Gorsky and Caspi (2005) are of the opinion that the Transactional Distance Theory had never been a valid scientific theory and argue that it serves as philosophical approach to DE practice. However Garrison (2000) remains adamant that Moore's work remains one of the most appealing and well-known theories of DE, even though one has to admit that more work has to be done at macro level in support of its theoretical dimensions.

The Transactional Distance Theory was thought to be relevant to this study firstly because it proposes that the essential distance in DE is transactional and not spatial or temporal (Gorsky & Caspi, 2005). Secondly, the theory helps to quantify and qualify the quality of the delivery applied to teaching and learning. This becomes important due to the fact that the student assumes the responsibility of constructing knowledge. Thus learning becomes more learner-centered and typifies the move to the constructivist approach in distance learning (Fraser & Lombard, 2002; Granger & Bowman, 2003).

Thirdly, the researchers have also intended to determine the extent to which the theory accounts for or predetermines excellence in the Total Quality Management (TQM) of a teaching programme. Omachonu and Ross (2004:1) see TQM as the "integration of all functions and processes within an organisation

in order to achieve continuous improvement of the quality of goods and services". Within the DE environment 'goods' and 'services' can be equated to tutorial material and tuition or student support respectively. According to Mandal, Shah, Love and Li, in Beskese and Cebici (2001:69) the introduction and application of quality initiatives intend to bring along 'significant improvements in productivity and competitiveness'. The system is characterised by four well defined actions namely the existence of quality circles, external and internal customer satisfaction surveys, periodic determination of quality costs, and a suggestions and reward system (Beskese and Cebici, 2001:69). These procedures align well with the principles for TQM suggested by Deming as well as by Crosby, in Omachonu and Ross (2004:9-11). On the other hand, Welch and Glennie, in NADEOSA (2003) advocate for quality in DE by listing a number of Quality Criteria that have become the framework for excellence in DE since the late nineties. Although not explicitly listed as criteria within the quality DE framework (NADEOSA, 2003:8), the practice of TQM is supported and suggested by these Quality Criteria.

## METHODOLOGY

A multiple-methods research approach was applied in order to close some of the gaps noticed in past comparative studies that have been accused of being mostly quantitative (Diaz, 2000; Lockee, Moore & Burton, 2001). The study that is the subject of this article took place between 2005 and 2007. Purposive sampling was used, while all the instruments were piloted on a sample of the proposed

participants. Participants included 127 DE students, 45 contact students, six module coordinators, ten course presenters, four tutors, four administrators, one instructional designer, and ten former students who participated in both delivery modes of the Education Management, Law and Policy programme from a Faculty of Education at a university in South Africa. Data was collected using one-on-one semi-structured and focus group interviews, telephone interviews with former students, open-ended and closed questionnaires, as well as policy and curricular documents. All the instruments focused on the principles and practice of the programme as obtained from the institution.

**ANALYSIS OF DATA**

The data from the completed questionnaires was analysed by the Department of Statistics of the university, while the researchers recorded, transcribed and analysed the in-depth interviews with the aid of applicable computer software (Atlas.ti 5.0).

Inventories from the university's Department of Student Administration showing a comparison of student achievements and output rates were also used. In dealing with these inventories, statistical applications such as Chi-square, Phi-coefficient and Fisher's exact test were applied to test the significance of the differences between rates of student performances. Lastly, findings from the data collected from both delivery modes were compared and integrated to achieve the aim of this study.

## FINDINGS OF THE INVESTIGATION

The following important findings, which also reflect some of the participants' suggestions for improvement, emerged from the study. These outcomes will be discussed later in the final section of the article in relation to TDT.

### Mode of delivery

Students on both programmes (distance and contact) used the same mode of delivery namely *print* because the university decided to make inroads into rural areas, where the presence of higher education was not really felt. Also, findings on students' knowledge of learning style or preference indicated that the university had not conducted any previous assessment on this, while the 123 (77%) participants, who were aware of this, were so through other avenues (probably by the virtue of their profession, namely teaching. As well, there were mixed feelings among both students and lecturers on the quality of some of the learning material. For instance of the 172 who responded to the question on the didactic qualities, 111 (74%) rated them as 'good', while 96 (56%) felt that 'examples of good student work' were not contained in the syllabus.

### Learner Support

To provide the necessary support for DE students, the organisers introduced and promoted contact sessions, the use of SMS technology, and faculty-student support. However, in contrast to the situation of conventional education students,

no provision was made at the university for a separate counselling unit for the DE students, though they could access that which was available to their contact counterparts over the telephone. Some students and academics were of the opinion that phoning was expensive and that it was also impracticable for students to travel to the faculty for this purpose. Also, no provision was made for a tutoring system for DE students, which might have supported them during the course of their study.

Unlike their conventional counterparts, DE students did not have direct access to the library facilities at the university. According to the latter group, 96 (70%) of them collected their study material by mail. Thus, the module coordinators tried to enrich the readers by attaching sufficient study material. Other options included extra books added to the learning package, or books / lists of articles that could be ordered from the campus library (for a fee). The option of visiting the campus libraries was obviously still available to students who lived close enough to the university. Nonetheless, many of these students lived in remote areas, and many had no access to Internet facilities, which could have supported their studies.

**Tuition fees and funding**

Of the 172 students who responded to the question on financial difficulties, 85 (56%) indicated they had problems regarding the financing of their studies. Many of the student participants did not have access to financial aid from the university,

while as much as 128 (74%) received financial assistance through, a loan programme whereby they had to repay advanced loans from their salary. The majority of these students indicated that they had difficulty coping with these monthly repayments. Many also complained about the high tuition fees.

**Assessment methods and feedback on assignments and examinations**

Participants' responses and documentary evidence showed that the university adopted formative, summative and self-assessment methods. Also, 127 (81%) students from both delivery modes indicated that their assignments all had due dates of submission (which literature identifies as an essential part of a quality assurance system). Also DE students could be informed of their results through SMS technology, an MTN line, the WebCT and by mail (although delays in the postal delivery systems were common.

**Student performance and throughput rates**

Other factors that could impact on the performance rate of distance students were poor health and the absence of tutors at the time of the investigation. However, Table 1 below shows that performances of students from the two modes were much the same, and there were instances (e.g. in Financial Management in Education and Theories of Education Management modules) where DE students actually performed better than their contact counterparts.

**Table 1: Comparing pass and failure rates of contact and distance education students (2005 – 2006)**

| MODULES | Pass % 2005 -2006 | | Failure % 2005 – 2006 | |
|---|---|---|---|---|
| | **Contact** | **Distance** | **Contact** | **Distance** |
| Financial Management in Education | 65% | 74% | 35% | 26% |
| Human Resources Management | 74% | 70% | 26% | 30% |
| Foundations of Education Research | 85% | 80% | 15% | 20% |
| Education Law | 85% | 75% | 15% | 25% |
| Policy Studies | 94% | 87% | 6% | 13% |
| Theories of Education Management | 60% | 75% | 40% | 25% |

In addition, a comparison of the dropout rates from both programmes (from 2002 to 2005) indicated that the figure of the distance group was higher – 13% as opposed to 11% for the contact education students. However, there was an indication of a slight decrease in the dropout rate for DE students over time.

Finally, the university adopted a holistic approach towards quality assurance, and this was communicated to all those involved in the programme, as well as to all stakeholders. All staff members were developed with this aim in mind. Additionally, students from both modes (altogether 75%) were involved in a staff-student appraisal system, through which all students had the opportunity of assessing both the administrative and academic structures. On the former, most student participants from both modes rated the services as ‘excellent’, while

lapses in these services (as indicated by the DE group), might be connected with inadequate staffing as revealed during some interviews.

## DISCUSSION

Due to the slippery nature of the term *quality* (Green, 1994), scholars (Bornman, 2004) are of the opinion that researchers should come up with a framework for what quality should mean, as determined by the purpose of the study. Thus, quality in this instance means:

> *The conformance of an institution's goals, process and input factors, and evaluation systems to the needs specified by their clients (the government, the students, the financiers and the employers of labour) in relation to what the institution too deems fit as relevant to the specified needs.*

Even though there is no consensus on the criteria that should be used to determine quality in DE, Antony and Gnanam (2004) are of the opinion that there is a growing consensus to use the same basic methodology for both traditional and DE. While different countries often come up with various criteria guiding the practice of DE in their region, DE is often held to a higher standard than its conventional counterpart.

A synthesis of quality management in different countries reveals that benchmarks for quality in DE focus on the same issues, though emphasis on each may differ between institutions and countries. Hence, the parameters for ensuring quality in DE in South Africa (NADEOSA, 2003), which have guided the development of the research instruments, include the following: Policy and Planning, Learners, Programme development, Course design, Course materials, Assessment, Learner support and Management and Administration, etc.

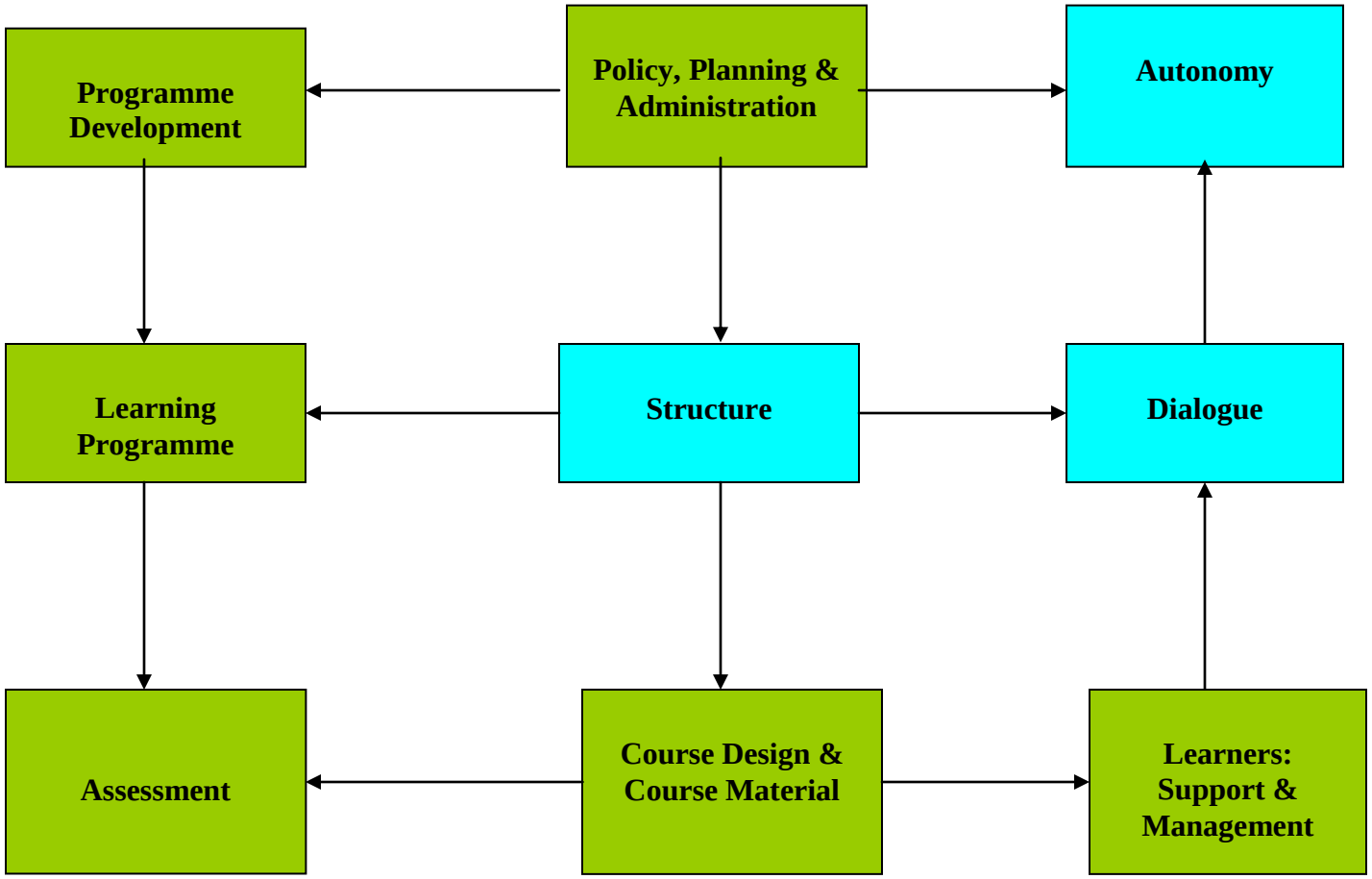
The study surely confirms the importance of the relationships between *dialogue*, *structure* and *autonomy* in learning material, especially as applicable to DE students, which has been highlighted by past research. This, Moore (1973) tagged the Transactional Distance Theory, and it becomes important because the medium of delivery for the programme under investigation is *print*, and more so because evidence emerged from this study to confirm the necessity of improving this aspect at the institution due to the inadequate interactivity and the language difficulty level of some of the material. According to the theory, the more students are concerned about the quality of their tutorial material, the more alienated they will feel - thus increasing the *transactional distance* between them and the lecturers (Young & Marks-Maran, 1999).

However, instructors can lessen transactional distance by developing dialogue and structure that match learners' needs and abilities (Kanuka, Collett & Caswell, 2002). This is even more important because irrespective of the mode of delivery,

students spend more time interacting with their learning material than with the lecturers (Bates, 2005). As a result, knowing the learning preferences and learning styles of students, and reducing the structure in learning material, by increasing the dialogue become crucially important. Based on the foregoing, the researchers believe this model should apply not just to the learning material, but to the totality of a given programme in relation to its quality as provided by the institution.

Figure 2 (see next page) shows the interconnectivity between quality in DE and the Transactional Distance Theory:

**Figure 2: Integrated matrix linking Transactional Distance Theory to quality assurance parameters**



A cursory look at the parameters as agreed upon by DE providers in South Africa (NADEOSA, 2003) as well as by the principles suggested for TQM, show that they are interconnected. Firstly, the policy and planning of an institution is based on a certain philosophy, which contains a clear mission statement and explicitly designed systems for administering and teaching learners (whose information is used to design programmes, courses, materials, learner support and counselling). Secondly, it applies to adopting a Total Quality Management philosophy as will be reflected in the institution's administration (with the number of learners matching the capacity of both academic and administrative staff) and in its programme development practices - development based on a needs analysis and curriculum containing the outcomes, teaching and learning strategies and assessment methods. Thirdly, both course design and the quality of course material must be designed keeping in mind the choice of media and technology that matches course aims, outcomes, learner needs and the capacity to access and use these technologies. Fourthly, all these are done with a focus on the assessment tasks and methods that ensure proper assessment of all learning outcomes, and learner support systems that ensure learners' success.

Invariably, the quality assurance parameters discussed above would reflect the extent of the *structure* and *dialogue* adopted by the institution in its practices, which are expected to produce autonomous learners (the last loop in the Transactional Distance Theory: the *Learner's Autonomy*).

The findings suggest that from the onset of students' admission, there is some *distance* that needs to be reduced to ensure equal access to all students. For instance, the study suggests that although students could identify with the choice of media, there still existed some gaps, which Hellman (2003) refers to as the *digital divide*. This was despite the fact that the institution included with the tutorial material all the information needed by the DE students to cope with their studies in an attempt to bring all students on par. Also, many module coordinators and course presenters were of the opinion that there was a difference in the performance of students who had access to other technologies and those who did not. On the other hand, not much had been done about the management of distant learners on the possible relevance of learner-learner support in which discussion classes might be relevant. An interviewee was of the opinion that the large landscape of the country (where students might be hundreds of kilometers apart) might make this impossible. Besides, research is inconclusive on the possible positive impact of such support on students' performance (Kelsey & D'souza, 2004).

Interestingly, opening up access may not necessarily mean true access, since many factors have to be considered in this regard. Among the factors that affect the distance between the university and students with consequences (Raphael, 2006) are the availability or not of *non-instructional support* and *academic advising services* for students who are enrolled in any given programme. These the current researchers refer to as factors that could impact on the *transactional*

*distance* between the institutions and the learners either positively or negatively. The use of contact sessions, SMS technology and contact with lecturers are all steps in the right direction to help students (Kelsey & D'souza, 2004; Nix, Russell & Keegan, 2007). However, some students also identified other areas where counselling was needed, which included *career, studying, time management, and how to write examinations and complete assignments*. All of these have already been identified as areas of challenge for DE students (Mostert, 2006).

Another area of need identified by participants was the absence of tutors for the six modules under investigation (as at the time of investigation) – a role which the researchers felt the course presenters could not sufficiently play as they met with their DE students during the contact sessions only. Although the university tried to meet the library needs of DE students, one cannot but note that students from both modes who had access to libraries had an advantage over their fellow students. The researchers are therefore of the opinion the time is right for institutions in developing countries to consider ways to diversify in this area as DE students need greater motivation than their conventional counterparts (Qurashi, Morton & Antosz, 2002). This is because research has shown that the lack of library services often put students at a serious disadvantage in their coursework (Buchanan, 2000).

Another problematic area is student funding, which caused Pityana (2006) to assert that students' fees had been increased in order to match the funding

shortage. This, among other factors, according to USA Funds (2007) often signals the lower probability of students completing their studies and presents a major challenge to DE.

Though students rated the administrative services at the faculty as '*good'*, they felt there were areas that needed serious attention. An example is the late delivery of tutorial packages and late delivery of marked assignments due to delays in the postal delivery system. The possible impact of these matters on students has to be considered, since lecturers assume that they receive their tutorial packages on time. Furthermore, there is a need for the provision of adequate staffing, so as to assign specific staff to specific roles. Unfortunately, the provision of adequate staffing is closely related to the *quality* of a programme (NADEOSA, 2003).

Lastly, findings from this study indicated that the performances of students from both modes did not really differ, which is in line with earlier research findings (Russell, 1999; Bernard, Abrami, Lou, Borokhovski, Wade, Wozney, Wallet, Fiset & Huang, 2004). However, the output rates still confirmed old fears that the throughput rate of the conventional students was better. Nonetheless, it is the researchers' opinion that if the issues raised above are not sorted out, a high attrition rate would continually be the lot of the DE mode of delivery.

**CONCLUSION**

This study was initiated as the result of the authors' deep interest in the quality of DE programmes as compared to their conventional counterparts. The application of the Transactional Distance Theory to this study shows that the theory goes beyond its application to the learning material, and that it can also be applied to the total quality of any education programme. According to Keegan (1980), in traditional education a teacher teaches while in DE an institution is the main participant in the instructional process. Therefore, all that any institution does in the name of any given programme determines the totality of the programme. In order to exploit the advantages of DE, developing countries have to work at improving lapses that could continually label this mode as being of inferior quality (Aluko, 2007). A duality therefore applies in this observation: Institutional structures, as well as the ability of institutions to design, implement and manage programmes should be regarded as the prime quality assurance mechanisms that would eventually impact on quality assurance in general. The minimisation of transactional distance is therefore determined by external factors such as the availability and quality of distance learning centres, the structure of the learning tasks, the presence and the availability of mentors and a mentoring system, as well as the commitment of distance learners to engage in mentoring interactions. Furthermore, the quality and intensity of the interactions and engagements at personal level would eventually also determine the magnitude of the distance created by the participants. This argument applies specifically to learning tasks with a strong developmental, transformational and transcendental character where the managing and monitoring of the interactions and interventions are

critical to meaningful learning. But change interventions are not that simple. They call for a sound foundation to drive the way we think about our learning tasks and learning task design. TDT has to inform instructional designers on how to align for example, critical social dialogue with the envisaged interventions and developmental outcomes (Fraser & Lombard, 2002).

These attempts should broadly include the introduction of generic courses to improve students' performance; provision of bursaries; introduction and decentralisation of pre-orientation programmes, provision of quality learning material in collaboration with other institutions offering the same programmes and a workable tutoring system, and a counseling unit that would cover the entire student populace. Additionally, there is a need to conduct a survey among staff in order to identify those passionate about DE and those who are not. There is also a need for a more in-depth student satisfaction survey, the results of which should be made public to staff and students. The investment in and training of staff in quality management remain essential in the achievement of academic excellence. Deming, in Omachonu and Ross (2004:9) emphasizes the fact that "continuous improvement as general goal should replace motivational or inspirational slogans, signs, exhortations, and workforce targets". The notion of excellence are supported by Beskese and Cebeci (2001:72) who claim that the "complete and correct" implementation of TQM will only become possible by the help of education to bring to an understanding of what TQM really is. This should

bridge the gap between job roles and job expectations, and improve the research status of the institution.

Lastly, quality and quality management are organizational obligations that lie vested in management's commitment towards and understanding of quality. To Crosby, in Omachonu and Ross (2004:11) "each person is expected to perform according to the requirement or cause the requirement to be officially changed to what the company and the customers really need". According to the authors, it has to become official policy.

**REFERENCES**

Aluko, R. 2007. *A Comparative study of distance education programs assessed in terms of access, delivery and output*. Unpublished PhD-thesis, University of Pretoria. Pretoria: University of Pretoria.

Amundsen, C. 1996. *The evolution of theory in distance education*. In Keegan D. ed. Theoretical principles of distance education. London: Routledge.

Antony, S. and Gnanam, A. 2004. Quality assurance in distance education: The challenges to be addressed. *Higher Education* 47:143-160.

Bates, A. 2005. *Technology, E-learning and distance education* (2nd ed.). USA: Routledge.

Bernard, R., Abrami, P. C., Lou, Y., Borokhovski, E., Wade, A., Wozney, L., Wallet, P. A., Fiset, M. and Huang, B. 2004. How does distance education compare with classroom instruction? A meta-analysis of the empirical literature. *Review of Educational Research* 74(3):379-439.

Beskese, A. and Cebeci, U. 2001. Total quality management and ISO 9000 applications in Turkey. *Total Quality Management Magazine* 13(1):69-73.

Bornman, G. 2004. Programme review guidelines for quality assurance in higher education: a South African perspective. *International Journal of Sustainability in Higher Education* 5(4):372-383.

Boyd, R. and Apps, J. 1980. *Redefining the disciplining of adult education*. San Francisco: Jossey-Bass.

Buchanan, E. 2000. Going the Extra Mile: Serving Distance Education Students. *Online Journal of Distance Learning Administration*, II(I), Spring. http://www.westga.edu/~distance/buchanan31.html accessed 7 August 2008.

Dewey, J. 1938. *Experience and education*. New York: Collier Macmillan Publishers.

Diaz, D. 2000. Carving a new path for distance education research. http://ts.mivu.org accessed 17 May 2008.

Fraser, W. J. and Lombard, E. 2002. Prominent paradigms of performance and the dilemma of distance education to deliver. *Perspectives in Education* 20(3):85-102.

Garrison, D. 2000. Theoretical challenges for distance education in the 21st Century: a shift from structural to transactional issues. International Review of Research in Open and Distance Learning.
http://www.icaap.org/iuicode?149.1.1.2 accessed 12 April 2008.

Gorsky, P. and Caspi, A. 2005. A critical analysis of transactional distance theory. *The Quarterly Review of Distance Education* 6(1):1-11.

Granger, D. and Bowman, M. 2003. Constructing knowledge at a distance: the learner in context. In Moore M & Anderson W G (eds.). *Handbook of distance education.* London: Lawrence Erlbaum Associates, Publishers.

Green, D. (ed.). 1994. *What is quality in higher education?* Buckingham: Open University Press.

Hellman, J. 2003. Distance education: its advantages and shortcomings. UN

Chronicle. www.un.org/Pubs/chronicle/2003/issue4/0403p47.asp accessed 7 July 2009.

Holmberg, B. 1989. *Theory and practice of distance education.* London: Routledge.

Kanuka, H., Collett, D. and Caswell, C. 2002. University instructor perceptions of the use of asynchronous text-based discussion in distance courses. *The American Journal of Distance Education* 16(3):151-167.

Keegan, D. J. 1980. On defining distance education. *Distance Education* 1(1):13-36.

Kelsey, K. and D'souza, A. 2004. Student motivation for learning at a distance: Does interaction matter? *Online Journal of Distance Learning Administration.* http://www.wetsga.edu/%7Edistance/ojdla/summer72/kelsey72.html accessed 7 July 2009.

Lockee, B., Moore, M. & Burton, J. 2001. *Old concerns with new distance education research*. www.educause.edu/ir/library/pdf/EQMO120.pdf accessed 19 May 2010.

Moore, G. 1973. Toward a theory of independent learning and teaching. *Journal of Higher Education* XLIV(12):661-79.

Moore, M. 1990. Recent contributions to the theory of distance education. *Open Learning* 5(3):10-15.

Moore, M. 1991. Editorial: distance education theory. The American Journal of Distance Education 5(3):1-6.

Moore, M. 2006. *Theory and theorists*. Paper presented at the European Distance Education Network in Castelldefels, Barcelona, 25th – 28th of October 2006. www.slideshare.net/guest2c679db/michael-moore-distance-education-presentation accessed 27 June 2010.

Moore, M. 1993. Theory of transactional distance. In Keegan D (ed.). *Theoretical principles of distance education*. London: Routledge.

Moore, M. 2002. Transactional distance theory. http://cde.athabascau.ca/cmc/transactional.html accessed 14 June 2008.

Moore, M. and Kearsley, G. 1996. *Distance education: A systems view*. Belmont: Wadsworth.

Mostert, J. 2006. The challenges for an African distance education learner – a distance educator's perspective. *South African Journal of Higher Education* 20(3):137-149.

Mueller, C. 1997. Transactional distance. The Ultimate Instant Online Encyclopedia. http://distancelearn.about.com/gi/dynamic/offsite.htm accessed August 2008.

National Association of Distance Education Organizations of South Africa (NADEOSA) 2003. Criteria for quality distance education in South Africa: a revision. http://www.che.ac.za/documents/d000070/Background_Paper4a_Welch.pdf accessed 19 August 2008.

Nix, J., Russell, J. and Keegan, D. 2007. Mobile learning /SMS (Short Messaging System) academic administration kit. www.eden-online.org/contents/publications/SMS/Ericsson.Mobile.A5.pdf accessed 17 May 2008.

Omachonu, V. K. and Ross, J. E. 2004. *Principles of Total Quality Management*. Third Edition. Boca Raton: CRC Press.

Orapin, D, Gray, D. and Williams, M. 2007. Transactional distance theory applied when designing international accounting online courses. *The Texas Journal of Distance Learning.* 4(1):13-24.

Perraton, H. 2001. *Opening and distance learning in the developing world*. London: Routledge.

Peters, O. 1993. Distance education in a post industrial society. In Keegan D (ed.). *Theoretical principles of distance education.* London: Routledge.

Peters, O. 1998. *Learning and teaching in distance education*. U.K: Kogan Page.

Pityana, N. 2006. *Higher education and the challenge of skills development: a contribution to JIPSA.* Address delivered at the official launch of the Joint Initiative for Priority Skills Acquisition (JIPSA) (27 March).

Qurashi, E., Morton, L. and Antosz, E. 2002. An interesting profile – university students who take distance education courses show weaker motivation than on-campus students. *Online Journal of Distance Learning Administration* V(IV). http://www.westga.edu/%7Edistance/ojdla/winter54/Quershi54.htm accessed 15 April 2008.

Raphael, A. 2006. A needs assessment: a study of perceived need for student services by distance learners. *Online Journal of Distance Learning Administration* IX(II):Summer. http://www.westga.edu/~distance/ojdla/summer41/raphael41.htm accessed 5 June 2008.

Rumble, G. 1986. *The planning and management of distance education*. London: Croom Helm.

Russell, T. 1999. *The no significance difference phenomenon: A comparative research annotated bibliography on technology for distance education*. North Carolina State University: Office of instructional Telecommunications.

Saba, F. 1988. Integrated telecommunication systems and instructional transactions. In Moore M (ed.). *Contemporary issues in American distance education*. Oxford: Pergamon.

Saba, F. 2003. Distance education theory, methodology, and epistemology: a pragmatic approach. In Moore M and Anderson WG (eds.). *Handbook of distance education*. London: Lawrence Erlbaum Associates, Publishers.

Saba, F. and Shearer, R. 1994. Verifying key theoretical concepts in a dynamic model of distance education. *The American Journal of Distance Education* 8(1):36-59.

Stein, D. S., Wanstreet, C. E., Calvin, J., Overtoom, C. and Wheaton, J. E. 2005. Bridging the transactional distance gap in online learning environments. *The American Journal of Distance Education* 19(2):105-118.

Stirling, D. 1997. Toward the theory of distance education: transactional distance. http://www.stirlinglaw.com/deborah/stir4.htm accessed 5 June 2008.

USA Funds. 2007. Access to education – financial barriers still bar the door to higher learning for some students. http://www.usafunds/higher_ed_access/financial_burdens.htm accessed 23 July 2008.

Wedemeyer, C. 1971. Independent study. In Deighton R (ed.). *Encyclopaedia of Education* IV. New York: McMillan.

Young, G. and Marks-Maran, D. 1999. *A case study of convergence between conventional and distance education*. In Tait A & Mills R (ed.). *The convergence of distance and conventional education*. London: Routledge.