**Why supervise offline when you can online? University of South Africa postgraduate supervisors state their position**

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**Abstract**

Postgraduate supervision is a complex and demanding task. Student supervision success can however benefit from the use of the available online technological applications/tools and information and communication technology (ICT), particularly in open and distance e-learning (ODeL) such as at the University of South Africa (Unisa). The 21st century educational environment is endowed with technological and social media tools that can make the teaching staff’s work easier. ODeL institutions in particular should take full advantage of the ubiquitousness of technology. The human aspect as in the supervisor-student working relationship should however take precedence over technology and thus guide how technology can be used in the supervision. It is in this light that this reported study inquired into the supervisors’ knowledge of the ICT/technological tools and their stance in the use of technology in their supervision, given the human aspect. Hundred-and-twenty-nine supervisors’ supervision characteristics in the College of Education (CEDU) at Unisa, and their exposure to technology and level of knowledge of the ICT/technological tools. That was followed up by face-to-face interviews with seven supervisors to determine their stance about the use of technology given the human aspect of students. The results show that the supervisors do have knowledge about the ICT/technological tools such as MS Word, e-mail and myUnisa-based Discussion Forum. The results also show that some supervisors need training in the use of online technological applications tools. The most important finding is that supervisors value the human aspect such that – though supervisors are positive about the role of technology in supervision, the human aspect should enjoy precedence in their supervision of students.

**Keywords:** supervisors, successful, knowledge, ICT/technological tools, postgraduate students.

**Background**

Why supervise offline when you can online? This statement is made to acknowledge the era that is ruled by technology, online interaction and social networks. The purpose of the study being reported in this article was to gather postgraduate supervisors’ views about the use of online technological applications/tools at Unisa. Postgraduate students in this article refer to master of education (MEd) and doctor of education (DEd) students. The study targeted supervisors in CEDU. Not much has yet been researched about the role and use of online technological applications/tools in the supervision of research and higher degree students (McKavanagh, Bryant, Finger and Middleton 2004; Valetsianos 2010). However, the extent to which supervisors use technology in their supervision work entirely depends on the views that they hold about its value and role. Hence, the research questions that were addressed are stated as follows:

* What are postgraduate supervisors’ supervision characteristics and success rate as assisted by technology?
* What are postgraduate supervisors’ level of knowledge of the technological applications/tools for purposes of their supervision?
* What are these supervisors’ stance regarding the technological applications/tools and their supervision service to the students?

A computer or smart cellphone connected to internet is endowed with tools and social media platforms that can help transform the postgraduate supervision practices and improve throughput in ODeL contexts. A computer and smartphone form part of ubiquitous information and communication technology (ICT), which encompasses all of the technological devices used to enhance teaching and learning (Wheeler 2010, 1). As stated, the ICTs are widespread (Evans, Martin and Poatsy 2010), so much so that 21st century teaching and learning are unthinkable without them. In fact, the use of ICT is constantly changing the way people work and, more significantly, the performance and production for the better (Mbangwana 2008, 2), especially because they can be operated online when there is access to internet. Additionally, ODeL teaching and research are increasingly taking place through a range of e-technology such as web-based resources, word processors and graphics tools and statistical and qualitative data analysis programmes (McKavanagh *et al.* 2004). These tools can also be useful in postgraduate supervision, which comprises the teaching and research tasks.

I worked in CEDU’s Office of Graduate Studies and Research from 2010 to 2014, managing the postgraduate programme and research activities. It was realised that soaring student numbers were among the most challenging factors that caused supervision problems and affected throughput. The use of online technology is heralded as one of the possible solutions that can help speed up throughput since it provides a quicker way to manage and carry out supervision, more so if operated online. This is because postgraduate study is suited to a ‘virtual’ campus that is associated with students who are often juggling work and family commitments and who find studying online much easier and often as satisfying as attending lectures on campus (Stacey in Stacey & Fountain 2001, 519), thus parading technology as a viable means to manage the remoteness of supervision. Information and communication technology in particular, has been defined by its great potential to yield certain outcomes, namely, to improve productivity, facilitate information management and communication, and transform research training into thesis research. This claim is viewed in the light of the fact that there are a range of factors that impede these outcomes – supervisors’ competence, delayed feedback on students’ submitted work and students’ lack of understanding of institutional processes (Abiddin, Ismail & Ismail 2011; Roets 2013).

On the other hand, my experiences as a manager then, are also coloured by the human aspect. I realised that it may not really be about technology, but more about the caring attitude from the side of the supervisors that matters most. If, for instance, a supervisor seems not to care at all about the student’s personal circumstances, that would add to incompletion rate issues, sour working relationships, demotivation, and so forth, on the part of the student. I have had to mediate in some cases to restore the supervisor-supervisee working relationships. It is important to realise that a supervisor-student interaction is informed by a professional mutual engagement, respect, collegiality and open-mindedness, but also by converging and diverging interests (Abiddin *et al*. 2011). Supervisors approaching their supervision faced with such challenges tend to embrace transformation and are thus prepared to go an extra mile to resource their students and help them succeed. Students who do not have the luxury of exposure to technology may need extra attention in the face of technologically advanced environments requiring independent research. This is even more so in ODeL, especially with regard to operating via the electronic media (Adiddin *et al.* 2011; Gumbo 2016) in which the operations are enmeshed in a vortex of technological change and speed, that is, open learning, flexible learning and minimal campus attendance courses (Evans 1995). This suggests that care should be taken to show an understanding of students and their contextual needs (Evans 1995, 23).

The next section discusses the theoretical frameworks for the study.

**Theoretical frameworks**

Harris, Mishra and Koehler (2009) define pedagogical knowledge as “deep knowledge about the processes and practices or methods of teaching and learning, encompassing educational purposes, values, aims and more”. The integration of technology in education has inspired a ground-breaking initiative by Mishra and Koehler (2006) and Koehler and Mishra (2008; 2009), which is referred to as technological pedagogical content knowledge (TPACK). TPACK was introduced to the field of educational research to understand teacher knowledge required for effective technology integration (Mishra and Koehler 2006). TPACK is regarded as one of the most important and influential 21st century conceptual developments in the area of technology (Koehler and Mishra 2008). For purposes of the current study, the classroom is the virtual space in an ODeL context. TPACK builds onto Shulman’s (1987) construct of pedagogical content knowledge (PCK) to include the technology knowledge aspect. Based on Shulman’s construct, TPACK became a useful frame for describing and understanding the goals of technology in education.

The human element becomes central in the use of technology such that people may still feel not serviced properly if the emphasis falls onto the technology only. In this sense, I considered a theory that adds flavour to TPACK to ensure that the human element is not neglected. That is a community of practice (CoP), pioneered by Lave and Wenger (1991). These scholars first employed the theory in their exploration of apprenticeship as a representation of situated scholarship. In the theory, learning is perceived as a communal event and moves away from the more conventional mental forms of learning (Lave 1993). Barab, Barnett and Squire (2002, 495) describe a CoP as a group of people that are co-dependent and who engage in communally defined ventures, viewpoints and understandings over an extended time frame, in the pursuance of a joint activity or commitment. This implies that participation is a motivational factor that guarantees learning in the community. A tertiary institution environment fits into this description as an academic CoP (ACoP), with students operating as collectively inter-reliant individuals and sharing jointly distinct practices (Barab *et al*. 2002, 495). This theory attracts the philosophy of *botho* (in Setswana), which is commonly known in isi-Zulu as ubuntu.

Academic engagements in African institutions should embrace the *botho* principles as many students that they serve hail from indigenous environments which are deeply enshrined in *botho*. It is in this light that Khoza (in Mabovula 2011, 269) defines *botho* as “an African value system that means humanness or being human, a worldview characterised by such values as caring, sharing, compassion, communalism, communocracy and related predispositions”. Khoza (cited by Mabovula 2011) adds that the philosophy of *botho* can be applied universally even though *botho* has its roots in the African culture. This claim is supported by Masango’s (2006, 931) biblical reasoning that an element of the divine goodness was instilled in man as soon as he was declared human, which transformed him into a human being, and thus brought an understanding of humanness, that is, *botho* that manifested the image and likeness of God in each individual person of the human race. Thus, *botho* is the quality of being human. In this kind of existence, one person’s personhood and identity is fulfilled and complemented by the other person’s personhood. Each person is, because the other person is. Khoza (in Mabovula 2011, 266) describes communalism as “a concept that views humanity in terms of collective existence and inter-subjectivity, serving as the basis for supportiveness, cooperation, collaboration and solidarity”.

In light of the above, supervision requires a good mixture of the use of technology and the human side of those engaged in a CoP. Most importantly, students need caring supervisors who show interest in their personal circumstances and team up with them as a community that wants to achieve a set goal, i.e. completing a master’s or doctoral research study. The application of a CoP, spiced with *botho*, will ensure motivation in the students even in the face of the demands of their studies. For instance, a caring supervisor will share important information such as a literature source with their student via e-mail or google drive, show compassion without compromising the standards, try to understand things from the side of the student, and so forth.

In the next section the research design and methods that were used in conducting this study are discussed.

**Research methodology**

A mixed methods QUANT-Qual research design was followed in the study (McMillan & Schumacher 2014). Firstly, a survey was conducted to enable the description of the supervisors’ supervision characteristics and their perceptions about their knowledge of the technological tools (Creswell 2009, 388). This was followed by face-to-face interviews with the supervisors to further gather supervisors’ views about servicing their students via technology and thus their stance about the use of technology. For the survey, all the 129 supervisors in CEDU were asked to participate in the study. Homogeneity was their defining characteristics (Glasow 2005), meaning, their specialisation in education and teacher training. External supervisors were not considered as they fall under independent contracts and would thus not provide the required information. Due processes were followed to obtain ethical clearance and permission to involve Unisa staff in this study. A questionnaire was designed with items related to technological applications/tools and ICT in accordance with TPACK on a four-point Likert scale. The first section of the questionnaire included the supervisors’ characteristics, such as seniority, supervision experience in years and number of students supervised. This information helped to determine the supervisors’ supervision success. The next section contained a list of ICTs for supervisors to indicate their level of knowledge, namely, 1) Thorough knowledge 2) Good knowledge 3) Basic knowledge 4) No knowledge at all. Supervisors were asked to indicate tools that were not mentioned and that they knew about, and their level of knowledge of those tools. The questionnaire ended with an open-ended item, which asked the supervisors if the tools in respect of which they responded to played a role in the success of their supervision. The questionnaire was pretested for content validity. As a result, 10 participants who participated in the pretest were excluded from the main data collection. Only minor structural modifications were made in the questionnaire as a result of the pretest. Data were collected about the technological applications/tools and ICT. This information was sought with the help of specialised sections such as ICT department and Department of Curriculum and Learning Development at Unisa. Then, information was gathered about supervisors’ level of knowledge of technological applications/tools and ICT and supervisors’ use thereof in their postgraduate supervision. The questionnaire, together with a clearly stated request and guidelines, was e-mailed to the supervisors to complete.

IBM SPSS Statistics was used to carry out the statistical analysis. The reliability and the validity of the instrument were assessed using Cronbach’s alpha and exploratory factor analysis. The descriptive statistics (mean, standard deviation, proportions skewness and kurtosis) were used to describe the patterns and trends in the data. Cronbach’s alpha was used to determine the internal consistency or average correlation of items in the instrument to gauge its reliability. “Reliability” means that a scale reflects the construct it is measuring (Field 2006), that is, it is the extent to which a variable or a set of variables is consistent in what it is intended to measure (Hair, Hult, Ringle and Sarstedt 2014). According to Salkind (2012), internal consistency examines how unified the items are in a test of assessment. A “high” value of alpha is an indication that the items are measuring an underlying (or latent) construct. George and Mallery (2003, 231) provided a scale to determine reliability. A value greater than 0.9 is considered excellent, greater than 0.8 is considered good, greater than 0.7 is considered acceptable, greater than 0.6 is questionable, greater than 0.5 is considered poor and less than 0.5 is considered unacceptable. A Cronbach’s alpha of 0.7 or more indicates a reliable scale, and a Cronbach value of 0.7 is normally used as the lower limit, although it may decrease to 0.6 in exploratory research (Hair *et al*. 2014, 123). In this case, 0.7 was also used as an acceptable level. The reliability of the instrument used was obtained as shown in table 1.

| **Table 1: Reliability results of the constructs** |
| --- |
| **Construct** | **No. of items** | **Cronbach’s alpha** | **Acceptable level** |
| Knowledge of tools | 34 | 0.935 | Excellent |
| Issues concerning ICT tools utilisation and supervision | 16 | 0.959 | Excellent |
| **Total** | **50** | **0.938** | **Excellent** |

All the other dimensions had a reliability scale of more than 0.7. The reliability of the whole instrument was 0.938, which was excellent, and the overall instrument was, therefore, very reliable.

Seven supervisors were conveniently (time and availability) selected to participate in the interview in their respective offices. At the time of the research, I was based at a satellite campus in town, hence convenience selection to reach the supervisors who were at this satellite campus, and those who were available at the main campus. These supervisors were spread according to their seniority. An interview guide was designed based on the findings of the survey. All seven were interviewed and the newly added views surfaced with each interviewee. The interviews were recorded and their transcription done immediately after the completion of each, so member-checking and follow-up could be done as a matter of immediacy. A thematic analysis of the data was done, ending with two main themes under which the findings were presented. Data were looked at across the quantitative and qualitative data and discussed ultimately.

**Findings**

**Characteristics of supervisors regarding their student supervision**

The response rate was 51 academic staff comprising lecturers, senior lecturers, associate professors and full professors involved in the supervision of MEd and DEd students in CEDU. The respondents were asked to indicate the number of years they have been supervising MEd and DEd students, whether they had received training in respect of their supervision, and the number of MEd and DEd students they had successfully and unsuccessfully supervised.

The supervisors’ supervision experience ranged from one year to 32 years, giving a range of 31 years, as shown in table 1.

Table 1: Summary statistics for number of years spent supervising MEd and DEd students

|  |  |
| --- | --- |
| **Summary statistics** | **Value** |
| Mean | 8.775 |
| Median | 6.000 |
| Mode | 1.000a |
| Standard deviation | 7.927 |
| Skewness | 1.124 |
| Kurtosis | 0.549 |
| Maximum | 32.00 |
| Minimum | 1.00 |
| Range | 31.00 |
| Coefficient of variation | 90.34% |

The mean experience is 8.77, with a standard deviation of 7.93. Therefore, on average, the supervisors have nine years of experience. It can be concluded that the supervisors have a lot of experience in supervising students and are familiar with matters involving the supervision. The median value is six years, implying that 50% of the supervisors have at least six years of experience. The coefficient of variation is 90.34%, which points to the varied spread of their experience.

In respect of whether the supervisors had received training in the use of online technology for supervisory work, about 25.5% (n=13) indicated that they had received training compared to 75.5% (n=38) who indicated that they had not. Therefore, only a quarter had received training in the use of online technology.

Regarding the number of MEd students successfully supervised, there were 45 valid responses. The values ranged from 0 to 45. This means that some supervisors’ students had not passed their dissertations or that some supervisors had not supervised a dissertation to completion (see table 2 for the summary statistics of the variable). A total of 47 respondents indicated their success with the supervision of DEd students. Close to 50% (51%; n=24) of the supervisors did not record any successes, and 23 (48.9%) of them had not supervised a DEd student to completion. The values range from 0 to 21, giving a range of 21, as indicated in table 2.

Table 2: Summary statistics for number of MEd and DEd students successfully supervised

| **MEd students** |
| --- |
| **Summary statistics** | **Value** |
| Mean | 6.70 |
| Median | 4.00 |
| Mode | 0.00 |
| Standard deviation | 8.715 |
| Skewness | 2.450 |
| Kurtosis | 7.791 |
| Maximum | 45.00 |
| Minimum | 0.00 |
| Range | 45.00 |
| Coefficient of variation | 130.07% |
| **DEd students**  |
| **Summary statistics** | **Value** |
| Mean | 2.83 |
| Median | 0.00 |
| Mode | 0.00 |
| Standard deviation | 4.797 |
| Skewness | 2.148 |
| Kurtosis | 4.508 |
| Maximum | 21.00 |
| Minimum | 0.00 |
| Range | 21.00 |
| Coefficient of variation | 169.51% |

On average, the supervisors had supervised 6.70, that is, seven MEd students who successfully completed their dissertations. The standard deviation is 8.715 years, with a coefficient of variation of 130.07%. There is a large variability with respect to the success of supervision of MEd students, as evidenced by how far the coefficient of variation deviates from 0% (no variability). An average number of 2.83 DEd students, which means approximately three students per supervisor were supervised to completion. The standard deviation is 4.797, with a coefficient of variation of 169.51%. Therefore, there is a large variability with respect to the number of DEd students who were successfully supervised. The median and modal values were zero. Therefore, at least 50% of the supervisors did not record successes in respect of DEd supervision.

A total of 45 supervisors indicated the number of MEd students they had supervised unsuccessfully. A total of 30 (66.7%) supervisors indicated that there were zero MEd students whom they had unsuccessfully supervised. Out of the 30, only eight had never supervised an MEd student to completion. One can conclude that 53.3% (24) of the supervisors did not record failures in respect of supervising MEd students (see the summary statistics shown in table 3). In respect of the number of DEd students unsuccessfully supervised, there were 45 valid responses. Thirty-seven (82.2%) supervisors indicated a zero, meaning either they had not supervised a student to completion, or had not had students who unsuccessfully completed their dissertations. In this case, 24 of them had not supervised students who completed their theses for submission, which means that 28.9% (n=13) had not had any DEd students who unsuccessfully completed their theses. These supervisors had a 100% success rate (see the summary statistics shown in table 3).

Table 3: Summary statistics for MEd students unsuccessfully supervised

| **MEd students**  |
| --- |
| **Summary statistics** | **Value** |
| Mean | 0.96 |
| Median | 0 |
| Mode | 0 |
| Standard deviation | 1.731 |
| Skewness | 2.188 |
| Kurtosis | 4.955 |
| Maximum | 7 |
| Minimum | 0 |
| Range | 7 |
| Coefficient of variation | 180.31% |
| **DEd students**  |
| **Summary statistics** | **Value** |
| Mean | 0.51 |
| Median | 0 |
| Mode | 0a |
| Standard deviation | 1.456 |
| Skewness | 3.516 |
| Kurtosis | 12.628 |
| Maximum | 7.00 |
| Minimum | 0 |
| Range | 7.00 |
| Coefficient of variation | 285.49% |

The average failure rate in respect of the supervision of MEd students is approximately one student per supervisor, as evidenced by an average of 0.96. The standard deviation is 1.731, with a coefficient of variation of 180.31%. Therefore, there is a large variability because the coefficient of variation is far from zero (no variability).

The mean number of DEd students who were unsuccessfully supervised is 0.51, that is, approximately one student per supervisor, with a standard deviation of 1.456. The coefficient of variation is 285.49%, which deviates far from zero. Therefore, there is a large variability, as evidenced by its departure from zero. The median and modal values are zero, which means that 50% of the supervisors indicated a zero success.

New variables were computed to determine the success rate of the supervision of students as a percentage. In respect of MEd students’ supervision success rate, there were 36 valid responses. Therefore, out of the 51 academic staff who participated in the study, 36 had submitted the students’ dissertations and recorded either successes or failures (see the summary statistics shown in table 4). In respect of the success rate of the supervision of DEd students, there were 22 valid responses. Therefore, only 22 supervisors supervised DEd students to completion. Out of these supervisors, 14 (63.6%) have a 100% success rate. Only 4.5% (n=1) of the supervisors have a 0% success rate (see summary statistics shown in table 4).

Table 4: Summary statistics for success rate of supervision of MEd and DEd students

|  |
| --- |
| **MEd students** |
| **Summary statistics** | **Value** |
| Mean | 81.23 |
| Median | 100 |
| Mode | 100 |
| Standard deviation | 29.8609 |
| Skewness | -1.783 |
| Kurtosis | 2.525 |
| Maximum | 100 |
| Minimum | 0 |
| Range | 100 |
| Coefficient of variation | 36.76% |
| **DEd students** |
| **Summary statistics** | **Value** |
| Mean | 82.90 |
| Median | 100 |
| Mode | 100a |
| Standard deviation | 30.1083 |
| Skewness | -1.778 |
| Kurtosis | 2.085 |
| Maximum | 100.00 |
| Minimum | 0 |
| Range | 100.00 |
| Coefficient of variation | 36.32% |

The average success rate of the supervision of MEd students is 81.23%, with a standard deviation of 29.8609 and a coefficient of variation of 36.76%. Therefore, out of every five MEd students supervised, on average four successfully completed an MEd thesis. The variability is not large, since 36.76% is not far from zero (no variability). The mean success rate of the supervision of DEd students is 82.90%. Therefore, out of every five DEd students supervised, on average, four successfully completed their theses. The median and modal values are at 100%. The coefficient of variation is 36.32%, which does not deviate far from zero. This shows that there is not much variability, as evidenced by its departure from zero. The ratio of the standard deviation to the mean is 36:1.

**Supervisors’ knowledge of technological applications/tools and** **ICT**

The supervisors were asked to rate their level of knowledge about technological applications/tools and ICT. The rating was based on a four-point scale ranging from no knowledge at all, to thorough knowledge. The supervisors’ level of knowledge was measured by combining the categories “good knowledge” and “thorough knowledge”. Table 5 reflects their level of knowledge of technological applications/tools and ICT.

Table 5: Supervisors’ knowledge level of technological applications/tools and ICT

| **ICTs/technological tools** | **Level of knowledge** | **Rank** |
| --- | --- | --- |
| **Thorough knowledge**  | **Good knowledge** | **Basic knowledge** | **No knowledge at all** |  |
| SMS | 68.0% (34) | 22.0% (11) | 6.0% (3) | 4.0% (2) | 1 |
| E-mail (Outlook) | 64.0% (32) | 26.0% (13) | 6.0% (3) | 4.0% (2) | 1 |
| MS Word | 56.9% (29) | 31.4% (16) | 7.8% (4) | 3.9% (2) | 3 |
| Computer | 45.1% (23) | 43.1% (22) | 11.8% (6) | - | 3 |
| Laptop | 43.1% (22) | 45.1% (23) | 9.8% (5) | 2.0% (1) | 3 |
| PowerPoint | 49.0% (24) | 32.7% (16) | 12.2% (6) | 6.1% (3) | 6 |
| myUnisa | 35.3% (18) | 45.1% (23) | 15.7% (8) | 3.9% (2) | 7 |
| WhatsApp | 44.9% (22) | 30.6% (15) | 16.3% (8) | 8.2% (4) | 8 |
| Data projector | 37.3% (19) | 33.3% (17) | 19.6%(10) | 9.8% (5) | 9 |
| Bulk SMSs | 37.5% (18) | 27.1% (13) | 20.8%(10) | 14.6% (7) | 10 |
| Discussion forum | 42.0% (21) | 22.0% (11) | 16.0% (8) | 20.0% (10) | 11 |
| Search engines | 26.0% (13) | 38.0% (19) | 22.0%(11) | 14.0% (7) | 11 |
| Whiteboard | 30.6% (15) | 28.6% (14) | 12.2% (6) | 28.6% (14) | 13 |
| Video conferencing | 15.7% (8) | 27.5% (14) | 27.5%(14) | 29.4% (15) | 14 |
| Skype | 17.0% (8) | 25.5% (12) | 29.8%(14) | 27.7% (13) | 15 |
| Facebook | 16.3% (8) | 22.4% (11) | 32.7%(16) | 28.6% (14) | 16 |
| BBM | 27.3% (12) | 11.4% (5) | 20.5% (9) | 40.9% (18) | 17 |
| Excel | 16.0% (8) | 20.0% (10) | 40.0%(20) | 24.0% (12) | 18 |
| Dropbox | 17.4% (8) | 17.4% (8) | 30.4%(14) | 34.8% (16) | 19 |
| Google Drive | 24.5% (12) | 8.2% (4) | 34.7%(17) | 32.7% (16) | 20 |
| Blog | 8.5% (4) | 23.4% (11) | 23.4%(11) | 44.7% (21) | 21 |
| Twitter | 8.3% (4) | 18.8% (9) | 25.0%(12) | 47.9% (23) | 22 |
| SignUp | 12.8% (6) | 10.6% (5) | 27.7%(13) | 48.9% (23) | 23 |
| E-reader | 8.5% (4) | 14.9% (7) | 27.7%(13) | 48.9% (23) | 24 |
| Podcast | 6.1% (3) | 16.3% (8) | 30.6%(15) | 46.9% (23) | 25 |
| WeChat | 8.7% (4) | 13.0% (6) | 23.9%(11) | 54.3% (25) | 26 |
| Wikis | 10.6% (5) | 10.6% (5) | 14.9% (7) | 63.8% (30) | 27 |
| ooVoo | 12.8% (6) | 4.3% (2) | 6.4% (3) | 76.6% (36) | 28 |
| RSS | 6.7% (3) | 8.9% (4) | 13.3% (6) | 71.1% (3) | 29 |
| Mendeley | 6.3% (3) | 6.3% (3) | 12.5% (6) | 75.0% (36) | 30 |
| Social bookmaking | 2.1% (1) | 8.5% (4) | 12.8% (6) | 76.6% (36) | 31 |
| Screen | 2.2% (1) | 4.4% (2) | 11.1% (5) | 82.2% (37) | 32 |
| Syndication | 2.1% (1) | 2.1% (1) | 12.8% (6) | 83.0% (39) | 33 |
| Tag-based folksonomies | 2.1% (1) | 2.1% (1) | 10.6% (5) | 85.1% (40) | 33 |

The technological applications/tools and ICT about which the supervisors had a level of knowledge above 70% are: SMS (90%), E-mail – Outlook (90%), MS Word (88.2%), Computer (88.2%), Laptop (88.2%), PowerPoint (81.6%), myUnisa (80.4%), WhatsApp (75.5%) and Data projector (70.6%). It should be noted that the list of tools even included devices themselves, e.g. the laptop. This helped to give an idea about the source or application platform of the tools. These are the tools that the supervisors are the most knowledgeable about in respect of usage. On the contrary, the tools that more than 70% of the supervisors were not knowledgeable about at all are: Tag-based folksonomies (85.1%), Syndication (83.0%), Screen (82.2%), ooVoo (76.6%), Social bookmaking (76.6%), Mendeley (75.0%), RSS (71.1%).

The respondents were asked to indicate the tools that were not mentioned and which they were knowledgeable about. Table 6 indicates the tools mentioned and the level of the supervisors’ knowledge of them. The knowledge level of supervisors is indicated in brackets. The table shows that the supervisors have a thorough knowledge of the tools that they added. This could explain that they mentioned the tools that they have come to know and apply in their work or even for personal reasons.

Table 6: Tools not mentioned in respect of which supervisors indicated a level of knowledgeability

| **Thorough knowledge** | **Good knowledge** | **Basic knowledge** | **No knowledge at all** |
| --- | --- | --- | --- |
| Viber (2)Google Scholar (1)LinkedIn (1)Turnitin (1)Kik (1)EViews tools (1)Facetime (1) | Smart Board (1) Linkedin (1)MS Access (1) Vimeo (1)Chatrooms (1) Moodle (1)e-Resources (1) Turnitin (1)e-Journals (1) Unisa Institutional Repository (1) | Google Scholar (1)Turnitin (1)J-Router (1) | MiIT (2)Marking tool (1) |

**The role of technological applications/tools and** **ICT in supervisors’ successful supervision of students**

The supervisors responded positively to the open-ended question about whether technological applications/tools and ICT played a role in their successful supervision of students. There were only a few exceptions where supervisors did not respond to the question or expressed indecision. A few selected responses in this regard are given thus:

*ICT and online technology improved communication between supervisor and student, broadened the students’ intellectual horizons and provided better access to sources. It made feedback quicker and more effective.*

*Yes. There was progress reported while using the ICT tools.*

*Yes, it made communication easier and responding to students’ needs much quicker.*

*Yes***,** *using track changes in MS Word helps with providing guidance on argumentation, formulation, logic* and so forth, *of text. I assist students in locating appropriate and relevant sources through doing searchers on the internet and providing the student with the URLs. I forward interesting articles and websites through e***-***mail.*

*Yes. Timeous feedback; quick analysis; better guidance regarding literature search.*

*Yes, I use mainly e***-***mail as an ICT tool to communicate with my students and that has been fruitful as most of the students have access to e***-***mail and internet. My knowledge of using a computer and accessing the internet has assisted me in successful supervision as that is the tool that I mainly rely on to help my students.*

*Yes, definitely as I can get information to them and from them very quickly.*

**Findings from the interviews**

The supervisors’ views highlighted the two important issues in relation to the research questions: the value and role that technology plays in their supervision of the students’ work, and the human aspect, that needs to be considered seriously, which may not be technology dependent per se. These themes guided the presentation of findings.

**Value and role of technology in supervision**

The supervisors acknowledged the fact that we live in a digital age, and that they therefore needed to integrate technology in their supervision. Between e-mail, videoconferencing, Discussion Forum, telephone, WhatsApp, Facetime, Viber, Mendely, Track Changes, myUnisa, Turnitin, ATLAS.ti, SPSS and Skype, supervisors predominantly used ubiquitous technological tools, that is, e-mail, telephone, myUnisa and Discussion Forum. Generally, the supervisors alluded to the value and importance of the technological tools in their supervision. *I did not receive any training. I was thrown in the deep end* [Supervisor 1]. However, this supervisor valued technology in relation to the ODLness of supervision, as he explained: *Yaa, I think it’s unthinkable, especially if you work at Unisa because students are not here on campus. It cannot work at all without technology*. Supervisor 2 gave the transformative perspective of word processing: *What would we be without the word processing? For many years we worked on hard copies, and you had to do it in pencil*. According to Supervisor 2, *students can save at least a year, if not two.**If you would look at the number of students that I have supervised in the last five years, since technology became part of our lives versus the previous years, I can assure you that my output per year probably doubled or**was**50% more.* In a similar sense, Supervisor 3 corroborated that *technological tools make it easier,* and indicated that without the use of technological means,*the student will take long*as they will have to go to the library to ask for books, journals, periodicals, and all those things. With technological means *we are able to work faster* [Supervisor 4], and *it helps a student who uses ICT to finish quicker* [Supervisor 5]. The supervisors appreciated the fact that technology and working online provided the platform for them to identify the e-resources useful for their student’s work. Supervisor 7 referred to technology as being *fantastic*.

To attest to the delay that the non-use of technology may cause, Supervisor 4 related the trouble it took two of her students who *drove all the way from Mpumalanga to bring their hard copies*. This in turn delays their feedback, as opposed to students who *submit their work by e-mail; within a week they will get my response* [Supervisor 2]. But there were also challenges with students not being able to use the tools properly, for example, *they will only accept the track changes that I am making without engaging with them*[Supervisor 6]. This situation is exacerbated by the students who struggle to afford a computer – *two students who do not have computers. My one student is there from the Cape, very poor, disadvantaged environment* [Supervisor 7]. Some may have a computer but cannot operate it, like in the case of Supervisor 4’s students who travelled from Mpumalanga; *they said, “Yaa! Endlini ikhona ilaptop”* (in isi-Zulu), meaning “Yes, we have a laptop in the house”.

The contextual demands pertaining to the third world, culture and language made two supervisors build a dimension that bridged into the next theme. They emphasised the human aspect, as Supervisor 7 related: *So, even if you use technology, technology is instrumental to help and support students to become academic scholars. So, technology is not about technology, it’s about a human being, a student with academic dreams*. According to this supervisor, technology can be used to bridge the distance in ODL, but distance can still be there depending on the treatment of students: *It is a distance, there is a distance,* and remembered her student commenting: *“You have used everything, but I can’t hear you”,* and referred to it as students’ *authentic voice of understanding,* as she brought in the student’s voice again: *“I am struggling. But where is your voice of understanding how difficult it is?”* This supervisor discouraged *over-emphasising the use of technology, but using technology and integrating it as part of your teaching approach. In an ODL context, specifically at Unisa, we so much emphasise student support*. So, it is not all about technology, as Supervisor 4 added, that *students still believe in a word of mouth*, *face-to-face conversation. So, I think there is spoken language and also you cannot replace the teacher with technology.*

**The human aspect: Looking beyond technology in supervision**

The supervisors’ views emphasised the working relations aspect in the supervision. Their views created an understanding of not losing sight of the humanness of the students by allowing oneself to be carried away by technology. This even affected how the supervisors used the technological tools. Supervisor 2 did not prefer using the MS Word Track Changes tool as that frustrated students. She compromised for the comments function, *but I make corrections on the electronic copy.* As part of feedback to the students, she included a letter of comments. In addition, she valued oral feedback *because sometimes there is a misunderstanding; you mean something and the student understands something different, but you can clarify that when you talk. I once had a student whom I referred to a table, meaning table 3.5, and the student was thinking of actual table with chairs, and I mean there was such confusion*.

Supervisor 7 advanced a perspective that puts more weight on the personhood of students rather than technology, by involving the term *lifeline*. Her emphasis was on elevating the person more than the machine. She mentioned this *lifeline* about six times in the interview. Her responses were thus skewed towards the personal circumstances of her students and how she attempted to intervene. She explained: *and the student will write and say, “My mother passed away” or “My sister has problems. So, that is a discussion forum, face-to-face. However, I also use discussion forums on my computer*. For this supervisor, Discussion Forum was an interface between the students’ humanness and technology (computer) – it meant Discussion Forum on myUnisa platform and discussion forum among her students, with the more experienced ones *mentoring* the inexperienced ones or strugglers. She indicated that students wanted to talk to her at times by seeing her face as she referred to her student who stated: *“If I talk to you, I would like to see you, on a human side”,* to an extent the student asked: *“I want a picture of you”.*

Supervisor 7 went on to emphasise emotional support as part of supervision when she related her other student’s situation, quoting the student’s words: *“My son passed away and he was in matric. It is the end of the world now”*. The student was able to pick up the pieces after the support she received from her supervisor through words of encouragement: *“I think that I will start with my doctoral degree”*. This student’s courage was rejuvenated and she produced quality work to a point *she received first prize after Research and Innovation Day for doctoral students* [Supervisor 7]. Supervisor 7 used phrases that suggest investing in the success of students with the support due to them: *all need emotional support, patience for postgraduate students; holistic approach; work together as a team; complimentarily, collaboratively*. This supervisor was also in a death situation and stated that as the student in a death situation asked, “*Will you pray for me”,**they will pray with me*, referring to a reciprocal support between her and her students.

**Discussion**

Though the findings show that the supervisors who participated in the study have a lot of supervisory experience, some are more experienced than others. Seeing that they work in an ODeL context, one would expect them to be equipped to supervise via technological applications/tools and ICT. Yet, only a quarter of the supervisors claimed to have received training on supervising students online. The narratives that resulted from the interviews illuminate this finding by emphasising the human aspect pertaining to the students, described as a *lifeline*. This angle of approaching supervision by the supervisors helps explain why some supervisors may not want to elevate technology above the human aspect, thus operating within a CoP or *botho*. Supervisor 4 and Supervisor 7 put more weight on this aspect, which supports the views of the consulted scholars in the likes of Masango (2005), Mabovula (2006) and Abiddin et al (2011).

A good number of the supervisors have supervised MEd students who did not pass their dissertations, or have not supervised a dissertation to completion. Two supervisors in particular, have successfully supervised 29 and 45 MEd students respectively. About 50% of the supervisors have not supervised DEd students to completion and the results show that on average, three students per supervisor were successfully supervised. The results take into account the supervisors who either have not supervised MEd or DEd students or have not supervised them successfully. In both these categories, the supervision success rate is above 80%. The most senior supervisors, namely, professors, have recorded the highest success rate, obviously because they have grown in their supervision experience. However, when corroborated with the qualitative data, these supervisors happen to be those who also value the respect, care, support, and so forth, due to their students, not technology only. The case of Supervisor 4 showing an understanding in the couple that hand-delivered their work, and Supervisor 7 showing emotional support to a student who was in a death situation, extended an idea of CoP or *botho*. In the case of Supervisor 7, the student could pick up the pieces and excelled ultimately. This shows that the success of supervision needs to be understood more from the point of view of first recognising the human side of students.

In Mbangwana’s (2008) assertion, the use of technological applications/tools and ICT can transform the practice in so far as supervision of students is concerned, thus enabling supervisors to achieve success, that is, to supervise students until they have successfully completed their dissertations and theses. Supervisors can, therefore, benefit a great deal from enhancing their knowledge of TPACK in the seven domains explained by Mishra and Koehler (2006). But it seems that experience level and the other factors mentioned in the introduction of this article weigh more than the use of technological applications/tools and ICT. Technology may be doing a good job (Stacey in Stacey & Fountain 2001; Mbangwana 2008, 2), but this study’s findings suggest that getting in touch with the human side of students should take precedence.

The supervisors have good to thorough knowledge of the common technological applications/tools and ICT such as e-mail, MS Word and laptops, especially those that that they mentioned. They attested to the fact that technological applications/tools and ICT help them to achieve success in their supervision. The question is, how could they appreciate technology when only a quarter of them have received training in its use? An answer to this question is that they are not opposed to the role that technology plays in the facilitation of their supervision, but they wouldn’t downplay the human service that they owe to their students. The fact that some of them still accommodate the personal visit of their students even though they operate within the ODeL environment, attests to their valuing of the working relationship from the *botho* perspective. This brings a unique dimension to the notion of involving technology to bridge the distance between the supervisor and student – the human engagement still takes precedence in some supervisors; technology may not replace the actual human interaction wholly. In the words of Supervisor 7: *So, even if you use technology, technology is instrumental to help and support students to become academic scholars. So, technology is not about technology, it’s about a human being, a student with academic dreams.*

To conclude the discussion, the term *lifeline* could explain the interface between technology and the human aspect. Figure 1 shows the centrality of this term, which could be understood as a driving force of the use of technology and human interaction for purposes of servicing the student, and not the other way round.

|  |  |  |
| --- | --- | --- |
| **Human aspect**:CoP/*botho* – care, respect, community, support, etc. | **Lifeline**  | **Technology** TPACK: online, ICTs, e-mail, MS Word, etc. |

**Conclusion and recommendations**

This article successfully investigated the postgraduate supervisors’ extent of knowledge of technological tools for purposes of their supervision and the stance they take. Hence, the research questions were answered. The study shows that supervisors are knowledgeable about the ubiquitous technological tools. The study further points out that supervising postgraduate students by means of technological applications/tools and ICT can help alleviate challenges surrounding this task and thus contribute towards successful supervision. The main contribution of the study lies in the human aspect that supervisors should not downplay in favour of technology. Priority in the supervision relationship should not be accorded to the use of technology to the detriment of the student as a human being. The interface illustrated above should guide this working relationship. By implication, CoP or *botho* should guide supervisors to make careful decisions about the use of technology in servicing their students.

The limitation of the study is that it does not directly link the use of technological applications/tools and ICT to specific supervisors.

The following recommendations are made on the basis of the findings:

* In the supervision of students, supervisors should be more occupied with their working relationships with students in order to nurture the human aspect more than being carried away by technology.
* As supervisors learn and acquire knowledge and skills about the use of technology for purposes of easy supervision, they should also be critical about how they are going to use it in a manner that will not jeopardise the service due to their students.
* Supervisors should be made aware of the wealth of technological applications/tools and ICT that are available to them and that they can use in their supervision of students.
* Supervisors should be trained and exposed to more technological applications/tools and ICT that can benefit their supervision of students.
* Experienced supervisors, especially those who have seen the benefits of using technological applications/tools and ICT in their supervision of students, should mentor inexperienced supervisors.
* Further research should be conducted by means of multiple methods about the role and benefits of technology in the supervision of students and how the human aspect affects it.

Postgraduate supervisors do not have to supervise their students offline when they can do it online. They should however make absolutely sure that they do not compromise their support to students as humans.

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