

Theorizing New Pathways for Student Teachers' Professional Development (STPD)

King Adesoji Ojuri Oladokun

*Discipline of Education Psychology and Curriculum Studies, School of Education,
University of KwaZulu-Natal, Durban, South Africa, Private Bag X03, Ashwood, 3605*

Phone: +27(0)312603739, Mobile: +27(0)745649171,

E-mail: sojiking2000@yahoo.com

KEYWORDS Learning. New Pathways. Student Teachers. Teaching. Professional Development. Theorizing

ABSTRACT This paper theorizes new pathways through which student teachers can develop professionally. It is a qualitative case study of a university in KwaZulu-Natal and informed by the interpretivists paradigm. The participants of the study were six final year student teachers comprising of three males and three females and data was generated using semi-structured interviews and document analyses. Data generated was analysed using grounded theory. Data was categorised into themes and the themes were analysed against the backdrop of literature. The paper proposes a one on one approach to professional mentorship for student teachers using Morrison concept of a hundred thousand theories. From the findings it is clear that professional development is a complicated process and each individual required a more individualized approach if students are to effectively develop into excellent teachers. This paper therefore, concludes that a continuous contextualized approach is needed which will ensure that student teachers develop professionally as they become teachers. It is recommended that, the drive to continuously learn and develop new ideas or theories is what will ensure that the student teacher continuously develops.

INTRODUCTION

The world of teaching and learning has never been a static one, it is always dynamic but changes. Teaching and teacher education is the crux of professional development and as such to develop professionally, student teachers or teachers must engage either in teaching or teacher education to develop professionally. As curriculum changes, what it means to be a teacher also changes and the direction of teacher development changes with it. Hence the need for ongoing professional development. But professional development means different things to different people. Teachers are continuously being encouraged and challenged to develop professionally and improve student performance. Since capacity development or professional development is a personal issue, measuring professional development becomes difficult. Student performance has come to be the primary measuring rod of professional development. In other words student performance is the product of professional development by educators (Pomo-small 2016). With student performance continuously dropping in South Africa, the drive for professional development keeps increasing. Also with the load of work attributed to teachers constant-

ly increasing, there is little or no time for professional development. Formal teacher education has experienced very little change over the years, despite a steady stream of new educational reforms in South Africa. Likewise, teachers are doing in the classroom more or less the same thing they did two or three decades ago. Professional development should be continuous or which is continuous over time is more closely linked to improved student learning than one-time experiences. This paper therefore theorizes new pathways or approaches for student teachers professional development so as to ensure that they fully develop and continuously develop when they fully become teachers. To understand more concept regarding the professional development of student teachers, literature on professional development will be reviewed.

Literature Review

Professional development has been defined by different authors in different fields of study. Each field has a different understanding of what professional development means. Also in education, the meaning of professional development in the different fields or disciplines of education is also different. As such there is no universally

accepted meaning of professional development, rather different fields and authors give meaning to professional development in their different fields of study. Fomunyam (2016) viewed teachers' professional development as a wide-ranging, substantiated and exhaustive method of improving teachers' effectiveness in the teaching and learning process and student performance. This therefore links teachers' professional development directly to their performance in the teaching and learning process and also how their students perform making the goal of professional development to be improved student performance (Phasha et al. 2016).

Professional development also refers to a network of resources and support provided to teachers or student teachers to help them teach more effectively whether in their day to day teaching (in the case of teachers) or during teaching practice (in the case of student teachers) (Schwab 2012). In this case, professional development can and will only succeed in settings or contexts that support it. For as Peter (2009: 10) puts it, "we cannot expect students to change what they do if we are content for teachers to continue doing what they have always done".

According to Quendler and Lamb (2016), teachers' professional development should consider the roles of the teacher, emphasize individual and institutional improvement, take into consideration new research or findings in teaching and learning, produce new ideas and strategies of teaching, promote continuous research and finally be evaluated on the basis of teacher effectiveness and student performance. Pomo-Small (2016) opined that in education professional development will involve activities like workshops, journaling, program observations, conferences, study groups and peer coaching as well as professional networks and higher education. Wilson (2013) concurred that professional development strives to enhance both the teachers teaching and the students understanding.

Harwell (2015) postulated that teachers' professional development involves five stages; relating, experiencing, applying, cooperating and transferring. Relating involves learning in the natural context of teaching and learning or the teacher's life experience. The process of relating new ideas to old or abstract ones, produces the potential and dynamics of improving performance. Experiencing on its part involves learning, exploring, discovering, and inventing.

Through experiencing teachers explore difficulties, discover solutions and invent approaches for implementing the new discoveries. Recognizing the need to explore and discover new things within the teaching field encourages or triggers the teacher's brain to function at higher cognitive levels.

The third stage, applying involves implementing new concepts and information in the teachers' teaching context. New ideas and strategies encountered through mentorships, apprenticeships, or other work-based experiences attained in the teaching context provides new avenues for improvement in teaching and ensuring that student performances increase. Implementing teaching strategies from a contextual point of view creates opportunities for specific problems within the teaching and learning context to be solved (Harwell 2015).

The fourth stage cooperating entails learning in the context of sharing, responding, and communicating with other teachers. Teachers in this case share new ideas and strategies with colleagues and friends and get feedback from them based on the results of their implementation. The brain is social, as such the level of ideas and functioning of the brain is enhanced by cooperation. Teachers therefore cooperate to learn what they don't know so as to develop professionally and improve their practice (Harwell 2015).

The fifth and last stage transferring involves transferring the new ideas they have learnt from colleagues, personal development, conferences, and teacher improvement seminars, to the learners. Using and building upon prior knowledge offers the perfect opportunity to transfer new ideas which will be in line with what students already know and as such ease their understanding. Learners easily process information when it is transferred to them on the basis of what they already know with the aim of providing additional information to what they know or adding the unknown to the known. These five stages Harwell (2015) called the REACT strategies and what the teachers' learn transfers to behaviours that are observable in the classroom (Grabe 2012).

According to Phasha et al. (2016), professional development offers teachers the opportunity to learn new classroom techniques and strategies in contexts which will be used in improving teaching. Professional development

gears towards effective teaching and also transferring effective teaching behaviours to their colleagues with the aim of improving their practice too. Professional development should take full advantage of all knowledge the teacher comes across and utilizes it contextually in solving teaching and learning problems. Teachers' professional development according to Caena (2011) must support cooperation or interaction between professional teachers or student teacher. As such it is a continuous process and takes place over a long period of time as opposed to a one-time event such as workshops or seminars. It also provides opportunity for student teachers or teachers to try the new strategies learnt from their colleagues and peers and receive feedback from peers or colleagues. Caena (2011) and Fomunyam (2014) added that professional development activities should give teachers or student teachers the opportunity to learn and try new classroom practices in context such that those practices which are effective can be enhanced in context and those that don't, are discarded for new ones which will ensure effectiveness in teaching and learning.

Pomo-small (2016) opined that professional development is research based and is anchored in sound teaching skills. It should also involve continuous short courses and continuous monitoring workshops in which teachers or student teachers enhance their understanding concerning their work. Jovanova-Mitkovska (2010) argued that there are different models of professional development. The first one is the constructivist approach which considers teachers to be active participants learning over a long period of time and who constantly construct knowledge and strategies based on previous experience and what has been learnt.

The second model is the standardized approach that involves teachers or student teachers sharing skills and knowledge with a larger group of educators, face-to-face or through multimedia and this often leads to broadcasting of results and skills of other teachers. The last model is the personal development approach which deals with the teachers' independent learning initiated by either the individual teacher or student teacher or mentors or those supervising the teacher or student teacher. These teachers or student teachers utilize the available resources to achieve their goals. They pick out specific activities that will enable them to realize

their set goals. It is clear that much has been written about teachers' professional development but very little has been written about how student teachers develop professional and how such development can be sustained over a long period of time. This paper therefore comes in to provide an alternative approach of professional development for teachers beginning from their days as student teachers. It offers an alternative window through which teachers' professional development can be achieved and sustained continuously (Jovanova-Mitkovska 2010; Pomo-small 2016).

With this understanding therefore it is clear that professional development is an individual thing which cannot be forced or imposed on any teacher (King 2013). Morrison (2014) postulated that curriculum theorizing just like professional development should be marked by depth, diversity, conflicting voices, productiveness, diverse philosophies and theories and the basis for this should be mankind in a hundred thousand contexts. This would therefore replace outdated but convenient theories in advancing the educational field forward. In doing this it will capture the experiences of teachers and student teachers and by so doing probe emerging disciplines and also deal with complex issues of everyday schooling.

Wilson (2013) concurred with Morrison that curriculum theorizing is a process which involves individuals in three specific activities; being sensitive to new trends in education in general and school experience in particular, identifying similar trends and issues and finally relating these trends to the individual's teaching context. This process therefore gives room for a hundred thousand theories, wherein every student teacher has the basis to build a theory of their own. Since context is of valuable importance in professional development, each of the hundred thousand theories will speak to different specific context and peculiar situations in the field of education and enhance professional development for the student teacher.

METHODOLOGY

Qualitative case study which is the research design for this paper was used to elicit answers to the research question; *what are the new pathways for student teachers professional development?* As such this paper is a qualitative case

study conducted within the interpretivist paradigm. Data was generated using semi-structured one on one interviews, and document analyses. The data generated was analysed using grounded theory. Also ethical principles were adhered to both in the generation and utilization of the data. These issues are discussed in the following paragraphs.

The qualitative approach to research gears towards exploring every detail about an issue or a case. It unearths the quality of whatever is being researched (Fomunyan 2014). In this paper the qualitative approach is used to generate rich and in-depth data about the student teachers professional development and how it can be improved and sustained. King (2013) pointed out that in the qualitative approach, the researcher aims at understanding and explaining, using arguments, the evidence constructed from data and literature. This paper is therefore justifiably qualitative as it gears towards unearthing detail information about the content and ideology of drama modules.

Neuman (2011) defined case study as an in-depth study of one particular case in which the case may be a person, a school, a group of people, an organization, a community, an event, a movement, or geographical unit and case study is often used within qualitative research. Theorizing new pathways for student teachers professional development can likewise be studied as a case study. In this study the case is student teachers from a university in KwaZulu-Natal and the unit of exploration of new pathways for their professional development.

According to Neuman (2011), a research paradigm is a general organising framework for theory and research that includes basic assumptions, models of quality research, and key issues, methods for seeking answers. Creswell (2012) postulated that the interpretive paradigm focuses on creation of a detailed analysis of a single or multiple situation or issue and it caters for a thorough understanding of student teachers professional development. This paper is therefore an interpretive study which was conducted using a qualitative approach.

This paper was framed by Grounded theory. Charmaz (2015) postulated that grounded theory developed by Glaser and Strauss is used by researchers to develop theory inductively from data. Glaser and Strauss (2012) argued that in grounded theory, you do not begin with a theo-

ry and then attempt to "prove" or "disprove" it, rather you begin with an area of study and allow what is relevant within the study to emerge. So grounded theory, is a theory of theory generation rather than a disciplinary theory dealing with a particular issue. As such the procedures (the different levels of coding and how this coding should be done) advocated by grounded theory in the generation of theory were adhered to in this paper to generate results that are accurate and relevant.

To answer the research question semi-structured interviews and document analyses were the sources of data generation. Cohen et al. (2011) argued that semi-structured interviews are as very important too for data generation since it gives the researcher the added advantage of probing deeper, asking clarifying questions and discussing with participants their understanding of the phenomenon. Six final year student teachers comprising of three males and three females were interviewed by the researcher for over an hour each in the bid to generate data for the study. The data generated was triangulated against documents to access and to ensure the trustworthiness of the claims. Cohen et al. (2011) postulated that document analysis entails defining or delineating as precisely as possible those ideas in the document that the researcher wants to research and then generating relevant results from it. Documents about professional development was analysed alongside data generated from semi-structured interviews.

Non-probability purposive sampling was used to select participants for this paper. And this according to Cohen et al. (2011) is a situation whereby the researcher picks out individuals who he or she thinks possess the particular characteristics he or she is looking for based on his or her personal judgment. This paper which is built up around professional development, has six student teachers in their final year as participants. These student teachers were hand-picked by the researcher based on the researcher's personal judgment of them and with the understanding that they possess in-depth knowledge or experiences about the phenomenon being investigated. Cohen et al. (2011: 101) postulated that "there is no clear-cut answer, for the correct sample size". Each researcher therefore chooses the sample size based on the aims of the research and the nature of the study.

Fomunyam (2016) articulated that every research project must take ethical issues into consideration. Cohen et al. (2011) added that ethical issues have a very significant role to play in research, especially when it concerns humans and animals. As such the researcher obtained the permission of the Dean to carry out research in his School and also obtained the permission of the Head of Cluster to use his cluster in conducting the research. The researcher also kept the identity of the University anonymous and the participants of the study were code named using the NATO phonetic alphabet; Sierra, Kilo, Tango, Mike, Romeo and Charlie to maintain anonymity. An informed consent form was also signed by all the participants before the interview was conducted. Through this diverse means the researcher ensured that no ethical law is broken.

FINDING AND DISCUSSION

In an attempt to answer the research question, the paper used grounded analyses where data generated was coded and categorised into two major themes; becoming a teacher and teaching skills and these themes were further analysed. Maree (2016) stated that data analysis involves working with data, organising them, breaking them into manageable units, synthesising them, searching them for patterns, discovering what is important and what is to be learned, and deciding what to tell others. For the purpose of a sound argument and a more stringent conversation, the researcher decided to blend the findings of the paper as well as the discussion of the findings. The findings and discussion is therefore presented on the basis of the two themes generated; becoming a teacher and teaching skills.

Becoming a Teacher

The ultimate aim of teacher education is to produce teachers and this is done by training student teachers until they graduate or phase out into the teaching profession. Graaf et al. (2011) postulated that student teachers are required to use every resource at their disposal such as portfolio, mentor reports and feedbacks, teacher's lesson plans, their reflections reports and many others to monitor and foster their professional development. A combination of the

teacher's and student's identity is what empowers the student teacher to develop professionally and ensure that throughout his or her career he or she will continuously develop. To the participants of this paper new ways for student teachers to develop professionally was all about becoming a teacher. Charlie, one of participant stated that;

Once I stepped into the class I didn't want the learners to see me as a student teacher who is learning how to teach, I dropped everything both physically and psychologically that associated me to a student and fully became a teacher. I believed that this will improve my performance and increase my knowledge about the responsibilities and processes a teacher is involved in as he or she becomes involved in the teaching and learning process. Also owing to the fact that one of the teachers in the school abandoned his class to me once I arrived the school, I had to be the teacher of the class. I focused much on teaching that I forgot about learning from it which was the reason for my going there in the first place.

Richter et al. (2013) argued that student teachers often consider development to be the ability to do things better than before and those aspects which improved in their practice or the things they were able to do better and neglect how those things were improved. Picking out specific details of how their practice improved is what ensures continuous professional development since they will know what to do per time when need arises. It will also ensure that they remain lifelong conscious learners who teach and learn from what they teach and their teaching.

Sierra was another participant who considered professional development to be about becoming a teacher. She started that:

Developing professionally for me is all about maintaining my desire of being a teacher. Some learners (especially those in grade 10, 11 and 12) consider student teachers to be ignorant and as such minimise them. I was a victim of this but what kept me going was my desire to become a teacher. I was constantly discouraged to abandon the practice and go but I kept on pushing knowing that it is through this practice that I will subsequently become a teacher and earn the respect I deserve.

Gemeda et al. (2013) propounded that student teachers need constant motivation to put into practice what they have learned. This is

because motivation is the primary reason for teaching or teacher excellence. When the desired motivation has been obtained the student teacher or teacher will go to any length to ensure that appropriate learning takes place. Maintaining this motivation throughout the teaching career becomes a challenge which explains why many teachers quit after few years of teaching (Gemedu et al. 2013). Solving this problem of motivation and professional development can only be from a subjective point of view since every individual has specific things that motivate him or her. This will therefore lead to thousands of theories developed from thousands of contexts to solve educational problems.

Teaching Skills

Developing professionally is also the exhibition or utilization of the teaching skills learned during teacher education and other professional development activities. Wilson (2013) defined teaching skills as the strategies utilized by teachers to enhance learners learning and which are recognized by curriculum experts or assessment experts as skills. He continues that every skill has the capacity to be repeated time and time again and concludes that these skills should be analyzed from a broader perspective of activity such as classroom management, questioning, explaining, flexibility, versatility.

Mike one of the participants of the study believed that developing professionally is all about demonstrating and expanding his thinking skills in the classroom. He believed it is quite necessary for meaningful learning to take place in the classroom because "there are times when you plan a lesson and write down examples you are going to use but while in class you discover that your examples have not been well understood. As such your thinking skills have to come to play so that new examples can be constructed which will ease learners understanding". As such thinking skills is one of the skills which is of outmost importance as far as developing professionally is concerned. Student teachers need to therefore develop and maintain a strong thinking mentality or habit which will enable them to stand tall in the face of any challenge. Kilo added that;

Sometimes learners ask questions in class which you never anticipated or which requires certain concrete and detailed explanations or

come to you with a personal challenge which requires careful thinking on your part before providing an answer. In this case the thinking skill is very important in providing a solution to the learner. This is due to the fact that there are many things we know but which are in our sub conscious mind and only critical thinking can bring them to the conscious mind.

The student teacher therefore should possess a sound thinking skill or ability which he or she can constantly draw from while the teaching and learning process is going on. But it is rather disturbing, that according to Oyedepo (2016: 68) most people in the world at large do not think. He stated that a startling world report indicated that "only 5 percent of the human race think, while 15 percent think they are thinking and the remaining 80 percent would rather die than think". As such thinking especially critical thinking is a problem to man. This has been a stumbling block to professional development for both teachers and student teachers. A critical thinker would therefore think about the circumstances surrounding him or her all the time and seek new ways of solving them. It is through such constant critical thinking that professional development is attained and sustained.

Cognitive skill is another teaching skill which is of vital importance as far as professional development is concerned according to Romeo, another participant of the study. He stated that;

In the classroom, this skill enables the student teacher to make quick and precise decisions based on changing circumstances and also amend lesson plans and teaching strategies to accommodate certain unforeseen circumstances. This is so because its development or cultivation provides the student teacher with a wealth of information about the processes and random circumstances that might occur during the teaching and learning process. It makes him or her aware of what might or might not happen in the classroom and equips the student teacher with the necessary tools to deal with them.

Grabe (2012) argued that teachers build a catalogue of reactions and behavioral patterns from which they pick the most suitable to deal with impromptu situations ranging from learners not being able to do the work they are supposed to do, to the broader prospects of disruptive behavior or failing in assessment task. He added that the teaching profession is quite te-

dious in its early years to beginning teachers because they have to develop their expertise of knowing what to do and being able to do it. Widening the scope of what to do from a contextual point of view therefore gives the student the opportunity of developing a theory per time hence a hundred thousand theories from which to choose and solve educational problems since teachers encounter different situations at different points in time. The development of these skills from a thousand different contexts by the student teacher ultimately leads to his or her professional development.

Tango was another participant who considered professional development to be essentially about teaching skills. She stated that;

Becoming a teacher in a classroom is about managing the class and the learners learning. It is also about maintaining discipline and ensuring that every learner learns what he or she is supposed to learn. To achieve this, the teacher must be flexible especially in the foundation phase where there is commotion most of the time. Only the teacher's (student teacher) classroom management skills coupled with his or her disciplinary abilities and flexibility can remedy such a commotion and ensure that meaningful learning takes place.

Hedberg (2010) said teaching skills like classroom management, discipline and questioning are critical skills which a teacher should possess in order to succeed in the teaching profession. To Hedberg (2010) and Schwab (2012) without these skills, teaching and learning cannot be successful. Education has been static in most places in recent times because outdated solutions are applied to contemporary problems as such to ensure continuous and sustained professional development for the student teacher contextualized theories and skills must be developed.

CONCLUSION

From the findings of the paper, it is therefore clear that professional development is a complicated process and each individual required a more individualized approach if students are to effectively develop into excellent teachers. This paper therefore concludes with the following ideas. Professional development pursued as a one-time event has and will still fail. Therefore, this paper has theorized of a new pathway for student teachers' professional development as

a continuous contextualized approach is needed which will ensure that student teachers develop professionally as they become teachers and also continuously develop themselves throughout their career. Also mainstream or one size fit all approach to teacher education and professional development is outdated.

RECOMMENDATIONS

This paper recommends that teachers' education and professional development institutions should treat every situation as unique and develop theories on how to solve problems obstructing student teachers' professional development. The drive to continuously learn and develop new ideas or theories is what will ensure that the student teacher or teacher continuously develops. Professional development has never and will never be a one-time event, but the cultivation of a continuous learning mentality will ensure that the student teacher stays on the path of professional development. More so, the amalgamation of his or her student and teacher identities will ensure that he or she remains a lifelong learner with a passion for continuously solving educational problems, increasing his or her effectiveness in the classroom and ultimately improving student performance. New pathways for professional development therefore will be contextualize approaches with student teachers in a hundred thousand contexts, generating solutions that would address a hundred thousand issues.

REFERENCES

- Caena F 2011. *Quality in Teachers' Continuing Professional Development*. Luxembourg: European Commission.
- Charmaz C 2015. *Constructing Grounded Theory: A Practical Guide Through Qualitative Analysis*. London: Sage.
- Cohen L, Manion L, Morrison K 2011. *Research Method in Education*. 7th Edition. New York: Routledge.
- Creswell J 2012. *Qualitative and Quantitative Approaches*. 3rd Edition. Thousand Oaks: SAGE Publications.
- Fomunyam GK 2014. Curriculum theorizing and individualism: An exploration of the curriculum's relation to the social, personal and political dimensions of schooling. *Mevlana International Journal of Education (MIJE)*, 4(2): 122-131.
- Fomunyam GK 2016. Student teachers negotiating teachers' professional identity. *Journal of Educational Science*, 13(2): 186-193.
- Gemeda F, Fiorucci M, Catarci M 2013. Teachers' professional development in schools: Rhetoric versus reality. *Professional Development in Education*, 10: 1-18.

- Glaser B, Strauss A 2012. *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Piscataway: Transaction Publishers.
- Grabe W 2012. Applied Linguistics: A Twenty-First-Century Discipline. From <http://amazonaws.com/academia.edu.documents/42152350/Applied_Linguistics_A_TwentyFirst_Century_Discipline.pdf?AWSAccessKeyId=> (Retrieved on 5 May 2015).
- Graaf G, Meijer C, Meirink J 2011. Key experiences in student teachers' development. *Teachers and Teaching: Theory and Practice*, 17(1): 115-129.
- Harwell S 2015. *Teacher Professional Development: It's Not an Event, It's a Process*. Texas: CORD.
- Hedberg A 2010. *Assessing Teaching Skills in Higher Education*. Uppsala: Uppsala University Press.
- Jovanova-Mitkovska S 2010. The need of continuous professional teacher development. *Procedia Social and Behavioral Sciences*, 2(2010): 2921-2926.
- King AOO 2013. *Exploring the Experiences of the Primary School Educators of Teaching AIDS Orphans and Vulnerable Children*. Master's Dissertation, Unpublished. Durban: University of KwaZulu-Natal.
- Maree K 2016. *First Steps in Research*. Pretoria: Van Schaik.
- Morrison K 2014. The poverty of curriculum theory. *Journal of Curriculum Studies*, 36(4): 487-494.
- Neuman WL 2011. *Social Research Methods: Qualitative and Qualitative Approaches*. 6th Edition. New York: Pearson and Az Publishers.
- Oyedepo D 2016. *Ruling Your World*. Lagos: Dominion Publishers.
- Peter N 2009. *Professional Development in Out-of-School Time*. Pennsylvania: In Out-of-School Time Resource Center (OSTRC).
- Phasha T, Bipath K, Beckmann J 2016. Teachers' experiences regarding continuous professional development and the curriculum assessment policy statement. *Journal of Educational Science*, 14(1,2): 69-78.
- Pomo-small 2016. Review of the Evidence of the Impact on Students, Teachers and the Curriculum of the Process of Using Assessment by Teachers for Summative Purposes. From <www.eppi.ioe.ac.uk/> (Retrieved on 5 August 2016).
- Quendler E, Lamb M 2016. Learning as a Lifelong Process-Meeting the Challenges of the Changing Employability Landscape: Competences, Skills and Knowledge for Sustainable Development. From <<http://www.inderscienceonline.com/doi/abs/10.1504/IJCEELL.2016.078447>> (Retrieved on 10 September 2016).
- Richter D, Kunter M, Lüdtke O, Klusmann U 2013. Teaching and teacher. *Teaching and Teacher Education*, 36(11): 166-177.
- Schwab K 2012. *The Global Competitiveness Report 2012-2013*. Geneva: World Economic Forum.
- Wilson SM 2013. Professional Development for Science Teachers. From <www.science.sciencemag.org> (Retrieved on 12 September 2015).

Paper received for publication on November 2015
Paper accepted for publication on December 2016