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Effects of same-year/level peer-assisted learning on academic performance of students in health sciences' extended curriculum programmes at a University of Technology in South Africa

Abstract

Peer-assisted learning (PAL) is a long-standing educational concept in higher education (HE) and has been subjected to ongoing development and ultimately implementation into many so-called 'high-risk' programmes. Substantial literature and evidence are available to confirm that PAL is an effective tool for unlocking active learning in medical education. This paper focuses on the effects of same-year/level PAL (SPAL) implementation on the academic performance of tutors and tutees in a health-sciences extended curriculum programme (ECP) at a University of Technology (UoT) in South Africa (SA). A retrospective, longitudinal and quantitative analysis of pre- and post-intervention results of three consecutive ECP student cohorts (2017–2019) was conducted to determine whether SPAL implementation enhanced academic performance. Total population sampling was applied and 138 ECP students participated in this study. A statistically significant difference (p-value <0.05) was found in the overall comparison between the pre- and post-intervention results after the dependent t-test was performed. Although not all ECP students benefited from this SPAL intervention, the findings of the study suggest that for the majority of ECP students, SPAL can be considered an innovative educational intervention and strategy to improve academic success and preparedness for future studies.

Keywords: *academic performance, extended curriculum programmes, health sciences education, same-year/level peer-assisted learning, tutees, tutors*

1. Introduction and background

Foundation provision (FP) or extended curriculum programmes (ECPs) are currently offered by most higher education (HE) institutions in South Africa (SA) (CHE, 2020). The design and implementation of FP or ECPs at SA HE institutions were introduced to accommodate previously educationally disadvantaged student groups by providing them with additional academic and curriculum support

(CHE, 2020). Historically white universities in SA initiated the implementation of FP or ECPs in the 1980s and 1990s, and the remainder of the HE institutions in the country followed suit with this direct response to social injustice by redressing the lack of accessibility of marginalised student groups to HE (Boughey, 2005; Dhunpath & Vithal, 2014).

The additional academic and curriculum support offered to ECP students takes on many forms and includes extra study time, additional tutorials and mentoring, and assistance in career guidance – all aimed at improving success rates (Chukwuere, 2021). Students enrolling for an ECP are considered to have been subjected to an inadequate initial educational background or social disadvantage rendering them less likely to complete their tertiary studies, despite meeting the minimum university requirements (Chukwuere, 2021; Garraway & Bozalek, 2019). Therefore, Garraway and Bozalek (2019) argue that in its current form of implementation, FP could be employed to address concerns related to university access, although it is also an academic solution aimed at addressing high dropout and failure rates of first-time-entering students.

Since the earliest form of FP delivery in 2004, ECPs in a health sciences department at an identified University of Technology (UoT) in South Africa experienced several structural modifications and academic interventions, all aiming to improve the academic success of ECP students (Slabbert & Du Plessis, 2021). Each of these modifications and interventions is aimed at promoting student academic progress and the provision of epistemological access in an attempt to decrease student dropout (Scott, 2014). The focus of this paper is on an implemented academic intervention that occurred between 2017 and 2019 for a selected, yet compulsory module in ECP health sciences programmes at this identified South African Universities of Technology. The paper reports on the academic effects of a same-year/level, peer-assisted learning (SPAL) intervention by comparing pre- and post-intervention results of all ECP student cohorts between 2017 and 2019. The rationale behind the study was to establish if SPAL could be considered an innovative intervention and strategy to provide a supportive and enhanced learning environment for ECP students, thus improving their academic success and preparedness for future studies.

2. Contextualising peer-assisted learning in higher education (globally and nationally)

In a recent systematic review and meta-analysis by Guraya and Abdalla (2020) on the effectiveness of PAL in medical education, the authors argued that substantial literature and evidence are available to confirm that PAL is an effective tool for unlocking active learning in medical education. This argument is not surprising, considering that PAL is a long-standing educational concept in HE that has been subjected to ongoing development and the ultimate implementation into so-called 'high-risk' programmes (Dawson *et al*., 2014; Herrmann-Werner *et al*., 2017; Meertens, 2016). Various forms of PAL implementation have recently been described in the literature, and researchers used several taxonomies and definitions interchangeably to elaborate on the different types of learning strategies involved in PAL (Blohm *et al*., 2015; Herrmann-Werner *et al*., 2017; Olaussen *et al*., 2016). Examples of such forms of strategies or delivery modes, according to some researchers, are peer tutoring, peer assessment, peer teaching and peer counselling (Topping & Ehly, 2001). For this research paper, the authors adopted the nomenclature proposed by Blohm *et al*. (2015) and Weyrich *et al*. (2008), and referred to PAL implementation in two basic forms, namely "same-year/level PAL" and "cross-year/level PAL".

Same-year/level PAL (SPAL) implies peer learning taking place between students belonging to the same class and academic year that focus on interdependent teaching and learning, mostly based on disciplinary content. Activities of SPAL include extra tutorials and additional practical sessions offered in an informal, yet structured manner that is easy to facilitate, as the tutor and tutee are at the same point in their studies (Tai *et al*., 2016). Cross-year/level PAL (CPAL), on the other hand, is a mutual relationship between a senior tutor and junior tutee, where activities are mostly focused on assistance, with broader social, academic and even pastoral challenges that may influence a tutee's ability to adapt to the higher education environment (Blohm *et al*., 2015; Meertens, 2016; Weyrich *et al*., 2008). Nevertheless, all forms of PAL implementation in its various delivery modes are underpinned by cognitive and social learning theories, including Vygotsky's 'zone of proximal development', and focused on the structured approach to mutual teaching and learning between students in similar social settings (Topping, 2005).

Transition challenges into HE are duly noted in the South African context, and considering the unique variation of educational backgrounds of prospective South African students, PAL implementation, in general, seems to hold specific benefits for SA student cohorts (Scott, 2009). Pairing tutors who have recently experienced these transitional challenges with tutees currently confronted by these challenges not only offers the benefit of better comprehension of the curriculum content, but can also assist in academic, personal and professional develop-ment needed to alleviate the burden of adapting to university life (Makala, 2017). Initially, PAL implementation in HE adopted a vertical approach where appointed tutors were from a more senior level of education (CPAL) and selected based on their grades (Topping & Ehly, 1998). However, this approach to PAL implementation was later challenged, based on the argument that this form of PAL implementation might cognitively underchallenge tutors. Consequently, the different approach of SPAL was developed to ensure that both tutor and tutee are engaged with and benefit from such an educational intervention (Topping, 2005).

Limited literature is available on the implementation and effectiveness of PAL in the South African higher education context in general. A background and literature search revealed a more specific lack of evidence on SPAL as a teaching and learning strategy to improve the academic progress of ECP health sciences students at Universities of Technology (UoTs). Only one article focused exclusively on the implementation of SPAL in ECP health sciences education at a UoT (Slabber & Du Plessis, 2021). This might be indicative of a slower implementation of SPAL (and its related dimensions) at UoTs, highlighting the relevance of this study. This article consequently reports on a retrospective analysis of pre- and post-intervention results of ECP health sciences students at this identified UoT, where SPAL was implemented in a selected health sciences module. This retrospective analysis was conducted to determine the effect of SPAL on ECP students' academic performance.

3. Methods

The following section describes the study design, research process, data capturing and ana-lysis and ethical processes applied.

3.1 Study design

A retrospective, longitudinal and quantitative analysis of the pre- and post-intervention results of student cohorts in three consecutive years (2017, 2018 and 2019) was conducted. During an action research project, SPAL sessions were offered to ECP students registered during their first year of study from 2017 to 2019. The quantitative analysis of the pre-and

post-intervention results, as well as the interpretation of data collected for this study aimed at determining whether SPAL implementation in a selected ECP module at an identified UoT in South Africa enhanced the academic performance of these ECP students and to what extent this enhanced performance occurred.

3.2 Research process

The target population for this study was all ECP health sciences students who were active and registered for a selected ECP module (Physiology) at a University of Technology in 2017, 2018 and 2019, respectively (N=138). Only students who had voluntarily participated during the implementation of SPAL in the selected ECP module were included and those who had deregistered from the identified module during the implementation of the SPAL strategy were excluded from the study.

Purposive sampling and, more specifically, total population sampling, was therefore used for the data collection. Alternatively stated, participants were selected in a non-random manner where qualifying students from the whole ECP health sciences student cohorts of 2017, 2018 and 2019 were included to compare the pre- and post-intervention findings of their academic performance (N=138). Total population sampling was considered the most effective sampling method for this study, because the researcher believed that only after comparing all qualifying students' results before and after the implementation of the SPAL strategy, a holistic view of the effectiveness and quality assurance of this teaching strategy on academic progress would be revealed.

The methodology of how SPAL was implemented in 2017, 2018 and 2019 is illustrated in Figure 1. According to the action research process, this method was employed in the same manner for all three years.
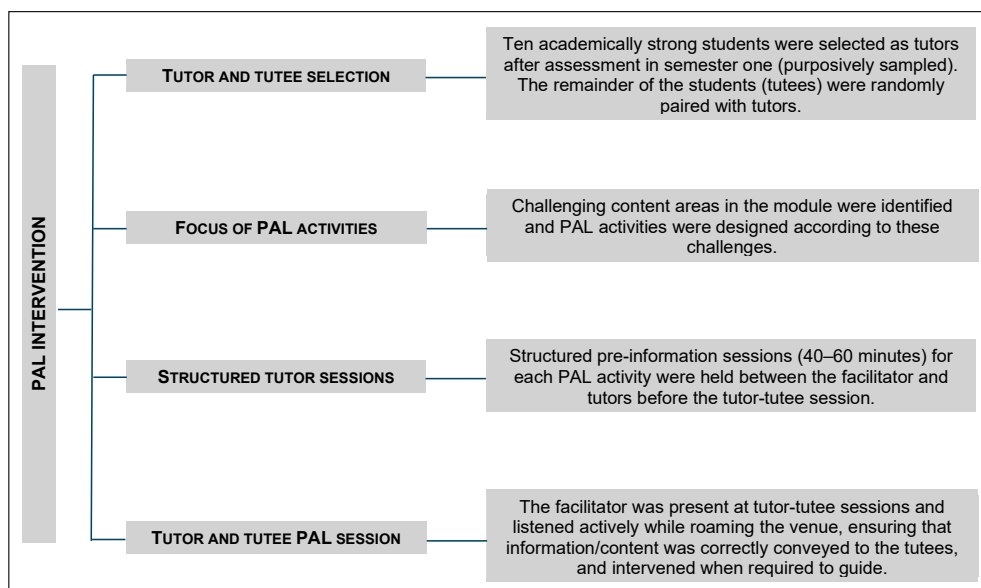

Figure 1: Methodology of the same-year/level peer-assisted learning (SPAL) intervention for extended curriculum programme (ECP) health sciences students applied during the action research process in 2017, 2018 and 2019 (compiled by the researcher).

It is important to note that the action research project and the implementation of the SPAL intervention made no provision for control groups. This was done to honour the nature of the academic strategy as an intervention, and to align the intervention to the inclusivity rules of the health sciences department at the participating UoT, especially for already 'at-risk' students such as ECP groups. However, to ensure some degree of control over the data analysis of the action research results, all applicable variables were kept the same for both semester one (the pre-intervention period) and semester two, when the intervention took place. These variables included the pre-class reading and activities, teaching, learning and assessment activities, as well as the feedback and reflection sessions. Applying these variables in the same manner for the pre- and post-intervention periods allowed for the statistical analysis and comparison of the results of the SPAL intervention. Pre- and post-intervention results of the implemented action research of 2017, 2018 and 2019 included in this article contained the same number of assessment opportunities and the same weighting towards obtaining a final assessment mark for the selected module.

3.3 Data capturing and analysis

Verified and published pre- and post-intervention results (May/June and October/November, respectively) of the selected ECP module were requested from the Assessment and Graduation Unit (AGU) at the participating University of Technology. This was done to address the validity of the study and to ensure that the retrospective analysis would only be performed on moderated and verified results compliant with the quality assurance policies of the participating UoT. Pre- and post-intervention results were captured on an Excel spreadsheet, whereafter statistical analysis was performed using SAS Version 9.2 (SAS Institute Inc.; Cary, NC).

Numerical data were analysed by calculating means and standard deviations, whereas frequencies and percentages (descriptive statistics) were calculated for categorical data. The differences between the pre- and post-intervention results for the 2017–2019 year groups with their respective mean differences were calculated and reported for whole-year groups, tutors and tutees, respectively. Furthermore, a significance level (α) of 0.05 was applied when the dependent t-test was used to investigate the significance of the mean differences between the pre- and post-intervention results.

3.4 Ethical considerations

Informed consent was obtained from all participating students after they had been informed about voluntary participation in the action research project and after the confidentiality of personal information was confirmed. Students were informed that they could withdraw from the action research project at any time without any consequences. To evaluate the effect of the PAL intervention on the academic progress of the respective ECP health sciences student groups of 2017–2019, ethics approval was obtained from the Health Sciences Research Ethics Committee (HSREC) of the University of the Free State (ethics clearance number UFS-HSD2021/1908-0003). Permission was granted by the Data Management Unit of the participating University of Technology to gain access to the pre- and post-intervention results of all the students included in this study.

4. Results and discussion

A total of 138 ECP students participated in the action research project on SPAL between 2017 and 2019. The number of participating students was also the total number of active and registered ECP health sciences students between 2017 and 2019 at the University of

Technology included in this study. Ten PAL groups were formed per year, tallying up to a total of 30 PAL groups. Table 1 illustrates the respective number of PAL groups, tutors and tutees for the various ECP year groups.

Table 1: Number of tutors and tutees who participated in the action research project on peer-assisted learning (PAL) between 2017 and 2019.

Variable	Year group			Total
	2017	2018	2019	
Number of tutors per year	10	10	10	30
Number of tutees per year	31	39	38	108
Total number of participants per year group	41	49	48	138

The percentage differences noted in the pre- and post-intervention results of all ECP year groups, which can be extrapolated to the whole study population, are illustrated in Table 2. Each year group's respective mean, standard deviation and p-value are also included to reflect the significance of differences calculated. A p-value less than 0.05 was obtained for each year group, indicating that participation in the SPAL intervention had a statistically and significantly positive outcome on the academic progress of these student groups. When looking at the whole study population's results (N=138), the observed and calculated mean difference between the pre- and post-intervention results was 14,2% and the standard deviation [SD] 16.4). This overall comparison between the pre- and post-intervention results revealed a statistically significant difference between the pre- and post-intervention results, as reflected by the p-values and t (137) = 10.15.

Table 2: Mean percentages of the pre- and post-intervention results, mean differences, standard deviation and p-values for all the participants (tutors and tutees) during 2017–2019.

Year group	Pre-intervention result (mean %)	Post-intervention result (mean %)	Mean difference (%)	Standard deviation	p-value
2017 (n=41)	56,6	62,7	6,1	13,94	0.0079
2018 (n=49)	50,5	78,0	27,5	11,66	<0.0001
2019 (n=48)	48,8	56,3	7,5	13,87	0.0005
All year groups (N=138)	51,7	65,9	14,2	16,42	<0.0001

The positive outcomes noted in the academic progress of these ECP student cohorts (Table 2) might be underpinned by some researchers' opinions that PAL offers students the opportunity to reach their learning goals by jointly taking ownership of identifying and managing their unique learning needs (Guraya & Abdalla, 2020). Nunnink and Thompson (2018) state that hesitation about the impact of PAL on student learning and assessment still exists. This phenomenon's effect on student progress is neglected to be qualitatively investigated, despite the vast proposed academic benefits it holds (Guraya & Abdalla, 2020). However, Herrmann-Werner *et al*. (2017) note in their review of the literature that the authors of many quantitative studies still report and categorise their findings on the effectiveness of PAL in medical curricula by measuring its impact separately on tutors and tutees' academic progress and comparing results in control-group investigations (Herrmann-Werner *et al*., 2017). In a recent systematic review of the academic effectiveness of PAL, the authors provided substantial evidence on the extent of how significantly effective (p<0.05) PAL can be for active learning in medical

education (Guraya & Abdalla, 2020). These results reported by Guraya and Abdalla (2020) support the findings of this study, as illustrated in Table 2. Following these quantitative studies' categorical classification of the academic effectiveness of PAL, the results of this paper are further discussed by separately focusing on the academic effects of PAL on tutors and tutees.

4.1 Effectiveness of PAL on ECP tutees' academic progress

Each year group's tutees and the overall tutees' pre- and post-intervention results are summarised in Table 3 below. All the ECP tutee groups showed a statistically significant difference between the pre- and post-intervention results. These findings also suggest that most tutees benefited from the SPAL intervention, although on an individual level, not all showed academic progress. Upon studying the different years' tutees per group and their collective mean difference between the pre- and post-intervention results, both the 2017 and 2019 ECP student cohorts delivered one group of tutees that scored a negative mean difference. This finding applied to two tutee groups out of a total of 30 groups, thus representing only 6,7% of the groups that might not have benefited academically from the intervention. The majority of groups (93,3%) achieved an increase in their mean post-intervention results, with the best-performing groups from each year with the highest pre- and post-intervention percentage difference being 16,2% (2017), 39,9% (2018) and 20,0% (2019). It is evident from these results that the tutees from the 2018 ECP year group were the better academic performers overall, although the reasons for this finding (inter-year differences) are beyond the focus and scope of this study and have not been investigated.

Table 3: Mean percentages of the pre- and post-intervention results, mean differences, standard deviation and p-values for all the tutee participants during 2017–2019.

Year group	Pre-intervention result (mean %)	Post-intervention result (mean %)	Mean difference (%)	Standard deviation	p-value
2017 (n=41)	51,8	58,1	6,3	15,51	0.0318
2018 (n=49)	46,1	75,0	28,9	11,46	<0.0001
2019 (n=48)	43,6	53,5	9,9	13,78	<0.0001
All tutees (N=138)	46,8	62,6	15,7	16,77	<0.0001

The potential benefits of PAL on student academic progress and subject content comprehension, particularly in modules considered to be difficult, have been reported by Bermingham, Boylan and Ryan (2022). The results of this study and the positive outcome of the SPAL intervention in the Physiology class were in line with many studies that also found PAL to be an effective tool for encouraging active learning to occur, especially among tutees participating in modules perceived as difficult (Awasthi & Yadav, 2015; Guraya & Abdalla, 2020). The small tutor-tutee grouping and the pre- and post-intervention format of PAL implementation in the classroom are factors that could have contributed to improved student performance in post-intervention assessments (Awasthi & Yadav, 2015; Sammaraiee *et al*., 2016). These findings suggest that emphasis should be placed on the planning phase of PAL implementation, as a proper structure for this academic intervention is required to be optimally advantageous for student learning (Guraya & Abdalla, 2020). Informed and wisely designed PAL guidelines and recommendations are thus likely to support student-oriented learning, especially in inter-professional education and the multidisciplinary practice milieu where ECP health sciences students will eventually be employed as healthcare workers (Al-Qahtani & Guraya, 2016; Guraya & Barr, 2018).

Peer-assisted learning is known not only for posing potential benefits for academic progress, but also for the opportunity it offers for critical inquiry and reflection (Friel, Kell & Higgins, 2018). The academic module (Physiology) included in this study demands a level of clinical reasoning skills and critical thinking, possibly instilled by the SPAL intervention through the activation of deep learning processes in the tutee participants (Herrmann-Werner *et al*., 2017). In turn, the activation of deep learning processes requires activities that stimulate brain-storming, problem-solving and reasoning skills, which form the cornerstone of the SPAL intervention's tasks and could unlock critical inquiry by tutees to master the subject content (Slabbert & Du Plessis, 2021).

The overall positive outcome of the SPAL intervention on the academic progress of the tutees could also be attributed to the close differences that existed between the knowledge networks of the tutors and tutees. The theories of cognitive congruence and self-efficacy require synchronisation and compatibility of students' behaviour and attitudes to build self-efficacy through witnessing the competence of people (tutors) viewed as culturally and socially similar to themselves (tutees) (Bandura & Walters, 1977; Bulte *et al*., 2007; McKenna & Williams, 2017; Ten Cate & Durning, 2007). The potential of identifying and ultimately resolving challenges as experienced by tutees might have been increased by these close networks of knowledge and cognitive space between tutors and tutees, more than between lecturers and students (Topping, 2005; Vygotsky, 1978). The cooperative nature of the SPAL intervention also provides a better position for tutees to communicate challenges with tutors in a less formal setting than conventional faculty teaching, and possibly allows such communication to take place on a more appropriate level (Bulte *et al*., 2007). In addition, PAL interventions present students with the opportunity to secure peer relationships through collaboration in their PAL groups. These secure relationships result in students feeling substantially more supported and thus having an increased ability to uncover the so-called "hidden curriculum" of academic courses (Bailey, 2021; Ginty & Harding, 2014; Herrmann-Werner *et al*., 2017; McKenna & Williams, 2017).

Evidently, PAL might not be equally effective in all forms of implementation in classrooms or settings (Cameron *et al*., 2015). A scoping review on the effectiveness of PAL on academic performance reported findings with a slightly more negative tone compared to the current study's results, where PAL-led student groups did not perform as well in applying aseptic clinical techniques when compared to the faculty-lectured groups (Williams & Reddy, 2016). These authors reasoned that this ineffectiveness of PAL that was noted could be related to the level of complexity of the activity being assessed or performed, signalling a warranted motivation for the need for more evidence-based studies in all medical disciplines to develop and recommend an integrated PAL strategy for health sciences education (Guraya & Abdalla, 2020).

4.2 Effectiveness of PAL on ECP tutors' academic progress

The mean pre- and post-intervention results, mean differences, standard deviations, and p-values of all 30 participating tutors from 2017 to 2019 are illustrated in Table 4. Although two year groups (2017 and 2019) did not yield statistically significant differences between the pre- and post-intervention results, the overall results of all the participating tutors were indicative of a significant difference between the pre-and post-intervention results, with p=0.0020. It is not unreasonable then to argue that the SPAL intervention also had a positive effect on the tutors' academic progress at large.

Table 4:   Mean percentages of the pre- and post-intervention results, mean differences, standard deviation and p-values for all the tutor participants during 2017–2019.

Year group	Pre-intervention result (mean %)	Post-intervention result (mean %)	Mean difference (%)	Standard deviation	p-value
2017 (n=10)	71,5	77,0	5,5	7,86	0.0541
2018 (n=10)	67,6	89,8	22,2	11,42	0.0002
2019 (n=10)	68,8	67,2	−1,7	10,37	0.6269
All tutors (N=30)	69,3	78,0	8,7	14,01	0.0020

Unfortunately, the effects of the SPAL intervention on the individual academic progress of all 30 tutors revealed that ten tutors showed a negative mean difference upon comparing the pre- and post-intervention results. On the other hand, this finding also implies that 66,6% of tutors (20) have benefited from the SPAL intervention. From the ten tutors assigned to each of the years included in this study, eight tutors from the year 2017 (80%), nine tutors from the year 2018 (90%) and three tutors from the year 2019 (30%) performed better in their post-intervention assessments, as illustrated in Table 5. The best-performing tutor from each year, with their corresponding mean percentage difference, are also captured in Table 5. It is interesting to note that the 2018 tutors were again the better performers among all tutors together with their tutee counterparts in the same year. One might, therefore, suspect that each year's different student intake, group dynamics and tutor-tutee pairing might have a substantial influence on the success of a PAL intervention (Kassab *et al*., 2005). However, as mentioned before, an inter-year comparison of the PAL intervention's effect on students' academic progress is beyond the focus of this paper.

Table 5:   Number of tutors per year group who yielded an increase in their post-intervention assessment results with their corresponding mean percentage differences.

Year group	Number of tutors who delivered an increased post-intervention result	Best performing tutors' mean difference (%)
	n (%)	
2017 (n=10)	8 (80,0)	12,0
2018 (n=10)	9 (90,0)	38,5
2019 (n=10)	3 (30,0)	19,0
Total (N=30)	20 (66,6)	23,2

Studies published in the literature, especially the latest review articles on the effectiveness of PAL (Guraya & Abdalla, 2020; Hernández Coliñir *et al*., 2022), mostly reported on CPAL and, to a lesser extent, on SPAL, confirming the importance of the current study and the valuable contribution it can make. Although not all of the current study's tutors' post-intervention performances increased, it is evident from the results that the majority of tutors benefited from the SPAL intervention to some degree.

The process of learning is reinforced in the mutual benefits PAL offers to both tutors and tutees and includes not merely intellectual, but also emotional support. In conventional faculty teaching, the roles of teacher and learner are fixed, whereas, in PAL, some amount of flexibility in roles and responsibilities is experienced. This flexibility enhances the learning environment by offering more learning opportunities even beyond the classroom setting (Guraya & Abdalla, 2020; Ten Cate & Durning, 2007). Although no official role swopping was conducted between tutor and tutee during the SPAL intervention, the SPAL sessions conducted could still have

provided a platform to drive the learning process meaningfully and yield the positive academic effects observed. The less 'officially defined' roles of tutors and tutees might propose a possible and sometimes unnoticeable fluctuation of roles between tutors and tutees during PAL activities. The researchers, therefore, suggest that the same academic benefits SPAL holds for tutees (including its underlying theoretical underpinnings) could equally apply to tutors (Guraya & Abdalla, 2020).

It is clear from the available literature that being a PAL tutor involves several specific benefits (Herrmann-Werner *et al.*, 2017). The teaching role that tutors adopt promotes internal motivation to engage with course content more actively than simply attending to learning for personal gain (Bulte *et al.*, 2007; Ryan & Deci, 2000). Preparing for PAL sessions with tutees, tutors tend to spend more time with study material, enabling them to retain more knowledge and develop a greater understanding of learning principles, which subsequently enhances knowledge acquisition (Peets *et al.*, 2009; Tang, Hernandez & Adams, 2004). Deeper learning widens tutors' ways of learning and consequently boosts self-confidence, not only to offer PAL sessions with poise, but to develop an increased ability to admit uncertainty. The case in point is "acting like the expert, you become the expert", as maintained by the self-determination theory (Festinger, Riecken & Schachter, 1956; Hudson & Tonkin, 2008).

The development of better communication skills and the motivation to network with peers are also possible factors to consider when substantiating the positive outcome of the SPAL intervention on the academic progress of tutors (Bugaj *et al.*, 2019). Peer-assisted learning augments communication, which is warranted for networking to be effective and ultimately to facilitate a successful PAL session. Some authors argue that communication drives the development of interpersonal bonds in a community of practice (in this case, SPAL sessions), which promotes collective learning (Parboosingh, 2002; Wenger, McDermott & Snyder, 2002). Therefore, results from this study suggest that cognitive and social congruence concepts are significant and applicable factors validating the success of SPAL (Yew & Yong, 2014). Schmidt and Moust (1995) also confirm a connection between social congruence and the achievement of group learning outcomes, consequently emphasising the importance of establishing a consistent and dependable relationship between the tutor and the tutee for PAL to be meaningful and effective.

5. Conclusion

The study demonstrated that SPAL could be considered an innovative intervention or teaching strategy to supply a supportive and enhanced learning environment for marginalised ECP students to improve their academic success and preparedness for future studies. Findings from the study highlight a significant difference between the pre- and post-intervention assessment results of the whole study population, although a minority of participants (tutors and tutees) did not benefit academically from the intervention. The results reported are also rather comparable with results from studies where the focus was on the effects of CPAL on student progress, although the purpose of this research was not to compare the academic effects of different forms of PAL implementation, but rather to address the lack of current literature in the field of SPAL.

However, a limitation of the study was that data accumulation only occurred at one SA UoT offering ECP health sciences programmes and, consequently, the generalisability and objectivity of the concluding remarks should be interpreted with caution within the study

context. Future qualitative research is also warranted to determine tutors' and tutees' views and experiences of the SPAL intervention on their academic progress. In-depth knowledge and understanding are required to fully determine the effects of SPAL on ECP students' progress and development to inform the institutional implementation and evaluation of SPAL for FP in health sciences education.

Acknowledgements.

Declaration of interest.

The author has no conflict of interest to declare.

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