The Impact of Tutoring in the Digital Academic Literacy Programme on Graduate Attributes at the University of the Western Cape

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Authors' contributions
This work was carried out in collaboration between all authors. Author JS designed the study, provided the scope and structure, and alignment to national and institutional discourse, and read, reviewed and edited the first draft. Author AS managed and conducted the literature review, co-wrote first draft, and reviewed and edited the first draft. Author TM co-wrote the first draft, and provided valuable assistance with the research process. All authors read and approved the final manuscript.

ABSTRACT
This study reports on the impact of a Tutor Work-Study Programme, within the Digital Academic Literacy Programme (DAL) at the University of the Western Cape (UWC), South Africa. This study was prompted by the need to investigate the impact of peer (student) tutoring initiatives on tutors' learning, academic studies and future career preparation. This paper seeks to make a contribution to the broadening of conceptions regarding impact of tutoring programmes from knowledge gains in the recipients, to gains (and impediments) conferred to tutors supporting the delivery of the material. While the enquiry focuses primarily on the DAL tutors, it also includes an account of the impact of the tutors on the delivery and facilitation of programme, and on the registered UWC students served by it. A mixed-methodology is employed, incorporating qualitative and quantitative data, drawn from questionnaires and interviews. The sample consists of the tutors in the programme (second semester, 2014) who agreed to take part in the study, as well as the three facilitators. Data are also drawn from a semester-end evaluation regarding tutoring. Findings reveal that participation in the DAL Programme had a strongly positive impact on the tutors, especially in skills gains and general career preparation. The tutors also had a strongly positive impact on the delivery and the facilitators. Finally, while most students enrolled in the DAL Programme were satisfied with the quality of the support and expertise provided by tutors in class, some areas for improvement are identified. Ultimately, the need to reflect critically on student interventions at Higher Education Institutions must be taken seriously, especially in the context of producing professional, knowledgeable, and employable graduates who are able to meet the demands of the modern information economy. In this context, the results of this research reveal that should the DAL Programme be discontinued or cease to be integrated into the curriculum at UWC, student development would be directly impeded, given the dire need for digital academic literacies.

Keywords: Digital academic literacies; higher education institutions; peer tutoring; impact; student development; national imperatives.

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1. INTRODUCTION

In the arena of higher education (HE), there has existed for a long time a legitimate concern with the merits and quality of programmes and interventions. For example, [1] noted that there "is evidence lacking concerning the merits of certain teaching and curriculum innovations at both graduate and undergraduate levels", and observed that "the challenge to evaluate these plans on an experimental or factual basis remains". Similarly, [2] recognised that "[i]f then we wish to advance education from the point of view of science, the greatest need of research in higher education is in the field of measurement". More recently, [3] remarked that in the 1990s, the issue of quality became "the 'metanarrative' and 'discursive orthodoxy of university life'". Although the understanding of quality may manifest itself differently, the onus nevertheless remains on academics and practitioners to investigate the impact of all interventions in HE environments on the development of students, who are, in the final instance, the reason for the existence of HE. This study constitutes an attempt to respond to this call by reporting on the impact of the Tutor Work-Study Programme embedded within the Digital Academic Literacy (DAL) Programme at the University of the Western Cape (UWC) – a historically disadvantaged institution (HDI) under Apartheid – both on the tutors themselves, and on the delivery and facilitation of the programme as a whole. The DAL student development Programme of the Centre for Innovative Education and Communication Technologies (CIECT) is aimed at equipping novice users (in this case 1st, 2nd and even Honours Level) students at UWC with basic digital academic literacy skills, and other technical skills.

The DAL Programme is offered over a semester to all faculties at UWC through a variety of customised projects designed to meet the specific academic needs of students (as determined by their faculties), and is then integrated into accredited modules. While only those students whose faculty representatives voluntarily contact CIECT to request DAL training are included in the programme, it is notable that 4125 students underwent such training in 2014 alone. A large proportion of these had never received any formal Information and Communications Technology (ICT) training, and despite the ubiquitous use of mobile devices such as smartphones and related discussions regarding the concept of 'digital natives', many lack basic ICT literacy skills needed for academic success (detailed in upcoming research by Stoltenkamp, Leonard, Mokwele, and Siebrits). For example, when new DAL students were asked to complete a short questionnaire at the start of the 2015 academic year to determine their digital literacy levels, out of 567 responses, 221 students (38.98%) reported that they could not navigate the Microsoft® Windows® Desktop, while 122 (21.52%) reported being unfamiliar with web-browsing tools and basic software such as Microsoft® Office® (including basic word processing).

Indeed, these statistics are reflective of the broader South African ICT context. As [4] notes, there is a "critical shortfall" of ICT skills in the country, due in part to the "mismatch between the skills on offer and those in demand [in the market]". Unfortunately, the HE sector in South Africa is "not producing the quantity or quality of skills" required by business, partly because "institutions are too slow in evolving to keep up with the latest trends in the technology industry" [4]. The result is that, as [4] notes, graduates "emerge poorly prepared for the realities of the workforce and often find that companies are not willing to help them build practical experience". Moreover, the problem is not limited to the HE sector, and Schofield (quoted in [5]) observes that there is "a significant lack of improvement in South Africa's basic education as well as exposure to and familiarity with ICT", and that consequently, there is a strong indication that "learners need a better

understanding of the ICT sector to equip themselves to adapt to the modern tools used in everyday lives".

In infrastructure too, South Africa lags behind, as noted in the Government's National Development Plan (NDP), which sets out the vision for the country going forward to 2030: "Compared with the best international standards, South Africa's ICT infrastructure is abysmal" [6]. In spite of the infrastructural and skills challenges, the NDP sets out the following vision for the country by 2030, in terms of ICTs:

By 2030, ICT will underpin the development of a dynamic and connected information society and a vibrant knowledge economy that is more inclusive and prosperous. A seamless information infrastructure will be universally available and accessible and will meet the needs of citizens, business and the public sector, providing access to the creation and consumption of a wide range of converged services required for effective economic and social participation – at a cost and quality at least equal to South Africa's main peers and competitors. [6]

However, to reach this vision, the NDP recognised that e-literacy must be prioritised and expanded: "[a]t the most fundamental level, e-literacy needs to be improved through training in schools, at tertiary-education facilities and adult-education colleges, as well as through supplier training" [6]. This is also in line with the Department of Higher Education and Training's call: "If success and throughput of students is to improve, as it must, it is clear that large-scale targeted work must continue and be expanded in all institutions" [7].

UWC recognises and responds to these imperatives, and the Institutional Operating Plan (IOP) (2010-2015) [8] specifically requires all interventions that are undertaken to "[p]ursue a holistic, strength-based approach to the development and support of students" (Goal 1, Strategy 1), entailing "relevant and desirable student learning and development outcomes and sophisticated ways of achieving them". Moreover, every intervention must "provide evidence of its impact on the achievement of student learning and development outcomes". Additionally, the IOP also mandates, under Goal 2, Strategy 1 ("Improve and professionalise teaching and learning across the institution"), the "[g]reater infusion of technology into the curriculum". Finally, under Goal 2, Strategy 2 ("Promote the desired attributes of a UWC graduate"), the IOP calls for the creation of "a learning experience for students that would provide opportunities for them to equip themselves with the kinds of skills and knowledge necessary for their future careers and their role as citizens". CIECT takes these calls seriously, and continuously strives to infuse and promote emerging technologies and ICTs into the institution, in a context of voluntary adoption, and the DAL Programme constitutes a critical aspect of its infusion strategy. The success of this infusion can be gauged by considering the overall adoption rate of eLearning – according to data collected by CIECT, 58% of academic and support staff at UWC have voluntarily adopted eLearning between 2005 and February 2015.

The value and importance of investigating the impact of tutoring in the DAL Programme as part of CIECT's infusion is aptly summarised by one of the programme facilitators:

> *I just think that ... sometimes people don't even know of us. Not that we want to be recognized ... I mean just to understand maybe the importance of the DAL programmes to students, especially first-year students, and how they cannot go*

without it ... and the fact that ... the tutors are also a very important part of the programme, because without them we can't run the programme.

2.   THE DIGITAL ACADEMIC LITERACY PROGRAMME

The work of the DAL Programme started when a university-wide task group was formed in 1999 to investigate the most appropriate way to deliver computer literacy skills to novice users at UWC. As a result of this process, the DAL course was formally accepted as a credit bearing course which could be offered to all faculties at UWC. For example, in Community Health Sciences, it was adopted under course code 371111 (later changed to course code CCL 111/121) with a value of 5 credits, and it is also offered as the practical component of various foundation courses at first-year level to any faculty as required. Currently it has up to 20% weighting in a number of courses across various faculties.

The DAL offers custom programmes to cater to various faculty needs, which are in turn aligned to the needs and demands of the workplace. Thus, the course content and mode of delivery caters to students' specific faculty backgrounds. These courses are all designed in consultation with faculty representatives following a structured and intensive planning process, outlined in Table 1.

Table 1. Planning and student support processes in the DAL programme

1	Discussions with Faculty Representatives (according to student needs)
2	In-depth needs analysis and creation of a proposed course content / scope
3	Customisation (discipline specific)
4	Alignment of Programme (content and assessment) ▪ Develop assessment criteria, aligned to content, assessment methodologies, relevant eTools
5	Coordination of Overall Administrative Activities, including: ▪ Duration of Programme (student needs identified by the Department) ▪ Develop Service Level Agreement (SLA) ▪ Preparation of time-table to manage thousands of students ▪ Booking of venues (computer labs)
6	Coordination of Overall Monitoring-and-Evaluation Activities, including: ▪ Monitoring and tracking face-to-face training interventions (progress of students in the class) ▪ Providing one-on-one consultation after the class ▪ Schedule tests and prepare the test environments ▪ Grading and discussions with Departments ▪ Marks Administration (Departments are responsible for placing the marks into MAS – Marks Administration System) ▪ Manage re-assessment environments (re-train; re-asses; or continue to support students as discussed with Department)
7	Selection of dedicated facilitators and co-facilitators for training
8	Selection of tutors (assist with face-to-face training sessions): ▪ Tutors engage in selection processes (beginning of term), including interviews and tests ▪ Tests include demonstrations (the prospective tutor demonstrates his/her level of computer literacy in various packages) ▪ The interview addresses soft skills (individual management of academic programme related to work-study programme)

Two examples of customised courses that went through this process and are currently being delivered (in the Faculty of Economic and Management Sciences) are: (i) first-year students are taught ICT skills while emphasising learning outcomes of academic writing modules

(using ICT tools), such as Academic Literacy for Business/Commerce, with emphasis placed on editing and managing documents as well as the basic use of spreadsheets to perform related financial calculations and data manipulation; (ii) second-year students studying specific academic programmes such as B.Com Financial Accounting focus purely on the intermediate use of spreadsheets as a curriculum requirement of relevant professional bodies. This cohort applies spreadsheet skills to solve industry-related problems linked to their academic programmes, while the B.Com Information Systems students make use of the Project Management tool (MS Project) to integrate theories of Project Management with the ICT tool offered by the DAL Team, again aligned to company needs. The same approach is followed by students making use of the structured database design and management tool (My SQL). Therefore, while the DAL does teach Microsoft® Office® packages, each course is extensively tailored to the requirements of specific faculties, and is delivered in such a way that it supports the development of specific skills as required in different fields of study.

The team responsible for the delivery of the DAL Programme consists of four diverse professionals who add value to the programme according to prior professional development and academic background. The programme coordinator's primary responsibilities include design, development, production and management of DAL courses, which involve the integration of ICTs into academic programmes. The complexities of the DAL courses and volume of students trained requires the coordinator to provide and maintain operational systems and procedures that enable the team to perform their allocated work effectively. This includes the design and deployment of custom made application software which is used to enhance administrative and operational efficiency in the delivery of the course. During the design phase, specific sets of rules which govern the administration processes of the Digital Academic Literacy Programme were considered and embedded into the engine which runs this application. Currently, the application is used to manage student activities, track and monitor progress, identify students who are struggling in class, as well as the management of training schedules of Facilitators and Tutors. The three facilitators are responsible for assisting the coordinator and for assisting in the planning, implementation and monitoring of courses and eTools. These enable students and tutors to use learning material appropriately in an eLearning environment.

As mentioned, the DAL Programme also incorporates tutors to offer additional human resources to the team to support student training. These are generally senior students who demonstrated proficiency in the use of ICT packages during the recruitment process and are thus employed through the university's work-study office to complement the DAL Team. Officially, these students are classified as tutoring assistants by the work-study office, since they are not responsible for teaching, but rather for co-facilitation. However, the tutoring assistants (hereafter called tutors) assist the team during student training by attending to students who are struggling during class, trouble-shooting challenges experienced by students and drilling down specific concerns of students, and providing consultation support to address specific ICT challenges of students. The tutors also provide administrative support to the team. In recent years, the extent of administrative involvement by tutors has however significantly reduced as a result of the use of Integrated Data Processing and Management Systems adopted by the DAL Team, which further automate administrative processes. However, tutors are still a key component in the success of the programme, and during 2014, 16 tutors were employed. Therefore, rigorous recruitment processes are followed, accompanied by on-going support throughout the employment period of successful candidates (usually lasting one year, although some tutors remain longer). In fact, the current

DAL coordinator joined the CIECT Team in 2007 as a Tutor and progressed through the ranks to the coordinator role.

Prior to commencing their tutoring duties, all tutors receive mentoring and training, with continuous support throughout the academic year in the form of one-hour training sessions per week. These smaller weekly training sessions are offered rather than a single once-off session at the start of the year for three primary reasons: (i) the tutors are also students, and it is not possible to offer longer training prior to the commencement of the programme (they are allowed into their residences a few days prior to the commencement of academic term); (ii) the content will still be fresh in their memory, by the time they are expected to recall it, since it is easier to recall something from a week before than from months in the past; and (iii) the tutors are already computer literate, thus the training is a brush-up of what they already know, plus a few functionalities as relevant for academic purposes, as opposed to entirely new material.

Students enrolled in the DAL Programme (across all faculties and 13 departments) - attend class once a week for an hour. One facilitator and a minimum of two tutors are present in each class, although tutor numbers are adjusted based on the size of the class. Outside of class times, all students are encouraged to attend consultations with tutors to gain further clarification, and deeper understanding, of the material taught in class, based on their individual needs. At the end of each class, the Integrated Data Processing and Management System designed by the programme coordinator asks each student to indicate their understanding of the material taught (for example Microsoft® Excel®), and based on their responses, additional encouragement to attend consultations is offered. Then, at the end of the consultation, the system again asks the student to indicate their understanding of the material, updating their previous response with the new one. This system has proven extremely useful, since it allows the facilitators to focus more on students who lag behind their classmates and, even though attendance is voluntary, to impress upon them the importance of booking a consultation with a tutor as often as they need. Consultations take place in a single venue, where facilitators also gather between classes. Tutors indicate their availability ahead of time on a timetable, and in the venue several different consultations can often take place at once. In the following section, various aspects of student or peer tutoring are investigated, before delving into the methodology and research questions.

3. LITERATURE REVIEW

While it is true that students have been contributing to the education of their fellow students since ancient Greek and Roman times, there has been a renewed interest in "peer-mediated instruction" in HE since the 1970s [9]. To a large extent, this increased interest is the result of the growing emphasis placed on both quality and cost-effectiveness in HE, given the pressures on the sector globally to increase student numbers while coping with static or even diminishing resources [10,11]. However, this is not a new phenomenon, and even in the early twentieth century, [12] remarked that at Princeton University, "with the rapid student growth there came to be less and less attention given to the individual student's needs and more and more dispersion of the individual students in the masses of their fellows". This observation has particular resonance with the experience at UWC more than a century later, as pressures mount for increased participation in HE in the South African context, particularly by formerly marginalised groups. Indeed, as UWC's IOP reflects, there has been a steady increase in student numbers over the past few years, with increasing pressures to accept more, guided by enrolment targets. Peer tutoring is a particularly important tool in responding to this

challenge, which [10] calls the "dual requirement to improve teaching quality while doing more with less".

Providing a clear definition of peer tutoring is particularly important given the inconsistencies that pervade the use of terminology in this field [13]. [13] observes that at its core, peer tutoring encapsulates an equality of both status and merit between the tutor and the tutee, although this is often not the case when more advanced students tutor less advanced ones. As a result, [14] conceptualise peer tutoring as education provided by more experienced or knowledgeable individuals to others with less experience or knowledge from a common social group or standing. This provision can be either unpaid or paid, with the former more common in school settings, and the latter more common in college and university contexts [15]. At UWC all student tutors are paid an hourly rate through the Work-Study office, and work on a part-time basis.

Drawing from a common social group or standing – the student body – is an important strength of peer tutoring, since the tutors speak the "language" of their peers and are more likely to be seen as credible role models given their membership of the same peer group [16]. For [17], this facet is particularly important from the perspective of sociocognitive learning theory, which regards knowledge as socially constructed. When peer-mediated learning takes place, the cognitive partnership that is created tends to be more egalitarian, meaning that cognition is more evenly distributed and a mutual appropriation can take place by both partners. This is because the learning task's cognitive demands are shared in a reciprocal fashion since, for example, a question may lead to a particular response, which leads to another question or comment and so on, meaning that each partner becomes dependent on the understanding and response of the other. This thinking and learning process is thus "transactive", with a mutual exchange occurring between tutor and tutee, and with both learning as a result [17]. This exchange is facilitated by the cognitive congruence of the student tutors with the student tutees, allowing them to understand the difficulties encountered by their peers more readily, and to respond in a more effective manner [18].

The primary tasks of peer tutors are summarised by [9] as twofold: to facilitate their fellow students' learning processes, and to assist those students to interact in an effective manner, thereby ensuring that the learning process keeps progressing. In addition, to be effective, any education provided should encompass all three areas or facets of learning: knowledge, attitudes, and behaviour, thereby emphasising the importance of fostering professional, responsible and helpful attitudes and behaviours among tutors, along with their knowledge training [16].

Apart from addressing the need to accommodate more students without a concomitant increase in resources, [10] identifies four distinct advantages to using more advanced students to tutor less advanced ones. Since the focus of any educational endeavour must be placed first and foremost with the learners, or 'clients' of the HE sector, it is fitting to start there. The primary advantage to the learners themselves is the reduction in the student-instructor ratio, with an accompanying increase in "active, interactive and participative learning", opportunities for feedback and engagement, and opportunities for learners to make mistakes and to be corrected. As mentioned above, there is also a possibility that social isolation in the learning environment can be reduced, especially when viewed from a social-psychological perspective, since peer tutors can prove to be both less authoritarian and more understanding of problems experienced by their peers in their learning activities. Given their close contact,

the tutors can also be more interested in the individual identities of their tutees, and more approachable to them.

A second advantage identified by [10] entails the economic benefits of freeing staff (for example with administration) to focus on the full range of their responsibilities while simultaneously teaching larger numbers of students in an effective manner. A third advantage is political in nature, and revolves around the promotion of a more democratic model of teaching-and-learning that empowers students with the skills necessary to assist in the management of the learning process, instead of making all learning dependent upon traditional authority figures. Indeed, [15] remarks that the use of student tutors can bring about a change in the "social-psychological climate" that, in turn, can lead to a reduction in dissatisfaction or unrest among students due to the breaking down of the "typical hierarchical structure" [19,10].

Finally, and of particular relevance to this paper, as suggested by the transferal of skills to tutors, the greatest beneficiaries of peer tutoring may be the tutors themselves. As [10] explains, successful tutoring (and teaching in general) entails cognitive processes and challenges that reach beyond merely acquiring information and sharing it with others. Even preparing to tutor raises challenges of reviewing knowledge and skills, and necessitates heightened levels of attention and motivation. Indeed, referencing a study by Annis (1983), [10] notes students who were trained to educate their peers "performed better on higher order conceptual understanding … [and] perceived their experience as more active and interesting." [10] identifies a positive impact of tutoring on both tutors and tutees, reported in several studies although, like the present study on DAL tutoring, most rely on subjective feedback from participants.

It is, however, also true that peer tutoring can entail several disadvantages. [10] identifies six such drawbacks, starting with the time consumed by the design of the tutoring programme and the selection of the tutors (as seen through the process highlighted in Table 1). This is followed by the actual training of the tutors and the fostering of the skills (including behavioural and attitudinal skills) they will require to be successful. Third, such a programme may, over the short term, entail increased costs, albeit with decreasing costs and increasing effectiveness over the medium and longer terms. Fourth, the education provided by peer tutors may be inferior in quality when compared to that provided by a professional teacher-educator, emphasising the importance of training and monitoring of the quality of tutoring, which can, in the fifth instance, further consume resources. Finally, even with adequate training, a tutor's level of understanding of the content being taught is "likely to be less" than that of a professional teacher-educator staff member, although in the DAL Programme's context, prospective tutors are thoroughly assessed as part of the recruitment process.

With a recognition and awareness of these purported advantages and disadvantages, it is notable that although peer-mediated education, and student tutoring in particular, are extremely common in HE, [20] note a relative dearth of outcome evaluations that focus on the impact (whether advantageous or disadvantageous) on the peers or tutors themselves. They note, in line with [10]'s observation above, that most of the evidence suggesting that the benefits of peer tutoring may be greatest for peer tutors consists of anecdotal testimonials, and they identify a need for more studies measuring the impact of peer-mediated education initiatives on the peer educators themselves [20]. While more than a decade has passed since these comments were made, they remain relevant especially given that tutors are, after all, students themselves and thus clients of the HE system, and the impact of their tutoring

activities on their success as students continues to require reflection. This call is strengthened by [21], who note with concern the "relative paucity of the evidence base" that supports the claims of peer education successes. They also observe the need for an evidence-based practice that demonstrates the impacts of peer education initiatives in HE, in a way that subjects them to a "rigorous assessment of effectiveness" [21].

This is the call that this paper serves to provide an initial response to, within the specific context of the impact of the tutoring that takes place within the DAL Programme at UWC. While [10] insists that further research on this topic assess not only narrow subjective participant feedback, but also broader issues of achievement and academic success while increasing rigor by including control or comparison groups, this paper will indeed start this process by reporting on the subjective feedback of the student tutors, as a departure point. Follow-up studies could then expand the scope of enquiry by paying close attention to the differences in achievement between tutors and non-tutors, longitudinally measured.

4. METHODOLOGY

As mentioned, the IOP of UWC specifically requires evidence of the impact of each programme and intervention, particularly on student learning and development. Accordingly, the main research question of this study asks: What is the impact of tutoring activities in the DAL on the learning, development, and skills of the tutors? Stated more broadly, has the tutoring contributed to student development, with reference to the tutors? Additionally, related to these, how have the tutors impacted and supported the DAL programme, the students it serves and the facilitators? This paper represents the starting point in this investigation, with follow-up studies planned to expand the scope of enquiry further, particularly to the students enrolled in the DAL; as well as the current need of digital natives who still require basic digital academic literacy skills.

This study adopts a mixed-methods approach to investigate the impact of tutoring in the DAL programme. This approach was selected since it promotes a "more holistic understanding" of research problems in a complex social setting [22]. In particular, between-method triangulation was used, combining the results of surveys, interviews and field observations to examine the nature of tutoring in the DAL. Furthermore, the research was extensive rather than intensive in nature, since the aim was to uncover "common properties and general patterns of a population as a whole" (Sayer, quoted in [22]). Of the purposes of a mixed-method design, the one most aligned with the goals of this study is complementarity, which entails a combination of methods to measure different facets of a situation, as well as those that may overlap, again to foster a more holistic view of the phenomenon under investigation [22]. The qualitative dimension of this study is best expressed as a cross-sectional descriptive case study that makes use of field observations, interviews and a questionnaire. The supporting quantitative data were also drawn from the questionnaire, as well as from a semester-end student evaluation survey administered by the DAL team to students enrolled in the programme.

4.1 Sample

The population from which the sample was drawn included, first and foremost, the 16 tutors who were employed in the DAL programme in 2014, in the second semester. This group consisted of 11 female and five male students, with three on a second-year study level, nine on a third-year level, and four on a four-year level. They were thus predominantly senior

students, emphasising the scaffolding approach taken by CIECT in the appointment of the tutors. Most of the group (five) were studying B.Com or B.Com Finance, three were studying towards a B.A., and the rest were from a variety of fields including Law, Computer Science, Social Work, Natural Medicine, or Development Studies. Of the group, a majority (56.25%, n=9) agreed to take part in this study.

Secondly, the sample included the three facilitators who assisted the DAL Coordinator in the implementation of the programme. Given their close contact with the tutors, and their knowledge of the tutoring process, their input was crucial in forming a more holistic picture of the impact of tutoring. Finally, although not created for the purposes of this research, the semester-end evaluation form given to students enrolled in the DAL in the second semester contributes valuable insight regarding the tutors, and it was completed by 286 students (out of 1271 in total).

4.2 Data Collection

Prior to the commencement of data collection, the entire project was registered and approved by UWC's Senate Research Committee, which carefully scrutinised the inclusion of human subjects in this research. The data collection process then took place during the third and fourth academic terms of 2014 (the academic year at South African HE institutions spans from February to about December, depending on the exam period). In the first instance, one of the researchers, together with the DAL coordinator, explained the purpose of the research project to the tutors during one of their weekly team meetings. The same researcher then conducted, with the approval of the DAL coordinator and facilitators, a series of field observations by sitting in on five random student training sessions over a two-week period. The purpose of this was to observe the activities of the tutors in a class setting, and to identify the levels of support they provided to the facilitator or coordinator teaching the class.

The next step took place during another of the weekly tutor meetings, when detailed information sheets expounding the purpose, duration, ethical considerations, and intended contribution of the research project were disseminated to tutors, along with full contact details of the research team and avenues for further clarification or comment. In the following week, the self-administered questionnaires and consent forms were distributed to all tutors, with a strong emphasis on voluntary and anonymous participation without consequence should they refuse to participate. All researchers strongly concurred that tutors would be protected from undue pressure, and that the university's Research Ethics Policy would be adhered to at all times. Additional questionnaires and consent forms were made available to tutors in the venue where they usually consult with students, and further weekly meetings were used to remind the tutors of the questionnaires, and the value of their feedback should they decide to participate. After completion, the tutors submitted the questionnaires in a box that was placed in the same secure venue, under care of the DAL coordinator, after which they were delivered to the CIECT research office.

Simultaneously, the same researcher who observed the class sessions conducted one-on-one interviews with the DAL facilitators, without the coordinator being present, and with full adherence to ethical procedures. Participation was again voluntary and facilitators were free to refuse participation if they so chose. However, all agreed to take part, and completed consent forms before the commencement of the interviews.

The final phase of data collection took place at the end of the fourth term, when the students who were enrolled in the DAL during the second semester were asked to complete their course evaluation forms detailed in section 4.1. This took place in the normal fashion, with the goal of improving the delivery of the DAL, but special attention was placed on asking feedback on the consultations provided by tutors, and their assistance during classes. This was done to obtain a cursory insight into the perceptions of the students regarding the tutoring they received, although a future study will be undertaken to investigate the impact of the DAL as a whole on the students, and their perceptions of it.

4.3 Instruments & Data Analysis

For the tutors, a questionnaire was developed featuring a total of 21 items. A combination of closed and open questions was used, nine of which were contingency questions, with the final item consisting of 20 statements arranged in a matrix table with Likert scale responses. The closed and open questions were arranged in four parts: (i) measuring demographic and academic background, (ii) understanding of the purpose and importance of the DAL, (iii) training and skill development during employment, and (iv) perceptions of the broad impact of the tutors on the DAL and vice versa.

The Likert scale matrix measured general perceptions regarding the DAL, with some items scored in reverse to avoid a response set. These multiple indicator measures served to increase the instrument's construct validity and equivalence reliability. For instance, matrix question L states: "I regret becoming a tutor in the DAL program". A response of "strongly disagree" or "disagree" would suggest that the respondent's reply was genuine if they stated "yes" to question 18, which asks: "Do you believe that your tutoring experience in the DAL has better prepared you for your future career, or contributed to making you a more desirable candidate when applying for a job?" Most of the closed items featured an open element for the respondents to expand on their answer, which aimed at extending the authenticity of the account in order to, as [23] states, represent a "fair, honest, and balanced account of social life from the viewpoint of someone who lives it everyday". The questionnaire is provided in Appendix A, for reference.

The interview schedule that was developed for the DAL facilitators consisted of 18 open-ended questions, arranged in two broad areas. The first, consisting of five questions, dealt with the DAL Programme itself, and the role of the facilitators within it, while the second, consisting of 13 questions, covered the various facets of tutoring in the DAL. For example, question 13 asks: "Do you believe the tutors' involvement in the DAL programme affects their academic performance? If so, how?" The semi-structured interviews were recorded and transcribed, and in some instances led to follow-on questions. The interview questions are detailed in Appendix B.

Finally, four questions included in the student semester-end evaluation forms asked for student perceptions and satisfaction with the tutoring they received (detailed in Appendix C). These were all closed questions with multiple response options, for example, "Did you make use of the consultation service offered by DAL staff?" with the available responses being: (i) never came, (ii) came to a few sessions, (iii) could not attend any of the sessions due to time-table, (iv) attended some consultation sessions, (v) I had no need to attend sessions.

From these instruments, data were extracted in a deductive or 'theoretical' manner to provide a "detailed analysis of some aspect of the data" [24]. The data were analysed for themes,

which [24] describe as "some level of patterned response or meaning within the data set." The aim was to, as [25] recommend, "identify any and all consistent patterns… [with] [t]hemes based upon like topics or issues within each concern category".

4.4 Limitations

The primary limitation of this study was the limited population and sample size. However, with a sampling ratio of just over 56 percent, the representative validity of the sample remains high, as will be discussed in greater detail in the following section of this paper. While no doubt present, the sampling error should therefore be limited. It should however be noted that ten completed questionnaires were received, but one lacked a signed consent form, and further requests to complete this form were unsuccessful, and thus for ethical reasons this questionnaire could not be used.

Another major limitation was that all data regarding the impact of the tutoring on the tutors were drawn from subjective participant feedback, as is the case with most studies on peer tutoring reviewed by [10]. While being fully supportive of the call to expand the scope to monitoring academic achievement changes in a longitudinal study with control groups, the position that is taken here is that it is nevertheless valuable to start the investigation with the participants' feedback. Thus, while subjective self-reports may have limited generalisability without direct measurement of changes brought on by tutoring, there remains an inherent value in gaining direct feedback from the individuals under study. Expanding the parameters can therefore be left to the purview of future studies.

In addition to these, it is possible that the presence of the DAL coordinator on the research team (and who also teaches courses) could have deterred the tutors from expressing critical views of the programme or their role within it. However, since the questionnaires were self-administered and completed anonymously, this effect should be limited. It is also possible that some students may have been unwilling to participate due to the commencement of the exam period at the end of the academic year, with the heavy load of studying and tutoring in this period.

Lastly, a few respondents skipped a question or failed to elaborate on a contingency question when asked. While any missing data weakens survey research, this was rare and will be declared in the discussion below. These limitations serve both to emphasise the challenges associated with research in a complex Higher Education environment, and the importance of grappling with these through the research process.

5.   RESEARCH FINDINGS AND DISCUSSION

Several broad themes emerged from the data. These are discussed below, following a brief overview of the sample demographics. The first set of themes revolves around the impact of the tutoring on the tutors, while the second set focuses on the impact of the tutors on the DAL Programme and the students it serves.

5.1 Demographics of Tutors

As stated previously, the representative validity of the sample is high, as will be shown by a comparison of the total sample population and the participants. Of the nine tutor participants, 66.6 percent were female (n=6), versus 68.75 percent in the larger tutoring population (n=11).

Similarly, 66.6 percent of the sample reported that they were in their third year of study (n=6), versus 56.25 percent of the total number of tutors (n=9). One respondent reported being in their second year of study (11.11%) and another reported being in their fourth year (again 11.11%). Comparably, 18.75 percent of the total population was in their second year (n=3), while 25 percent are in their fourth year (n=4). The sample also represents a range of faculties and study areas, with the majority studying towards a B.Com (44.44%, n=4), with the rest from a variety of fields, including Law, Computer Science, or BA Sociology.

The majority of the sample (55.5%, n=5) had been tutoring in the DAL program for a year or less. One response stated one and a half years, with only three stating they had been tutoring for two years, meaning these were experienced tutors from 2013 who decided to return to the programme. Of the larger group of tutors, only three had tutored for two years, and one for a year and a half, and therefore the sample includes all of these more experienced individuals. Along with the newer tutors, the sample thus represents a good balance in terms of experience.

An important aspect of demographics, especially in the context of South Africa, is race. Under Apartheid, all racial groups not classified as White faced discrimination and limited opportunities, including in educational development, but with the advent of democracy the African National Congress (ANC) government placed a strong emphasis on the empowerment and inclusion of formerly marginalised groups. This is evidenced by the Broad-Based Black Economic Empowerment (BBEEE) Act of 2003, which strongly encourages the promotion of opportunities for Black citizens, defined in the Act as "a generic term which means Africans, Coloureds and Indians" [26]. The National Development Plan [6] echoes this by emphasising that "[t]he long-term solution to skewed ownership and control [in the economy] is to grow the economy rapidly and focus on spreading opportunities for black people as it grows." Of the sample group, 100% considered themselves to be Black (in the BBEEE sense). This is largely due to the student profile of UWC, as an HDI in the South African context, but nevertheless means that the skills and experiences gained through tutoring directly contributes to the goals of BBEEE. Moreover, it is notable that the majority of the tutors are female, further supporting the skills aspect of the goal expressed in the BBEEE Act [26], of "increasing the extent to which black women own and manage existing and new enterprises, and increasing their access to economic activities, infrastructure and skills training [emphasis added]". This is particularly significant, since the ICT industry in South Africa has not become more equitable in terms of gender representation, and female graduates with solid ICT skills are needed [4].

5.2 Perceptions of Tutors and Facilitators of the DAL Programme

Following from the demographics, in order to gauge the impact of tutoring on the tutors, a useful starting point is identifying the perceptions of the tutors regarding the main purpose and value of the DAL Programme. Two open-ended questions were posed in the questionnaire relating to these, as well as one statement in the matrix table. The first question asked, 'What do you believe is the main purpose of the DAL Programme at UWC, and what do you think is the importance of this purpose?'. All respondents replied to this question, and all identified a very similar purpose. Some of the responses were: (i) *"To help disadvantaged students to keep up with their peers and those who already understand computers to understand them better"*; (ii) *"To equip students with the necessary computer skills/courses that will aid them in their respective courses"*; (iii) *"to help students acquire computer skills"*; (iv) *"coming from high school and into University where almost everything is done using*

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computers can be challenging for most students. DAL facilitates that transition to better equip students in basic computer literacy"; and (v) "*To enhance the student's computer literacy, whether there is a little or none at all*". As to the importance of the DAL, two did not directly respond, while the seven who did all indicated that the DAL was important for enabling students to complete their assignments and succeed in their studies, with two making the additional connection to succeeding in their careers as well. Responses included: (i) "*With the DAL programme, students can pass/achieve other modules with ease*"; (ii) "*in order to enable them to do their assignments*"; (iii) "*for students not to struggle with their assignments and test*"; (iv) "*to prepare them for their studies and workplace*" and (v) "*it is VERY IMPORTANT because computer literacy is needed in both study life and in work (career) life*".

The second open-ended question related to the first, and asked "What do you believe would be the consequence for UWC's students if the DAL Programme was no longer offered, or if it could only train smaller numbers of students?". Although [23] advises against asking questions about hypothetical circumstances, and cautions that questions about future intentions are unreliable predictors of behaviour, this particular question nevertheless again explores the perceptions regarding the importance of the DAL. Therefore, it constitutes a multiple indicator measure. All nine responses indicated strongly negative outcomes if the programme were scrapped or scaled down, potentially impeding the university's throughput of students. Some of these responses were: (i) "*Students from disadvantaged schools would suffer because like me, it is through programmes like the DAL that made me to understand computers better*"; (ii) "*Their marks would drop and learning would be difficult and boring, as every course at UWC revolves around the programme offered by DAL*"; (iii) "*I believe many students will face a great difficulty since most of them come to university without computer skills and all the school work require computer skills*"; (iv) "*Students will not produce good, well-prepared assignments. They may struggle to find jobs because of not being computer literate*"; and (v) "*Students would greatly suffer. Academic life based on both the old school method (books) and new-age method (e-skills). Students would have a tougher time adjusting to university life, especially those from disadvantaged backgrounds*". Two points emerge from these comments. The first is that many tutors took the DAL course as first-year students, and in response to the question "In the past, have you ever taken a course like the one offered by the DAL Programme?", a majority (66.67%, n=6) replied yes. This adds credibility to their assessment of the value of the DAL, since most of the sample had completed the course as students, and could thus see and experience its value and impact directly. The second point is that without the DAL programme, it would mainly be students from disadvantaged backgrounds who would suffer, since they would lose an opportunity to gain formal computer skills training.

The facilitators also shared their perceptions of the importance of the DAL Programme and basic computer skills for students, particularly those entering university for the first time. One facilitator commented on the ultimate goal of digital academic literacy: "*so they're able to … word process their assignments … it is often assumed that all student[s] should know how to type their assignment and all of that*". Another reinforced this point, emphasising the gaps in ICT training at school level:

> [students] *won't be able to complete their studies efficiently without having basic computer literacy. There are students that … come from different backgrounds. There are those that did CAT* [Computer Applications Technology] *at high school … but there are those that have really never even worked on a computer. So we largely cater*

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for those people because it will be impossible for them to complete their degree or their studies if they cannot type their assignments, if they cannot go onto Ikamva [the Learning Management System of UWC] *and do their tests.*

Finally, the third facilitator highlighted that the responsibility for closing this gap in digital competency rests with the DAL Programme, and that the importance of this cannot be overstated:

Now what we've got to understand is that expecting a student – or a first-year student – who does not have any experience with computers, to be highly efficient in his tasks as a student, that expectation is almost ludicrous… and there therefore exists this major, major technological gap at UWC. So somebody has got to facilitate that transition the student makes from a being novice computer user to being a good computer user leading on to becoming a great computer user … and the DAL programme is [a] programme [at] UWC [that] actually addresses that particular need.

Returning to the tutors, one of the matrix table statements posed the following: 'The DAL Programme is a vital part of the UWC curriculum'. All tutors indicated agreement, with the majority (66.67%, n=6) strongly agreeing, and three agreeing. It is interesting to note that all tutors who had been tutoring in the DAL for over a year fell into the group that strongly agreed with this statement, and indeed for one of the senior tutors this was the only matrix table statement with which they strongly agreed. It is therefore plausible that the perceived value of the programme increases with the amount of experience of it, adding further confirmation as to the importance of the programme for the university and its students. Ultimately, it is visible from these three questions that there is unanimity among all tutors in the sample group as to the value and importance of the DAL Programme, reinforced by the personal experiences of a majority who completed the DAL course as first-year students, and by the insights of the more experienced tutors.

It is also important, particularly in light of improving the DAL, to investigate the tutors' perceptions regarding their training and mentoring, and their overall relationship with the facilitators. One question in particular asked: "Do you believe the DAL facilitators adequately trained and prepared you for your tutoring duties?". Eight tutors responded with yes (88.89%), and one with no. When asked to elaborate on a negative response, this tutor commented that "*tutors should undergo training and get certification rather than the one hour preparation*". As discussed in the introduction, tutors receive training and preparation prior to the commencement of their duties, as well as an hour of training per week. Unfortunately, there are several barriers precluding the certification of tutors at present. These include the fact that some of the tutors do not remain with the DAL for the entire academic year, as well as the reduction in their work complexity since they are not required to teach. The introduction of the Integrated Data Processing and Management System has also eased some of the administrative burden on the DAL team, especially in relation to the management of large classes.

Finally, the overall relationship between the tutors and facilitators was explored by several matrix table statements. The statements and responses were: 'The DAL facilitators take my needs into account when assigning duties' – two Strongly Agree and seven Agree; 'The facilitators keep me informed and in the loop' – one Strongly Agrees, seven Agree, one Neither Agrees nor Disagrees; 'I found the facilitators to be uncaring' – four Disagree and five Strongly Disagree; 'The facilitators listen to my concerns' – one Strongly Agrees and

eight Agree; and 'The DAL facilitators help me whenever I encounter problems in my tutoring' – two Strongly Agree and seven Agree. The overall picture emerging from these responses reveals very positive perceptions regarding the programme, facilitators and the training and support provided to the tutors, ensuring that the tutors' journey through the DAL is as beneficial to them, and the students, as possible.

5.3 Impact of DAL Tutoring on Tutors

5.3.1 Financial impact

In the literature on peer tutoring, one of the stated benefits of many peer tutoring programmes is to "provide financial assistance through part-time employment of students" [27]. Indeed, [28] note that "employed students would probably be more likely to pay for their own studies, from which it could be inferred that they tend to be more diligent and committed". While those authors remarked that this inference would have to be investigated in more detail, two of the matrix table statements focused on the financial aspect of tutoring in the DAL Programme. Since tutors are paid on an hourly basis, and given the claim made by [28], the aim was to identify whether tutors feel they are paid fairly, and whether they rely on the money to pay for their studies. The first statement was 'I am paid fairly for my work as DAL tutor'. It should be noted that the interpretation of the term 'fairly' is highly subjective, but the question nevertheless aimed at broadly gauging the views of the tutors regarding their payment. A majority (55.56%, n=5) indicated Neither Agree nor Disagree, while three (33.33%) stated Agree. One provided no response. Indeed, of the 20 matrix statements, this was the only one where a response was not provided. This may be due to the sensitive nature of the question, or because the respondent did not wish to provide a negative response. The fact that the majority neither agreed nor disagreed is suggestive in itself, and may again indicate a reluctance to provide a negative response, since it is unlikely that such a large proportion of responses would be apathetic regarding money. However, the three responses indicating agreement do suggest that there is some satisfaction with the payment.

As for the second statement ('I rely on money I earn from working in the DAL to continue my studies'), a majority agreed (55.56%, n=5), one strongly agreed (11.11%), and three disagreed (33.33%). It is thus clear that apart from any other impact, their tutoring did contribute to the continued studies of the majority of the sample group. Linking this with the above-mentioned assertion of de Hart et. al., it is possible that this income in turn made the tutors more diligent and committed to their studies, although again it should be cautioned that this claim needs further investigation. However, any financial contribution to the continuation of the tutors' studies is welcome, and may further aid with the development of budgeting skills, especially among tutors who are working for the first time. This also links up with their professional development in general, and as a facilitator noted, they often emphasise general professionalism among the tutors, and foster an environment that is "*professional but friendly*".

5.3.2 Impact on studies

A major area of impact of tutoring in the DAL is on the tutors' studies. It is important to recognise, as one of the facilitators noted, that "*their priority is their studies*". Therefore, the most crucial area of impact to be investigated is their studies. The importance of this is further emphasised by UWC's IOP, as it sets out clearly in Goal 1 (Strategy 1) that students must have ownership of their learning. Three questions in the survey explored this area, and

two matrix table questions also linked directly to it. It should be emphasised again that the study impact indicators were drawn from the subjective participant feedback of the tutors. However, as stated before, this can provide a valuable overview, with future studies measuring differences in achievement between tutors and non-tutors, longitudinally.

A useful starting point is to determine the main duties of the tutors, and whether they believe that these duties are at all related to their studies. It is reasonable to assume that those tutors who believe their tutoring work to be closely related to their studies, would be more likely to report a positive impact on their academic achievement. When asked to describe briefly the main functions they perform, eight out of the nine responses reported consultations with students, seven mentioned administrative work, six mentioned assisting or invigilating during class, one reported assisting with the coding of a software programme that helps with database management (designed by the current coordinator), and one reported familiarising students with computers. Apart from the material being tutored, it is therefore clear that communications and organisation skills play a big role in tutoring, as well as being critical to academic success. First, when asked whether their functions are at all related to their studies, six tutors (66.67%) replied yes, and three (33.33%) replied no. Five of the tutors who answered yes provided an elaboration explaining how, and these all revolved around applying technical skills. Responses included: (i) "*Excel is quite prevalent in my field of study. Consulting with students about excel and other packages as well, has broadened my understanding of software applications*"; (ii) "*Yes, I am currently studying Information Systems which includes basic computer skills*"; and (iii) "*To help students, I have to ensure I keep myself up to date with MS Office. This helps me to efficiently complete my assignments*". The tutor who assists with the Integrated Data Processing and Management System software designed by the current coordinator added: (iv) "*the application helps me improve my programming skills and to understand databases more*".

A second question asked the tutors, 'Do you believe you have derived any benefit, other than payment, from your work as tutor in the DAL?'. While not directly referencing their studies, the responses nevertheless highlight positive gains that can contribute to academic achievement. All nine tutors responded yes to this question, and provided elaboration when asked 'If yes, please describe the benefit/s'. The majority of responses (55.55%, n=5) highlighted gains in technical skills, and the following comments were provided: (i) "*I have gained more knowledge about the computer programmes offered by DAL*", (ii) "*I have better understanding of the Microsoft packages*", (iii) "*I have had an advancement in my computer skills*", (iv) "*It broadened my understanding & knowledge of the various MS packages taught*" and (v) "*Broaden my computer knowledge. Enhance my computer skills*". These responses suggest that by assisting others to gain skills, tutors themselves also strengthen their own skills. These technical abilities can in turn assist the tutors in their studies, particularly where these involve working with Microsoft® Office® packages.

A further four responses (44.44%) referred to gains in communication skills and confidence. Two responses indicated gains in both technical ability and communication skills as well as confidence. The responses here were: "*I gained lots of skills and confidence to speak to crowds because with DAL not only we do the tutoring but help with facilitating when the facilitator is not present*", "*I also gained some skills in presenting in front of a group of people, e.g. in a class*", "*Communication skills*", and "*Boosted my confidence to speak to many students at a time*". Communication skills and general gains in confidence are positive contributions since these are necessary to succeed in all fields of study, and especially to perform well in group work.

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The last two responses indicated other positive impacts: "*I have been encouraged to do research and investigate aspects that I do not understand better, be it on a particular software, academically or for personal purposes. Being in the DAL programme as a tutor has helped me to grow*", and "*I have learned patience, and that we are not all the same, some student you need to be on their space and make them understand that they have to be calm, we all learn, and that we do not wake up and know something*". Along with patience, research skills are highly valuable, and can make important contributions to academic success.

The third question related closely to the second, and asked 'Do you feel you have gained any new skills (ICT or others), or improved any pre-existing skills, as a result of your tutoring in the DAL Programme?'. Again all nine tutors answered yes, confirming the previous results. When asked to elaborate, the majority (six responses, 66.67%) referred again to technical skills, such as (i) "*Word processing skills*", (ii) "*Microsoft excel commands*", (iii) "*I have learnt to use Microsoft project*", (iv) "*ICT – learning during tutor's training*", and (v) "*I had skills before, but I have become more advanced by learning from my fellow tutors, facilitators and while the students were tutored I was also learning*". This closely reflects the responses to the previous question, and it is to be expected that in a programme conferring primarily technical skills to students, that this would be the main area of skills acquisition for tutors as well. Four tutors went beyond technical skills however, and highlighted gains in communication and people skills (44.44%): (vi) "*Presentation skills – I am more confident*", (vii) "*leadership*", (viii) "*Communication skills*", (ix) "*Communication – By learning from facilitators*" and "*Group dynamics – By interacting with fellow tutors*". Finally, like before, two responses indicated other gains: (x) "*learned to be more patient because not all students are on the same level academically*", and (xi) "*Research – Encouragement from facilitators*". Indeed, during an interview, a facilitator reflected on the importance of these non-technical skills, such as time-management: "*I believe if you had to have a job obviously, if you don't manage your time properly and all of that, it will have a negative effect on your studies. That's the way it is. But it could also have a positive effect because you have to manage your time properly, you have to have all these skills in order to keep this job and study, so I will say it can have a positive effect as well.*"

The first of the two matrix table questions stated "My work as tutor in the DAL interferes with my studies", and apart from one response in the category "Neither Agree Nor Disagree", all responses either stated Disagree (66.67%, n=6), or Strongly Disagree (22.22%, n=2). These responses could suggest that through tutoring, the tutors have strengthened time-management skills, as suggested by one of the facilitators: "*I think it's also teaching them some time management skills*". The second of the two matrix table questions stated: 'By helping other students, I feel more motivated to succeed in my studies'. All tutors indicated agreement, with five (55.56%) indicating Strongly Agree, and four (44.44%) indicating Agree. Indeed, when asked in the survey to indicate the best and worst aspects of DAL tutoring, five out of seven responses (two left the question blank) indicated helping other students as the best aspect, with responses including: (i) "*consultation time, where we help student by making own example*", (ii) "*Best aspect is when I had to help students achieve better marks in the programme by giving them advice and skills*", (iii) "*The best part is being able to help students who lack digital academic literacy skills and seeing them acquire knowledge because of my input*", (iv) "*Best – Meeting new people (students) – Satisfactory feeling when a student understands the work explained by me*", (v) "*Best: enhancing students' knowledge*" and (vi) "*The best moments are when students come back and tell you*

that you helped them understand better". Drawing motivation from helping other students can indeed contribute to better academic performance, in line with [29]'s assertion that "social interaction is the basis for cognitive growth".

The final survey question addressed the impact of tutoring on the tutors' studies most directly, and asked 'Have you noticed any difference in your own academic performance as a result of your DAL tutoring?'. The results were mixed, with five (55.56%) indicating yes, and four (44.44%) indicating no. When asked to elaborate, the five respondents who answered yes indicated improvements in time management (2 out of 5), improvements in group work (1), improving generally through consultation and tutoring skills (1), and completing assignments more easily (1). This in itself is insightful, and suggests that academic improvements may indeed largely depend on the alignment between the material tutored and the field of study of each individual tutor. When these are closely aligned, the tutor can directly apply technical skills gained, as one response indicated: "*As a finance major student, I use excel often. This enabled me to complete assignments with more confidence & do them correctly*". When it is not however, the main area of gain may be in broader (but still valuable) skills such as time management, as another response suggests: "*I now work better in group work and also I prefer doing things in groups now because I gain from others and vice versa.*" This may also be the reason that four tutors answered no to this question of academic performance, despite all nine stating they have either gained new skills or improved pre-existing ones, since the impact may not be as directly observable.

5.3.3 Career preparation

As UWC's IOP states, it is a priority for the university to promote graduate attributes that would enhance the future career prospects of students, including their skills and knowledge. Career preparation is particularly crucial in the South African context, given the high levels of unemployment (24.3% in the fourth quarter of 2014, according to [30]. Moreover, [11] emphasise that concerted efforts must be made to "ensure that students become more aware of the demands of future employers for graduates who are able to display a range of personal transferable skills", with the ultimate aim to develop their self-assessment and self-evaluation skills, which can be applied in their future careers.

Therefore, exploring whether tutoring has contributed to the career preparation of DAL tutors is important, and one question specifically asked: 'Do you believe your tutoring experience in the DAL better prepared you for your future career, or contributed to making you a more desirable candidate when applying for a job?'. Eight of the tutors replied yes (88.89%), and one replied no (11.11%). Similar to the previous questions, when asked to elaborate, the responses centred on people, communications, and problem-solving skills (4), technical skills (3), and research skills as well as general experience (2). One respondent did not reply when asked to elaborate. Responses concerning communications and people skills included: (i) "*I have learned how to orientate myself around people, and I have learned how to teach and problems that may come across and how to solve problems*", (ii) "*Improved communication skills*", "*communication, people... and problem solving skills*". Among the technical gains, tutors stated: (iii) "*During* [job] *interviews students are often asked to perform some practical tasks, e.g. using excel. DAL has better prepared me because I know much more than I did before I started working as a tutor*", (iv) "*Companies want someone with computer skills as technology has evolved the working environment*", and generally (v) "*e-skills*". Two further responses indicated (vi) "*I have gained experience in the professional world, which would make it easier for me to adapt on my next job*" and (vii) "*research skills*". Finally, two of the

responses to the question 'Why did you decide to become a tutor in the DAL Programme?' specifically stated the desire to gain experience as one of the motivating factors. As for the single negative response, the student explained by saying "*my future career is in the legal field so DAL does not prepare me for the future*". However this same student stated gains or improvements in leadership skills as a result of tutoring.

In summary, when asked for their input regarding the impact of the tutoring on the career preparation of the tutors, one of the facilitators remarked that:

> *It enhances their academic performance. It definitely makes them more employable, because they now have a track record of facilitation, management, administration process, people delivery skills – it's across the board. It just happens, it's the nature of the beast. It makes you a better person.*

Another facilitator notes the value of work experience when these tutors go out into the labour market:

> *Generally for them, some of them or most of them, it's their first kind of an employment. So when they go out there this is ... what they can reference now – they say I've worked as a tutor and then we also give them some reference letters. I always say to them we call a spade a spade, if you're not punctual you're not punctual ... that also motivates them in a way so that we make sure that whatever they do is good, because there comes a time when they're applying for jobs.*

When asked whether the skills the tutors gained through the DAL can be useful in their future careers, a facilitator also noted:

> *Absolutely. Because over and above the obvious, which are the actual computer skills, there are life skills that are acquired on this programme. Very important life skills, like deadlines, or delivery, or attitude, willingness to assist, teamwork, individual capacity work ... and there are challenges that exist in this environment, so it teaches you to deal with adversity.*

5.4   Impact of DAL Tutors on the Programme and Students

Just as it is important to investigate the impact of tutoring in the DAL Programme on the tutors, it is also important to consider their impact on the programme in return, and especially on the students served by the DAL Programme. Accordingly, in the following two sections, the impact of the tutors on the students, and the impact of the tutors on the DAL Team, will be discussed.

5.4.1 Tutoring Impact on Students

Near the end of the second semester of 2014, the students enrolled in the DAL Programme for that semester were asked to complete the course evaluation form as normally sent out by the DAL team. Out of a total of 28 questions included in this evaluation form, four questions were dedicated to student satisfaction with, and perceptions of, the tutoring they received, and also afforded them the opportunity to make any comment in general. While again relying on subjective participant feedback, these questions provide some insight into the perceived impact of tutoring on the students. Students voluntarily completed the evaluation form, and

286 responses were received out of a total number of 1271 students taking part in the DAL during the second semester of 2014, although not all 286 responded to each question. The first question explored whether the students made use of the consultation service provided by the tutors, and all 286 students responded. Five options were provided, with the following possible responses: I had no need to attend sessions (16%, n=47), Never Came (29%, n=82), Could not attend any of the sessions due to time-table (24%, n=68), Came to a few sessions (22%, n=64), Attended some consultation sessions (24%, n=68). Adding together the first three response categories, it becomes apparent that 54% of the respondents never attended any consultations, while 46% attended at least a few. Apart from time-table restrictions, and the lack of perceived need to attend consultations, a variety of factors could have contributed to the remaining 29% never attending, some of which will be explored below when regarding the general comments made by students.

The second question followed up by asking whether students found the consultations useful, and 215 replied, even though only 132 claimed to have attended one. Thus, it should be noted there is some doubt regarding the validity of the responses to this question. Nevertheless, most of those responses (82.3%) indicated that the consultations were useful: Very helpful – content was clarified for me (41.4%, n=89), Helpful – I picked up some extra tips (25.6%, n=55), Quite helpful – and I consolidated my understanding (15.3%, n=33). Only 17.6 percent indicated that consultations were either Not that helpful (n=16) or Not at all helpful (n=22). While it is not possible to compare individual responses between questions (given that the evaluation form was completed anonymously), and while no elaboration is available to indicate why consultations were not considered helpful by some, it is clear that more students should be encouraged to attend consultations, and that their concerns regarding the helpfulness of consultations should be further investigated in a future study. However, again some insights are available from their general comments below.

The third question, asking whether the tutors that assisted during consultations had adequate knowledge of Microsoft® Office® packages, drew 264 responses. It should again be emphasised that only 132 students claimed to have attended a consultation. Nevertheless, nearly all responses either agreed (68.2%, n=180) or strongly agreed (29.6%, n=78) that the tutors were knowledgeable, while only 1.9% (n=5) disagreed and 0.4% (n=1) strongly disagreed. It is thus evident that most students (97.7%) perceived the tutors to be knowledgeable, and that their technical skills (and associated training) were of a high standard.

The fourth and final question explored the role of the tutors in class. All 286 respondents supplied an answer when asked whether adequate assistance was given to them in class by the tutors. The majority (63%, n=181) stated Always, while 30% (n=85) stated Mostly. Only 7% (n=20) replied with Sometimes, and no responses were received stating Never. These findings correlate with the observations of the one of the researchers, who noted that without tutors, one facilitator alone would struggle to respond to the questions and problems posed by students during a class. For example, during a test (taken in class), the following observations were made:

Table 2. Field observation made on 26 august 2014 of DAL class writing a test

- Constant questions from students (30+) taking test – Tutors and Facilitator constantly responding to these, students don't have to wait long for help
- Several late arrivals – tutors get them settled, logged in, review instructions and get them under way
- At start of test, tutors walked around and between rows and observed the students and each computer in turn
- They also count the number of heads several times, once at start and once in middle after all students have arrived
- Constant clearing up of misconceptions and misunderstandings, tutors attentive to needs of students to get them through the procedures and actually write the test
- Tutors also pass questions on to Facilitator when they apply to the whole class and can be cleared up for all, ex. in Question 7, 'do this not this'
- Tutors are attentive and monitored the test well and very professionally, could always assist and were always busy somewhere
- Facilitator would not be able to respond to all the questions and monitor the test alone – all three were constantly busy
- Atmosphere was calm and focused at all times
- Tutors kept monitoring the late arrivals and ensured their pc's were right, and the papers collected after 5 minutes
- Facilitator never told a tutor what to do or directed them in any way, they appeared self-directed and had a clear sense of purpose and structure
- Sometimes it seemed there were not enough people to tend to all questions
- Tutors never idle
- Tutors followed up with Facilitator and returned to questioner
- Impression of well-run and organised operation
- Tutors appeared knowledgeable
- Tutors appear to have teaching skills (can explain clearly)
- There was good time-keeping
- At end some students were still working after the time was up because tutors and Facilitator all occupied with questions
- Tutors checked pcs after the test and closed all open folders – housekeeping

Accordingly, when considering the broad impact of the tutoring on the DAL students, the following general impression emerges: (i) students were very happy with the support provided by tutors in class; (ii) they considered tutors to be knowledgeable regarding the material being covered; (iii) the majority of the students indicated that they never made use of the consultation service provided by the tutors, with a quarter of the total giving no indication of time-table clashes or that they didn't need consultations; and (iv) while most students considered the consultations to be helpful, almost one fifth considered the them to be unhelpful. Therefore, the tutors had the greatest positive impact on students during class. As for the consultations, while knowledgeability did not appear to be a problem, there is nevertheless a need to understand why so many students never attended, and why so many thought the service was unhelpful. Some clues are to be found in the general comments left by the students, and all comments (original spelling and grammar) directly relating to tutoring are detailed in Appendix D.

These comments lend some insight into the perceptions of students, particularly areas that need to be improved. When they are considered in light of the quantitative data above, the initial impression regarding the knowledgeability of the tutors is strengthened (for example: "*they know their work*", "*I consulted a few times an*[d] *it really helped me too*", "*they did not leave us without knowing*", "*always assisted with a sincere heart*", and "*tutors assistance were very helpful in class*"). The only concern in this regard is the issue of consistency in the delivery of the material ("*tutor walking around did not explain the excel formula the same way the facilitator did*"). However, the main concerns were again related to consultations,

with some comments indicating that the engagement of the tutors during consultations is sometimes lacking in professionalism (for instance: "*tutors was not really that helpful and some of them have bad attitude*", "*tutors could be more patient with us*", "*the t*[u]*tors engage in an conversation and be busy in a cell phone while helping me and this makes us loose focus*", "*they got frustrated with us because we* [were] *behind*"). This can have a strongly negative impact on students, potentially putting some off from attending consultations, and along with the preference one student indicated for walk-in consultations ("*signing up for consultation was a very big down fall for me*"), this could explain to some extent why many students never attended a consultation. Future recommendations in this regard are detailed in the next section.

5.4.2   *Tutoring impact on programme and facilitators*

The most direct impact of the tutors and the support they provide to the DAL Programme can be gleaned from the facilitators who work with them on a daily basis. As remarked before, during the 2014 academic year, over 4000 students underwent DAL training, with only four permanent staff members to deliver the material (one coordinator and three facilitators). As such, one facilitator remarked that:

> [W]*e hire them* [tutors] *because the work-load involved is simply too big for four people to handle. Especially when those four people are also the facilitators on the programme … So number one, the tutors play a pivotal role in terms of the actual delivery of the programme, actual face to face facilitation is what I'm talking about. They play an even bigger role in terms of administration, because that is when this massive workload I speak of is being disseminated to individuals, so we're dividing the workload. So in terms of manageability, this doesn't happen without student tutors, you need to understand that. No way does it happen without tutors.*

Another facilitator expressed very similar views: "*The reason why we need tutors is because we are four people in the team - it will be impossible for us to execute everything*". From these comments, it becomes clear that the most fundamental impact of the tutors on the programme is to make its continued delivery possible. As already suggested earlier, one facilitator would not be able to tend to all the questions and concerns that arise during a class, not to mention ensuring that all computers are set up correctly and that students are monitored during tests. Another sphere in which tutors also have a positive impact is in administration, especially with assisting during student registration, and with quality assurance in terms of administrative processes. Thus, more than ensuring the continued success of the DAL, the tutors in fact ensure its continued existence.

The tutors were also asked about their perceived impact on the DAL Programme, with one question posing, 'Over the course of your tutoring in the DAL, do you believe that you have made a contribution to the facilitators, programme, or students that has been applied?'. Eight out of the nine respondents replied yes to this question (88.89%), and one gave no response. When asked to elaborate on this contribution, five tutors referred to helping and supporting students, and three referred to a variety of different contributions, such as supporting with the coding of the Integrated Data Processing and Management System, always ensuring punctuality and that work was done efficiently, and adding "*more energy and innovations*".

Tutors were also asked 'Do you ever feel you could contribute better to the DAL in another role?', and if so, how it would differ from their current role. Again, eight responses indicated

no (88.82%), and one was left blank, with no elaborations provided. This apparent satisfaction with the existing roles of the tutors is reinforced by the responses to one of the matrix table statements, that stated 'I am a vital part of the DAL Programme' – eight stated Agree (88.89%), and one Neither Agree Nor Disagree – and 'The contributions I make as tutor have been valued by the team' – one Strongly Agreed (11.11%), six Agreed (66.67%), and two Neither Agreed Nor Disagreed (22.22%). Accordingly, from the perspective of the tutors, it appears that almost all of them recognised that they were having an impact on the students, and the programme as a whole, and that this impact was one that was valued and positive.

5.5 Overall Tutor Impressions

Three questions were posed to tutors to gauge the overall impression of their involvement in the DAL Programme. Two of these were matrix table statements, posing 'I regret becoming a tutor in the DAL Programme', with seven tutors Strongly Disagreeing (77.78%) and two Disagreeing (22.22%), and 'I would recommend tutoring in the DAL Programme to a friend', with five tutors Strongly Agreeing (55.56%) and four Agreeing (44.44%). On the whole, the tutors therefore appear very satisfied with their work in the DAL Programme. This is supported by the responses to the final survey question, 'Briefly share the best and worst aspects of DAL tutoring in your experience'. Two tutors left this question blank. For the rest, the following constituted the best aspects: (i) "*consultation time, where we help students by making* [our] *own example*", (ii) "*being able to help students who lack digital academic literacy skills and seeing them acquire knowledge because of my input*", (iii) "*meeting new people ... [and a] satisfactory feeling when a student understands*", (iv) "*enhancing students' knowledge*", (v) "*when students come back and tell you that you helped them understand better ... [and] when we (tutors and facilitators) shared pizza after a long day ... and when there is a joyful atmosphere in the office*", and (vi) "*getting paid*". The majority of these responses centre on the assistance and support provided to students, with some reflection on the positive relationship between the tutors and facilitators.

In terms of the worst aspects, two tutors provided none, while the rest commented: (i) "*trying to help someone who does not want to be helped*", (ii) "*not having up to date and well running IT equipment ... most PCs have viruses and it makes DAL look unprofessional*", (iii) "*teaching excel to students*", and (iv) "*not getting paid on the expected date, having a lot of work to do ... and you have your own school work to do*". Of these, the IT equipment and the promptness of payment could potentially be investigated in future to improve the experiences of the tutors. Moreover, since only one response was indicated for Neither Agree nor Disagree when asked if tutoring interferes with the tutors' studies, having a heavy workload does not appear to be a major concern for the tutor body as a whole, and their overall impressions of their involvement in the DAL are positive.

Overall, these findings indicate that the DAL Programme is not only directly aligned to the fostering of desired graduate attributes at UWC, but this fostering of attributes is woven in throughout the Programme, both in terms of hard and soft skills. In the next section, the recommendations flowing from this study are considered.

6. RECOMMENDATIONS

Seven recommendations stem from this research. First, several possible follow-up studies can be conducted with regards to the DAL Programme. It is important that the CIECT team

investigate the success criteria around the Programme, especially as 13 Departments across Faculties have requested its implementation and specific customisation. Moreover, and crucially, focus will be placed on how these Departments view the impact of the efforts of the facilitators and tutors, related to the development of their students. Other future studies investigate the need for the Programme related to the debate surrounding the need for basic digital literacy skills, in a time of the 'digital natives'. Such studies can move beyond subjective participant feedback, and consider, as [10] recommends, "issues of achievement gain and parameters of successful course completion" with the use of control groups. Another aspect that can be investigated is to compare the dropout rates between tutors and non-tutors, and to investigate the possible reasons for any difference. In doing so however, [20] caution should be remembered – that students who are already "academically and personally strong" ("high-flyers") could be more likely to apply for tutoring, and be accepted as tutors, thus skewing the results of any achievement gain comparison between tutors and non-tutors.

Second, the mentoring and training processes of the tutors should be reviewed in order to address the importance of the development of softer skills (including conflict, skills and stress management, and negotiation skills). Indeed, the Registrar of UWC expressed this need aptly at a student development colloquium (12 May 2015): "*it is not enough to just give qualifications, rather provide an education to assist the students to be able to seamlessly enter the world of work*".

Third, the concerns mentioned around consultations bear further investigation, and greater attention can be paid to monitoring the interactions and behaviour of tutors during consultations. While at least one permanent staff member (the coordinator and facilitators) is usually present in the tutoring venue, it is inevitable that there will be times when tutors are left alone with students. An investigation regarding the promotion of a greater awareness of cell phone use in the venue, and the creation of a more conducive consultation environment, could encourage more students to attend. Similarly, the reasons for the nearly 20 percent of student responses that indicated consultations were not that helpful bear further exploration with the aim of improving the experience of students with the DAL.

Fourth, concerns around the state of IT equipment, and the spread of malicious software on class computers also warrant attention, as these directly impact on the performance of the students, and the ability of the facilitators to deliver the material. While CIECT does not bear responsibility for the provision and management of institutional infrastructure, this can nevertheless impact on its ability to educate large numbers of students successfully. The conducting of formal research to identify the extent of the problem can also be encouraged, especially since one of the facilitators also noted: "*my biggest issue in one of my venues is viruses*". Similarly, while not in the purview of CIECT, the recommendation can be made for a regular institutional review of tutoring assistants' payment rates, given their crucial support role in the DAL Programme. It should be noted that current remuneration levels are set by the institutional Work-Study Programme, according to qualifications. It is important that the Leadership of the institution invests more in Tutor Programmes, such as these. This is especially crucial as this paper reflects on the need for more hands-on assistance during critical assessment periods (as referred to in section 5.4.1). Furthermore, substantial investment will enable the institution to retain good tutors and encourage other students to engage in these programmes. Hence, Centres such as CIECT are able to 'grow their own timber', whereby some of these tutors can, in time, fill vacant facilitation posts. In addition, investments will enable the creation of more conducive physical learning spaces, especially for face-to-face tutorial and consultation purposes (as reflected in section 5.4.1), even though

the students and tutors are exposed to a supportive virtual environment, inclusive of innovative communication and assessment tools. This can be especially valuable since the tutors only have one venue at their disposal to conduct consultations with students, and to meet and socialise between classes.

Fifth, the researchers strongly encourage HE institutions in South Africa, and abroad (particularly in the Global South), to ensure that students are equipped with basic academic literacies. Without these, many students would be unable to succeed in their studies, or to meet the demands of the modern labour market. As revealed by CIECT's monitoring database in the introduction to this study, almost 40% of first-year students could not navigate the Windows ® desktop, and more than a fifth were unfamiliar with web browsing and basic word processing tools. This emphasises the importance of not conflating the seemingly ubiquitous ability of the generation of 'digital natives' to navigate social media with digital academic literacy. The bridging of this gap constitutes an essential scaffolding exercise in preparing students for academic success. Indeed, one of the facilitators of the DAL Programme put it aptly:

> *The true measure of a university is how many PhD students you are producing ... but for a person to get through Masters, to get through his degree, he must come through us first. ... So if you want to be a doctor, and you are one of those students with that digital need ... school starts here.*

Sixth, this study can do well to echo the calls of authors such as [20] for the generation of more research recognising that "the justification of peer programs ought to focus more on the peer educators themselves and not simply on evaluations of knowledge gains in recipients of the programs". This paper attempts to make a contribution in this regard, within the specific context of UWC, but further research in this field would be welcome. Accordingly, regular monitoring and evaluation activities in all programmes and interventions at HE level are encouraged, to ensure that expectations are met, and that the stakeholders and target audiences truly do benefit from these.

Lastly, and closely related to this, the importance of providing sufficient support and scaffolding within programmes that employ tutors and student assistants cannot be overstated. Without sufficient training and preparation, and without consideration of their needs, it will be difficult for them to benefit to the fullest extent from their experience. In the final instance, these individuals remain students, and it would be hard to justify the continuation of any tutoring if it failed to benefit these students either in their studies, or in preparing them for the demands of the labour market. Indeed, it is precisely in generating what [20] call a "cadre of motivated, self-actualized students" where tutoring can make the greatest impact.

7. CONCLUSION

This paper set out to investigate the impact of Tutor Work-Study Programme embedded within the DAL Programme at UWC, by considering its effects on the tutors, registered UWC students, and the team running the programme. The provision of the continuation of this 'large-scale student targeted work' is highlighted, including the need to ensure that students at HE institutions (especially in South Africa) are equipped with basic digital academic literacies, both to enable them to complete their studies effectively and to meet the needs of the labour market after graduation. The nature of the DAL Programme, and the customisation

it offers depending on faculty needs, were explained, as well as its delivery and employment of tutors. Both the customisation offered by the DAL Programme, and its employment of senior students to tutor junior ones highlight the scaffolding that underlies the approach taken by CIECT in the delivery of this complex and large-scale programme, and in its other infusion activities.

This was followed by a review of literature on the nature of peer tutoring, and the purported advantages and disadvantages involved. Following this, the methodology was highlighted, including the sample of tutors who agreed to take part in this study, and the facilitators of the programme. Particular attention was paid to instruments, data analysis, and limitations.

The findings of the study then provided an overview of the DAL tutors in the second semester of 2014: black (in the BBEEE sense), predominantly female/third-year/in the finance (B.Com) field, and with most having tutored for a year or less, and again with most having taken a course like the DAL Programme in the past. The tutors' views of the DAL Programme then revealed that they all consider it to be a vital part of the UWC curriculum, forming a crucial link between school and academia, especially for those who never received formal ICT instruction (and again especially for those of disadvantaged backgrounds). Should the DAL Programme be scrapped, or only be able to accept smaller numbers of students, all tutors agreed that many students would be negatively affected, and that the large gap in digital academic literacy for most of them would result directly in lower academic achievement, and in difficulties in securing employment in a modern economy that necessitates basic computer literacy. Indeed, several tutors also reflected on the importance of this instruction for career preparation.

When asked for their views regarding the training and support they receive from the coordinator and facilitators, all but one agreed that it was adequate, while all agreed they were listened to and that their needs were taken into account by the team, presenting a very positive overall impression of the relationships within the DAL. From the tutors' overall feedback, it is clear that the DAL team aims to maximise the benefits of the tutoring experience, and to ensure that the tutors are adequately supported throughout.

Following this, the findings of the study were presented, and first considered the impact of tutoring in three major areas of the tutors' lives: finances, studies, and career preparation. In terms of financial impact, the study found that most tutors state they rely on the money they earn in the DAL to continue their studies. This finding is in line with expectations given the paucity of financial support in relation to student needs at South African HE institutions. In turn, the majority of tutors were ambivalent regarding their (highly subjective) perceptions of fairness of their payment. Of course, payment rates for tutors are not set by CIECT, but are decided by the institution.

In terms of their studies and academic achievement, all tutors concurred that they benefited (other than in payment) from tutoring, and all reported that they gained new skills or improved pre-existing ones. These benefits and skills primarily took the form of gains in technical skills and capacities (reinforcing the adage that to teach is to learn twice), although improvements in interpersonal and other 'soft' skills were also reported. All but one tutor felt that their work in the DAL was not interfering with their studies (one neither agreed nor disagreed), and all felt more motivated to succeed in their own studies as a consequence of helping other students. When directly asked whether this translated into changed levels of academic achievement, the majority concurred that they had seen an improvement, primarily

due to gains in 'soft skills' such as time management and better group work. However, the tutors were split almost down the middle, with over 40% stating they had not seen any difference in achievement. This may be due, in part, to the fact that a third of the sample stated that their studies were not related to their tutoring functions, but it should be cautioned that in the absence of hard data on academic achievement, it is difficult to assess whether this is the case, especially since only one respondent who indicated that their tutoring duties were unrelated to their academic achievement also indicated they had not seen a difference in that achievement.

Finally, in terms of impact on career preparation, all but one of the sampled tutors agreed that their experience in the DAL had better prepared them for future careers, or had made them a more desirable candidate. The reasons for this included improved people, communications, and problem-solving skills, improved technical abilities, and even improved research skills. The single respondent who stated that their DAL experience had not contributed to their career preparation, explained that they were in the legal field, and that the DAL did not directly contribute in this arena. This respondent did however list leadership as one of the skills gained or improved as a result of their DAL experience.

The study then presented data on the reported impact of tutoring on the registered student body. While almost all students agreed that tutors provided adequate assistance in class, and were knowledgeable regarding the subject matter, the majority indicated they had not attended any consultation sessions with the tutors. Furthermore, while the validity of this particular response is in doubt, almost a fifth of students indicated that consultations were either not that helpful, or not at all helpful. While it can be concluded that the overall impact of the tutors on the students is positive, there is nevertheless room for improving the helpfulness of consultations, and to entice more students to make use of this service to build on their knowledge.

For their part, the facilitators indicated that the DAL Programme could not be successfully delivered, or even at all, without the participation and support of the tutors, such that they have an indispensable impact on the programme as a whole. Ultimately then, it can be concluded that the impact of tutoring in the DAL Programme at UWC is very positive, on the tutors, the registered students, and the facilitators – and that accordingly the continued employment of tutors is strongly encouraged.

As such, to return to one of the early observations of [12] – of the growing student numbers and the subsequent reduction in attention that can be given to each individual – peer or student tutoring at UWC is a means to counteract this trend, and to answer the need of doing more with less, as identified by [10]. However, such tutoring also holds significant benefits for the tutors themselves, as shown in this paper. As one of the facilitators note, the need for the (adequate) provision of digital academic literacy at UWC cannot be overstated:

> *We are crossing – we are walking people through crossing the digital divide, you understand. On the one side of planet Earth we are busy with cloud computing, on the other side in higher education environments, we're teaching where the power button is on a computer. There's a gap ... And we're the only people ... looking at that gap here.*

As a consequence, without the assistance of student tutors, the remarks made in 1977 by [31] may yet come to pass at UWC: "[tutors] fulfil an important responsibility to the tutees and to

the faculty. Without aid from these dedicated individuals, many students would be failures, forgotten and pushed aside in the educational maze." The results reflected in this paper, regarding the perceived impacts of student tutoring, reinforce further the value and need for tutors in the DAL Programme, in ultimate service to the citizens of South Africa who pass through the doors of UWC – including the student tutors themselves. As the Deputy-Vice Chancellor (Academic) emphasised at a student development colloquium (12 May 2015), it is important that "*we become stewards of development for all students*".

CONSENT (WHERE EVER APPLICABLE)

All authors declare that written informed consent was obtained from the participants for publication of this study. Copies of the signed consent forms are available for review by the Editorial office/Chief Editor/Editorial Board members of this journal.

ETHICAL APPROVAL (WHERE EVER APPLICABLE)

The authors registered this research at the UWC Institutional Research Office (according to Research Policy). The research project has been approved by the Office (Registration number 14/8/34).

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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Appendix A – Tutor Questionnaire

1. Are you: | Male | Female |

2. Do you consider yourself to be:

White	Black (includes African, Coloured, Indian)	Other

3. Please indicate your current year of study: _____

4. Please indicate your primary discipline/area of study: _____

5. Why did you decide to become a tutor in the DAL Programme?

_____

_____

_____

6. In the past, have you ever taken a course like the one offered by the DAL Programme?

| Yes | No |

   a. If you answered **yes**, please describe this course briefly:

_____

_____

7. Have you ever tutored in the DAL or a similar programme before 2014?

| Yes | No |

   a. If you answered **yes**, please describe this prior experience briefly:

_____

_____

8. What do you believe is the main purpose of the DAL Programme at UWC, and what do you think is the importance of this purpose?

_____

_____

_____

_____

9. Please provide a brief description of the functions you perform as a tutor in the DAL programme:

_____

_____

_____

_____

_____

10. Do you believe any of these functions are at all related to your general field of study (for instance tutoring students from the same field of study)?

Yes	No

    a. If you answered **yes**, please explain how:

        _____

        _____

        _____

11. Do you ever feel you could contribute better to the DAL in another role?

Yes	No

    a. If **yes**, how would it differ from your current role:

        _____

        _____

        _____

12. Do you believe you have derived any benefit, other than payment, from your work as tutor in the DAL?

Yes	No

    a. If **yes**, please describe the benefit/s:

        _____

        _____

        _____

        _____

        _____

13. Have you noticed any difference in your own academic performance as a result of your DAL tutoring?

Yes	No

    a. If you answered **yes**, please provide elaborate on the nature of this difference:

        _____

_____

_____

14. Do you feel you have gained any new skills (ICT or others), or improved any pre-existing skills, as a result of your tutoring in the DAL Programme?

| Yes | No |

  a. If you answered **yes**, please list these skills, and how you gained or improved them (for example, by learning from a fellow tutor):

    _____

    _____

    _____

    _____

    _____

    _____

15. Do you believe the DAL facilitators adequately trained and prepared you for your tutoring duties in the DAL Programme?

| Yes | No |

  a. If you answered **no**, please indicate how you believe you could have been better prepared for your role as DAL tutor:

    _____

    _____

    _____

    _____

    _____

    _____

16. Over the course of your tutoring in the DAL, do you believe that you have made a contribution to the facilitators, programme, or students that has been applied?

| Yes | No |

  a. If you answered **yes**, please elaborate on the contribution/s:

    _____

    _____

    _____

| Yes | No |

17. Do you believe that your tutoring experience in the DAL has better prepared you for your future career, or contributed to making you a more desirable candidate when applying for a job?

    a. If you answered either **yes or no**, please explain your choice:

_____

_____

_____

_____

_____

_____

18. What do you believe would be the consequence for UWC's students if the DAL Programme was no longer offered, or if it could only train smaller numbers of students:

_____

_____

_____

_____

19. Briefly share the **best** and **worst** aspects of DAL tutoring in your experience:

_____

_____

_____

20. Finally, please indicate your level of agreement with the following statements:	**Strongly Agree**	**Agree**	**Neither Agree Nor Disagree**	**Disagree**	**Strongly Disagree**
a. As tutor, I know what is expected of me at any given time					
b. The DAL facilitators take my needs into account when assigning duties					
c. The DAL facilitators keep me informed and in the loop					
d. I found tutoring in the DAL programme to be a useful experience					
e. I would have preferred not to have been a DAL tutor					
f. I found the facilitators to be uncaring					
g. My work as tutor in the DAL interferes with my studies					
h. I am a vital part of the DAL Programme					
i. The DAL facilitators listen to my concerns					
j. The DAL facilitators help me whenever I encounter problems in my tutoring					
k. The contributions I make as tutor have been valued by the team					
l. I regret becoming a tutor in the DAL programme					
m. I would recommend tutoring in the DAL Programme to a friend					
n. If offered a permanent job in either the DAL or in CIECT, I would seriously consider it					
o. The DAL Programme is a vital part of the UWC curriculum					
p. I enjoy consultation sessions with students					
q. By helping other students, I feel more motivated to succeed in my studies					
r. I am paid fairly for my work as DAL tutor					
s. I find the weekly team meetings to be helpful					
t. I rely on money I earn from working in the DAL to continue my studies					

THANK YOU FOR YOUR PARTICIPATION IN THIS STUDY

Appendix B – Facilitator Interview Questions

1. Can you briefly explain what the DALP is, and what your role is within it?
2. Where and how does the DALP fit into UWC's IOP?
3. How does the broad student population benefit by having and participating in the DALP?
4. How do you design the classes offered by the DALP?
5. Why does the DALP hire student tutors, and what do they do within the DALP?
6. How are tutors brought into the DALP?
7. What skills do they require and how do you prepare/equip them with skills?
8. How important is their involvement to the success of the DALP?
9. What are your unique contributions to the DALP and to the Tutors?
10. In what ways do you believe does the DALP benefit from having these tutors?
11. In what ways do you believe do the tutors themselves benefit from their involvement in the DALP? Do you believe they are more employable as a result?
12. What do you believe would be the outcome if tutor numbers were reduced/eliminated?
13. Do you believe the tutors' involvement in the DALP affects their academic performance? How?
14. How do you make use of/build on tutors' individual skills and study areas?
15. What expectations do you place on the tutors, both in terms of the functions they perform and their behaviour/conduct?
16. Do you have any prior history of involvement in the DALP before you assumed your current role? [background as tutor; inside views] Does this prior involvement give you additional insights into the experience of the tutors themselves?
17. How well do you believe you understand the tutors and their needs, and what do you do to track these/gain their feedback?
18. Do you have any further comment/input?

Appendix C – Student Semester-end Evaluation Questions (related to tutoring)

Did you make use of the Consultation service offered by DAL staff?
- Never came
- Came to a few sessions
- Could not attend any of the sessions due to time-table
- Attended some consultation sessions
- I had no need to attend sessions

Did you find the consultation sessions useful?
- Very helpful - content was clarified for me
- Helpful - I picked up some extra tips
- Quite helpful - and I consolidated my understanding
- Not that helpful
- Not at all helpful

Was there adequate assistance given to you in class by the tutors?
- Always
- Mostly
- Sometimes
- Never

The tutors that assisted you during consultation had adequate knowledge of Microsoft Packages (Word, Excel, PowerPoint etc.)
- Agree
- Strongly agree
- Disagree
- Strongly disagree

Appendix D – Student Comments on Tutoring from Semester-End Evaluation Form (Original Spelling and Grammar)

STRENGTHS
- i have gained a lot in DAL class i now have computer knowledge because the facilitator and **the tutors were very helpful**. the facilitator would make sure that that the student understood and He explained everything step by step. so i am very grateful for this course
- The **tutors assistance were very helpful in class** and they **know their work**.
- **Consultations are very helpful** ,tutors are very good.I found some **helpful tips** from them.
- i don't have much comments just to thank the facilitator and the tutors for the time they wasted to taught us something and **made sure that we do get the basics of computer** and will **not struggle even in the long run** when doing a research and presentations.
- Nothing much to say except that the people who were assisting us during DAL class **were very good** because most of the topics were easily to understand and **they did not leave us without knowing** what we were taught of during class. Coming to negative things I would like them to give us a better time to write a test, because sometimes we leave behind things that we were suppose to complete because of the limited time. Otherwise **our tutors are of top class** when it comes to computer and I am glad and fortunate to have people like them assisting me on a computer skills.
- This is a well structured course,with **well trained staff** (instructor and Tutors.I enjoyed my time and will miss [the facilitator].
- when i started DAL programme,my computer skills were so poor so much that I hated DAL lectures.I am so thankful with the aid of my facilitator and tutors because **they where patient in trying to help me** understand.They always **assisted with a sincere heart** and i appreciate the work.Keep it up DAL team.
- All went well for me, personally. Though I didnt study for any tests I got quite good marks. Thanks to the facilitator and the tutors **my knowledge about computers is quite good**.
- I have no Negative comments, I enjoyed CCL and the Facilitator and **Tutors were very helpful always**.
- I really want to thank you guys, I worked with computer before, but when I was here it was like a knew thing always. Although I knew most of the staff but still I enjoyed every minute I was here as if I never touched computer. I **learnt a lot and our tutor was very enthusiastic**. Excel is the most program I enjoyed, because I am not that exposed to. I really enjoyed. Thank youuuuuuuuuuuu
- The course was very helpful and I could understand majority of the wok that was done. And having the **decision to consult was very helpful** because if ever I wasn't clear with the work I had a an option to consult about it. But I think the course should include more topics.
- enjoyed this course very much .the facilitator made the course fun and interesting it was also very easy to grasp things. **because the course was so simple in the layout of things i dindt need any consultations**
- I thoroughly enjoyed the CCL module and i think i had the best facilitator ever. I learnt a lot and i obtained 100 % for my power point as well as word test so i could say he did a very good job. I **consulted a few times an it really helped me too**.

CHALLENGES
- The tutor walking around **did not explain the excel formula the same way the facilitator did**. It therefore created confusion for me. There **needs to be consistency** between all tutors. Thank you.
- i would appreciate if the **tutors could be more patient with us**, and understand that **we are not all the same**
- bad thing is that on our first day writing a test on Dal all of the **tutors were so strict on us** and that made us to be uncomfortable and **we were under pressure** we could not think straight. but all in all everything went out perfectly i really gained a lot, at first i could not use a computer but now am proud of my self because i know most things about the computer and my skills had developed. thank you so much,much love!
- the tutors was **not really that helpful** and **some of them have bad attitude**.i preferred the help of the lecturer.i think the lecture must cover everything.
- The tutors in B18 are not fair to us as students seeking consultation i am not saying all of them but some of them **do not care about helping us**. Ive been there a couple of times to consult " it becomes difficult for me to get help, they would say help him and the **respond will be either i am out of duty or i have just helped someone so i am taking a break**" . as a student seeking help i need to be **helped without feeling as if I am bothering people or irritating them** while they are **busy playing with computers** and thus "we are nothing without the consultation and we are encouraged to consult so please give the proper help that we need during the consultation". the other thing when consulting the totors **engage in an conversation and be busy in a cell phone** while helping me and this **makes us loose focus** because when i begin to understand what is going on **the person helping me gets disturbed and i loose all the focus**.

- When we asked for assistance from the tutors **they got frustrated with us because we behind** from the rest of the class.
- **signing up for consultation was a very big down fall for me**, and for many other students as well cause you would sign up, but something really urgent will come up....i **strongly prefer walk-in consultations** or consultations times should be provided for students to know when they should rock up instead of just walking in.