Exploring Graduate Teaching Assistants in the Virtual Space During COVID-19 Using the Cultural Historical Activity Theory Perspective

Frikkie George, Fundani, Centre Higher Education Development, Cape Peninsula University of Technology

Ekaterina Rzyankina, Centre for Research in Engineering Education (CREE), University of Cape Town, Cape Town, South Africa

Abstract

Graduate teaching assistants[1] (GTAs) play an indispensable role in higher education, in particular in undergraduate courses. In higher education, GTAs take on two identities simultaneously: firstly as postgraduate students and the secondly as lecturers (Muzaka, 2009). A literature review showed that the roles and responsibilities of GTAs might not be clearly defined, resulting in role ambiguity, which may be compounded by the current COVID-19 pandemic (Youde, 2020; Gardner & Parrish, 2019; Benjamin, 2020). In this paper, the authors explore the roles, responsibilities, and

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[1] Graduate Teaching Assistants (GTAs) are postgraduate research students who support academic and faculty staff members with their teaching responsibility.

challenges of GTAs at a University of Technology during the COVID-19 pandemic. This qualitative case study collected data using interviews conducted with ten GTAs, who provided support to first-year engineering, mathematics, and physics lecturers and students. Our data analysis confirmed the adaptation of the GTAs' role and the challenges faced during the COVID-19 pandemic, which presented many benefits and contradictions. The major findings of this study revealed that digital tools such as technology for example writing devices, Learning Management System (LMS) Blackboard, and WebAssign by publisher Cengage[2] play a vital role in students' support and performance. Despite the use and some challenges with digital tools, our participant GTAs expressed many contradictions (tensions) about their engagement with students and lecturers, and adaptations to the COVID-19 pandemic context.

Keywords: Graduate teaching assistants, Online teaching and learning, Online Pedagogy, Cultural Historical Activity Theory, Higher Education, COVID-19, Student support

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[2] WebAssign is an online education platform built by educators that provides affordable tools to empower confident students in a virtual learning environment.

Introduction

Within the milieu of massification and casualisation of higher education, student support is provided in different formats and varies from one institution to another. Its diversity is multi-layered, and so a convenient starting point would be to distinguish between the categories of students that GTAs support (Wald and Harland, 2020; Lowman & Mathie, 1993). In many institutions, students who are contracted to support students perform similar teaching roles as lecturers, and some teaching assistants have notably more subject knowledge and experience than others. Furthermore, different countries and institutions use different terminology to refer to teaching assisting students, namely tutors, teaching assistants (TAs), student teaching assistants (STAs), undergraduate teaching assistants (UTAs), graduate teaching assistants (GTAs), etc. These designations are not treated the same and do not always have the same roles, responsibilities, and expectations. In this study, the authors will use the term GTA because all GTAs for this study were postgraduate students (see the definition of GTAs in the footnote).There is merit in differentiating between UTAs and GTAs when discussing student support since, for instance, a senior doctoral student is likely to have much more subject knowledge than an undergraduate student (Wald and Harland, 2020), as undergraduate teaching assistants are likely to have limited subject and pedagogical knowledge which are essential for effective teaching (Major and Palmer, 2006).

Literature shows that many lecturers using teaching assistants are taking the roles and responsibilities of teaching assistants for granted because their expertise is not appreciated, and they are not used effectively (Soudien, 2020). However, the outbreak of the COVID-19 pandemic highlighted the importance of the support of teaching assistants. The pandemic forced tertiary institutions in South Africa and globally to transfer teaching, learning, and assessment to online environments to meet the learning objectives. The rapid move to online environments under emergency conditions brought about unique challenges for GTAs (Sayed and Singh, 2020). Therefore, it becomes necessary to explicitly define teaching assistants' roles and responsibilities in virtual learning environments to provide effective support to students and lecturers (Soudien, 2020). This study explores the participants' re-imagined roles and responsibilities in the changed teaching, learning, and assessment environments. During the COVID-19 pandemic, GTAs contributed more than ever to online teaching although their roles, responsibilities, and challenges are yet to be defined, especially in a virtual environment.

In this paper, we examined GTA's roles, responsibilities, and challenges during the COVID-19 pandemic at a University of Technology (UoT) through the theoretical lens of Cultural-Historical Activity Theory (CHAT). In doing so we drew on relevant literature and analysed ten interviews using the qualitative analytic software ATLAS.ti.

Literature review

Globally higher education institutions increasingly experience significant shifts to online pedagogies and the necessity to adapt to the prevailing economic and socio-cultural conditions (Youde, 2020). Factors influencing the shift are the Fourth Industrial Revolution, the COVID-19 pandemic, and the demand for equitable access and greater student support for student success (Soudien, 2020). The challenge of many institutions is to keep up with and maintain the quality of teaching, learning, and assessment considering the current institutional challenges (Daniel, 2020) of limited resources for all first-year students. In addition to the above, Hénard and Roseveare (2012) argue that within the current educational climate, universities have the responsibility to prepare graduates who have the required digital skills, knowledge, values, and attributes to achieve success in the world of work.

Meadows et al. (2015) assert that teaching assistants for undergraduate students made an important contribution to higher education through their work as assessors, tutorial leaders, and laboratory demonstrators, among other responsibilities. They posited that teaching assistants may be considered academics of the future, as they are inducted into the academy through various teaching, learning, and assessment activities expected of them. Cupido (2017) support this idea stating that students who explore their discipline in postgraduate studies often begin to perceive the opportunity of a career in higher education, having acquired

specialist knowledge and been employed as a teaching assistant. The fact that teaching assistants are teaching part-time, whilst also engaging in other academic activities such as research and administration requires them to "navigate a complex environment while learning to teach, balancing teaching with their research responsibilities as they study their discipline" (Dotger, 2011: 158). The role requires them to act as a link between lecturers and students while orientating themselves to the implicit rules and expectations associated with their context (Daniel, 2020). However, noticed by Greer (2014), another challenge of teaching large class groups and the diversity of students' academic and social backgrounds has necessitated student support beyond the classroom.

The major roles and responsibilities of the GTA are to assist academic staff with their administration, presentation of lectures, conducting tutorials and practical work, setting up, and the use of educational technology (Lueddeke, 1997; Wald and Harland, 2020). In addition, they often provide individual support to students during consultation sessions to create a safe, non-threatening space for less confident students (Cupido, 2017). Thus, the GTAs ease the academic burden of lecturers allowing for a targeted approach for students-at-risk[3] or who are failing. These students can be identified by the lecturer using learning analytics of the

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[3] An at-risk student describes a student or group of students who are likely to fail or drop out of their studying program.

Learning Management System (LMS) at the beginning of and during the semester. Additionally, these students showed less preparedness and readiness academically in the first year at university due to various reasons.

Literature on GTAs in South African higher education institutions is sparse. However, globally GTAs have more explicitly defined roles emphasising teaching and research responsibilities. The literature in South Africa devotes much attention to those who support undergraduate students, whereas the comparatively newer and arguably more problematic phenomenon of postgraduate teaching assistants (GTAs) is far less explored (Wald & Harland, 2020). Acknowledging the complexity of the teaching assistant landscape, it becomes important to call for more research into the phenomenon of GTAs and for more and better training and support. To address this gap this study explores the value of GTAs in higher education during the COVID-19 pandemic by using the Cultural-Historical Activity Theory (CHAT).

Theoretical framework

Cultural-Historical Activity Theory (CHAT) was originally proposed by the Russian socio-cognitive theorists Leont'ev (1974, 1981) and Vygotsky (1978), and further developed by Engeström (1987, 1999, and 2001), as a guiding analytical framework. Engestrom (1987) developed CHAT into a social theory focusing on associated social activities. CHAT has

evolved over time and can be organised in three main generations. The first generation concentrates on individual activity and identifies three elements of the activity system (triangle) namely: (1) the subject, (2) the object, and (3) the instrument/mediating tool (Vygotsky, 1978). The second generation of activity theory focuses on a collective, group activity and adds additional elements to the activity system (triangle): rules, community, and division of labour (Leont'ev, 1974, 1981). The third generation of activity theory combines several interactive activities to explore multifaceted social activities (Engerstrom, 1987). In this study, we adopt the second-generation activity theory aiming to understand the roles of GTAs in online pedagogical practices in terms of responsibilities, challenges, contradictions, and conflicts during the COVID-19 pandemic.

CHAT provides a useful framework to analyse the GTAs' responses, highlighting the relationship between the activities of the subjects, objects, tools, mediation, and the context of the activity system (Engeström, 1999). The first principle of CHAT is that the object drives the activity (Engeström, 2001). The object is what the subjects understand as the purpose or intention of the activity - that which "propels them forward to take action" (Engeström 2018: 48). Figure 1 illustrates the activity system, in which the objects are the effective online pedagogy of GTAs, authentic learning, and acquisition of engineering concepts by students. The participants in this educational activity system are the ten GTAs (*subject*), whose purpose (*object*) is

online pedagogy and assisting students (Roth, 2004).
Therefore, the subjects are the GTAs who played different
roles in this activity system to achieve the common goal of
online pedagogy and support for students, where the specific
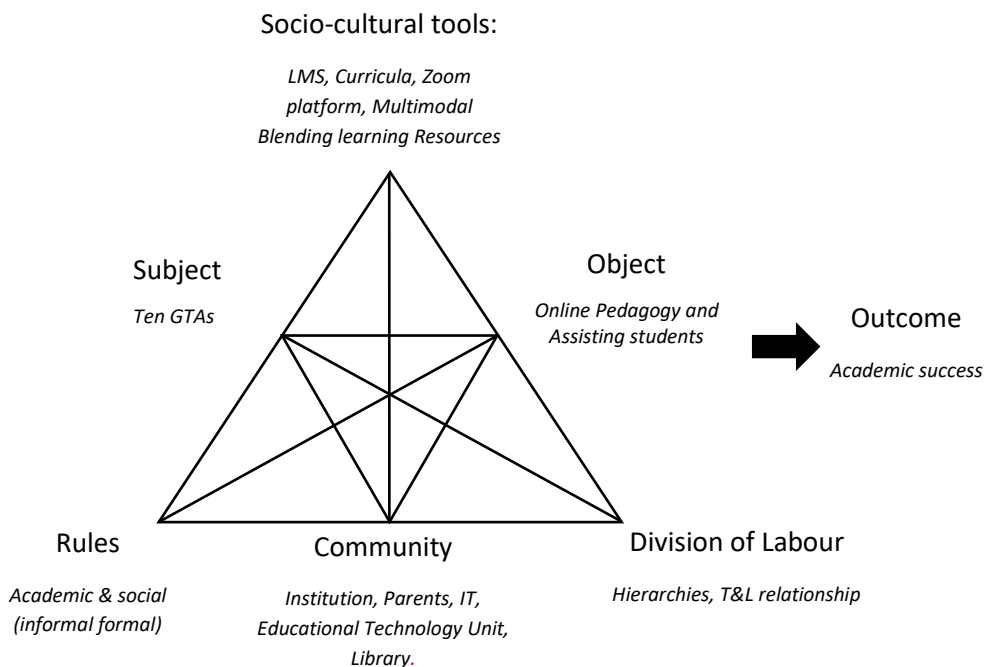*outcome* of this system is academic success.

Socio-cultural tools:

*LMS, Curricula, Zoom
platform, Multimodal
Blending learning Resources*

Subject

Ten GTAs

Object

*Online Pedagogy and
Assisting students*

Outcome

Academic success

Rules

*Academic & social
(informal formal)*

Community

*Institution, Parents, IT,
Educational Technology Unit,
Library.*

Division of Labour

Hierarchies, T&L relationship

Fig. 1: GTA's activity system (adapted from Engeström 1999)

Within this system, the online learning resources, *socio-cultural tools* (e.g., institutions, discourses), and cultural mediational tools such as curricula, facilities, equipment, internet-based and library-based resources, and the learning management system (LMS) are directed at the top of the triangle (activity system). The GTAs form part of a much broader system - the university that is embedded in an institutional culture that has *rules* and hierarchies of decision-making and *divisions of labour*. It is important that the correct tools and resources are used with appropriate and corresponding rules and divisions of labour to guide the activity system, e.g., which tasks are appropriate for GTAs, and which are more appropriate for students in achieving the objectives. The *community* of an activity system is those who are affected by the systems (e.g., lecturers and professional bodies) but are not directly involved in the work of achieving the object (Uden, 2007). The community can also be beneficiaries of the activity, and stakeholders in the activity. In the case of this study, important community participants include the university and the information technology (IT) department.

Practices and conventions in education have "deep roots" (Sannino & Engeström, 2017: 24) and are slow to change to accommodate new objects, subjects, tools, rules, communities, and divisions of labour (Edwards, 2008). The COVID-19 pandemic forced the education system to change and accommodate online pedagogical approaches. However, CHAT cautions that the introduction of new tools, such as the

online conferencing platforms, e-textbooks, etc. could cause disruptions (contradictions) in the system, but such disruptions are not necessarily negative because activity systems are not static. Contradictions reveal unique opportunities for creative innovations for new ways of structuring and enacting the activity (Yakubu and Dasuki, 2021). Lessons learnt from the disruptions caused by the pandemic include new ways of teaching, delivering content, and facilitating learning that teachers can implement in their 'normal' practice.

Several scholars have used CHAT to examine technology for online teaching and learning (Uden, 2007; Hardman, 2021; Batiibwe, 2019). Selecting CHAT as a theoretical framework is ideally suited to explain phenomena of technology as tools for mediation in teaching and learning processes (Uden, 2007). Therefore, CHAT could be an appropriate theoretical lens to analyse the teaching and learning processes, and GTAs' roles in virtual spaces. Furthermore, Hardman (2021) suggests that the cultural-historical model as a pedagogical model is capable of enabling teaching online rather than merely just technology. In another study, Batiibwe (2019) reported that CHAT provides an understanding of how technology can mediate teaching for transformational learning. These studies and other subsequent studies helped to establish activity theory as a key theoretical approach to human and technology interaction.

In the next section, we discuss the methodology and method and will present how the theoretical elements of CHAT were included in collecting data for this study.

Methodology

This explorative case study approach collected data through semi-structured interviews with ten graduate teaching assistants (GTAs) about their roles and responsibilities using fifteen open-ended questions based on the different elements of CHAT (Yin, 1981). The wording and sequence were tailored to each individual interviewee using prompts and probes (Cohen, Manion and Morrison, 2017: 511). We selected an interview method to get the GTAs' stories and their experiences as well as provide an opportunity for them to reflect on what and how COVID-19 changed the teaching process (Seidman, 1991). According to Vygotsky:

Every word that people use in telling their stories is a microcosm of their consciousness. As such, individuals' consciousness gives access to the most complicated social and educational issues because social and educational issues are abstractions based on the concrete experience of people. (1987: 236-237)

The interview questions are reflected in Table 1.

Table 1: Theoretically determining questions for interviews

Activity element based on CHAT	Interview questions	Code name
Subject	Q1: Please tell me about your qualification and teaching experience.	Sub
Object	Q2: What do you think the purpose of this interview is? Q3: What do you think the main purpose/objective of your duties as a GTA is? Q4: Please explain why you like your role as GTA? Q5: In your understanding what is the difference between the TA, tutor, and GTA in terms of their roles, respectively? Q6: Has your purpose and role/responsibility as GTA changed	Obj

	from the pre-COVID and during the COVID-19 pandemic?	
Tool/Mediational means/cultural tools	Q7: How do you draw on the following resources in order to do your work i.e., knowledge, skills, artifacts, people, etc.? Q8: What tools do you use when you engage with students and lecturers? Q9: Do you have access to all the resources that you need to perform your duties?	MM

Community	Q10: Who are the other staff working with you or supporting you in performing your duties?	Com
	Q11: Did you notice any changes in terms of role players with time i.e., pre-COVID-19 and during the COVID-19?	
Division of Labour	Q12: What roles do you play as GTA?	DoL
	Q13: In your opinion where should a GTA fit in the teaching-learning process?	
Rules	Q14: What rules and responsibilities should you adhere to e.g., policies, timesheets, safety rules, lines of authority, logs, etc.?	Rls
	Q15: What are the salient/ unsaid rules of your workplace?	

The theoretical framework of CHAT is valuable for qualitative studies because it allows the investigation of issues related to

real-world complex learning environments (Sannino & Engerström, 2017). One of the many significant values of having a clearly identified theoretical framework for the study is the ability to use this material to support and build the study design. We represent the elements of the teaching and learning activity system used in this study in Table 2. In this table, CHAT permeates everything that the authors did for data collection and analysis.

Table 2: Main CHAT elements and the online teaching and learning activity system

Activity element	Description	Online teaching and learning
Subject (Participants)	Participants for this study are actors or agents who accomplish the goal or object of the activity by utilising available tools and mediation means	Ten GTAs
Social-cultural Tools/ mediation means	The tools in this study are the application	Blackboard LMS, Curricular for remote learning, Zoom, and multimodal

		blended resources
Object	The main purpose is an activity that can be created or exists.	Online pedagogy and acquisition of knowledge during COVID-19
Rules	The rules, expectations, and as well formal and informal regulations influence the activity system.	Academic and social (formal and informal) rules
Community	Community includes the active and passive participants in the activity where they share the same objective of the activity.	Institutional, lecturers, IT, Educational Technology Unit, Professional body

Division of Labour (Roles)	Roles, responsibilities, and designated tasks assigned to the subject (participants)	Hierarchies TL relationship
Outcomes	The outcomes of the activity are achieving the goal of the whole activity where the object transformed into an outcome through intervention and of the new tools	Academic success

Participants

All the GTAs are mathematics and science postgraduate students and one of them is a postdoctoral student. The participants in this study are referred to as the subject of the activity system who are actors or agents aiming to accomplish the goal or object of the activity by utilising available tools and mediation means. More information about participants is presented in Table 3.

Pseudonyms	Gender	Qualification is currently studying	Teaching Subject
GTA 1: Norman	Male	PhD	Mathematics
GTA 2: Andrew	Male	PhD	Mathematics
GTA 3: Collin	Male	Postdoc	Mathematics
GTA 4: Steve	Male	PhD	Mathematics
GTA 5: Osman	Male	PhD	Mathematics
GTA 6: Mohamad	Male	PhD	Physics
GTA 7: Ali	Male	PhD	Physics
GTA 8: Jack	Male	PhD	Mathematics
GTA 9: Victoria	Female	PhD	Mathematics
GTA 10: Thabo	Male	PhD	Physics

Table 3: Participants' information

The authors acknowledged some of the limitations of this study regarding participants, for example, sample size and gender imbalance in the sample.

Data analysis

The data were mainly analysed using the qualitative analytic software ATLAS.ti which belongs to the genre of CAQDAS[4] (Computer-Assisted Qualitative Data Analysis) programs (Fielding, Lee and Lee, 1998). ATLAS.ti does not actually analyse data; it is a tool for supporting the process of qualitative data analysis (Friese, 2019). During the coding, the researchers (two authors of this study) created 408 quotations for the whole project (interviews excerpts and articles of this study). Codes were based on the identified themes in terms of the elements of CHAT. We used 18 codes initially across the three main groups - (1) Interviews, (2) theoretical framework (CHAT), and (3) literature review. After reviewing and cleaning up fifteen (15) codes emerged. Using deductive and inductive analysis, the transcripts of the interviews were analysed using ATLAS.ti. The deductive and inductive approaches to coding were done because CHAT played a good role in a conceptional framework that had concepts from the activity system (figure 1).

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[4] The acronym CAQDAS was developed by the directors of the CAQDAS networking project at the University of Surrey, Guildford, UK (www.surrey.ac.uk/computer-assisted-qualitative-data-analysis).

With the inductive research approach, we interviewed the ten GTAs on their roles, responsibilities, and challenges during the COVID-19 pandemic, without having any theory in mind (Saldana, 2021). This process is also referred to as a "bottom-up" approach. We reviewed the GTAs responses and categorised them according to themes and codes for analysis. The emerging themes and patterns led to developing general conclusions that we found most appropriate to address the research topic. We then used the deductive research approach using CHAT as a specific theoretical approach to answering the research questions. This deductive process works from general to specific observations and is often referred to as a "top-down" approach (Saldana, 2021). Before we moved all transcripts to ATLAS.ti web for analysis we created a project and provided a short description for the themes and codes as reflected in Table 1 above.

Ethical considerations

All aspects of this planned research were scrutinised, including processes for informed consent, data management, and confidentiality. Additionally, the researchers maintained privacy, anonymity, and non-traceability in this study. During recruitment for this study, the participants underwent an informed written consent process, and pseudonyms are used to protect their confidentiality. The participants had the right to withdraw at any stage if they felt uncomfortable in this

study. The study was approved by the research ethics committee of the university (FREC: 0307/2021).

Results and discussions

Analysis of code distribution

The analysis of the interview transcripts in figure 2 revealed that the tool/ mediation means (73 quotations), changes due to COVID-19 (58 quotations), experience (49 quotations), and contradictions (44 quotations) constituted the most quotations shared by the GTAs. This may be attributed to the fact that teaching, learning, and assessment processes moved to online environments forcing the GTAs to improvise their mediation means during the COVID-19 pandemic. The quotations in the different themes overlap and many results show contradictions (code). These contradictions include challenges in adapting to online pedagogies, revealing several contradictions in the online teaching and learning activity system. One such contradiction is expressed by Collin, "I think I can do [offer] more to students, my skills are being underutilised because I perform mostly administrative duties". From Collin's quote, the authors noticed that Collin felt he can contribute much more but unfortunately, his skills and experiences were not utilised enough. Another contradiction was also expressed in Steve's comment, "It takes me more time to do a session online than face-to-face because of the technical problems that I experienced".
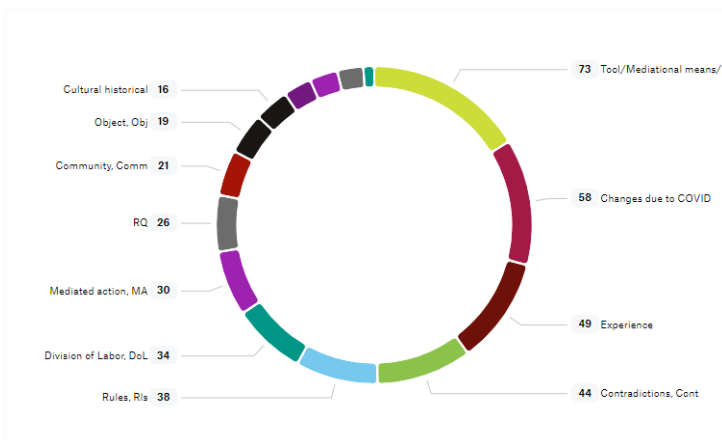
141

Fig. 2: Code distribution (doughnut chart uploaded from ATLAS.ti Web)

Figure 2 also shows cultural-historical (16 quotations), object (19 quotations), and community (21 quotations) represented the least quotations shared by the GTAs. This observation may be attributed to the fact that most of the GTAs are from foreign countries, however, they seem to be sensitive to the local students' socio-cultural backgrounds. They also mentioned that they received relatively good support from their community.

In this study, the nature of the community reflected a professional space which is an important aspect of the socialisation of students. Within the community, the division of labour is such that the GTAs are seen as guides who strategically assist students in a gentle way, allowing them to be part of a safe environment where it is possible to take risks. The community included the active participants (GTAs

and students) and passive participants (parents and IT support) in the activity where they share the same objective of the activity, namely academic success. Five participants discussed 'community' stating that this was important to be part of the academic community to perform their role. For example, Victoria said, "My colleagues, like fellow GTAs and the tutors that I work with, are helping each other, especially if there is something I don't understand". In Victoria's comment, it seems evident that being part of the academic community is beneficial to her.

Cultural-historical aspects and background of GTAs

Learning from a cultural-historical point of view demonstrates that human behaviour varies between cultural contexts and will change with the passage of time - this is defined within CHAT as historicity (Hardman, 2021). The GTA acknowledged the temporal nature of teaching and learning: the influences of changing professional practices related clearly to how they felt it best to teach a curriculum, and how best to maximise the benefits of the use of online resources and mediational means. Most of the GTAs were born in other African countries and from their transcripts, they mentioned that the cultural-historical aspect played a key role in the teaching and learning process. Norman's comment below is based on the fact that he is from another African country, Nigeria, and he had to familiarise himself with the local cultural-historical context in order to support the students.

Norman: … *we also realised that we are dealing with different categories of students with different social*

backgrounds, different ethnicity, different races …. So, even if the COVID-19 is over, we have to go face to face this thing is very important, we have to recognise the socio-cultural background of individual students. I find myself in a different environment. Now, I know that cultural backgrounds are not the same.

Culture points to the premise that humans are enculturated, and that everything people do is shaped by their cultural values and resources (Foot, 2014). The term historicity used together with culture indicates that since cultures are grounded in histories and evolve over time, analyses of what people do at any point in time must be viewed in light of the historical trajectories in which their actions take place (Foot, 2014).

From another participant of this study, the authors saw a clear relation to respect and adapting to different cultures when the GTA is an outsider in this context. In Osman's comment below, he shows appreciation, compassion, and empathy for the local students' socio-cultural diversity and disparity in terms of advantaged and disadvantaged students. He is willing to change and adapt to a new environment that is new to him.

Osman: *You have to be patient because you have students who are coming from different backgrounds. … you have to be flexible… So, different students assimilate knowledge differently, for some, today they grab easily for others, it takes time for them to grab…*

The responses of Norman and Osman reflect the general approach of the participants when engaging with students and taking into consideration the cultural-historical element of CHAT in their teaching. Many scholars also noticed that large classrooms and the diversity of students' academic and social backgrounds have necessitated student support beyond the classroom. Strydom, Basson, and Mentz (2012), when exploring student engagement, stated that improving the quality of teaching and learning in underprivileged learning institutions is a national imperative for higher education institutions in South Africa (Cupido, 2017).

To conclude, the limited knowledge of cultural-historical aspects and the backgrounds of students might negatively impact the GTAs practice in supporting and understanding the diverse background of the students.

Relationships of GTAs in the activity system

From the interviews, we found that in the activity system the GTAs can be considered a part of the mediational means/ tools element and thereby have a direct relationship to the lecturer and students that are also part of the object. The GTAs help lecturers and students in the teaching and learning process, as shown in Figure 3.
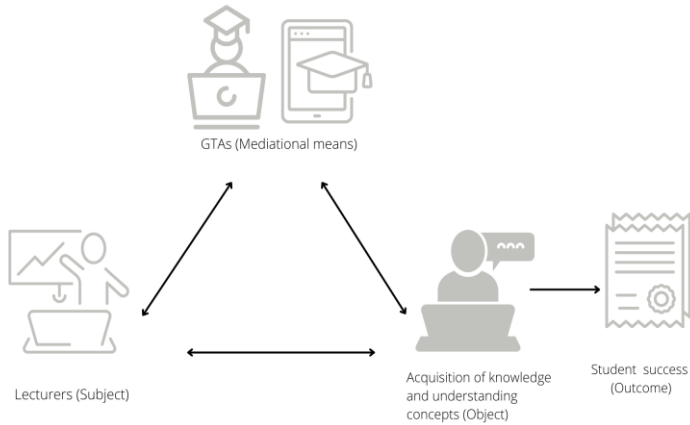
Fig. 3: Relationships of GTA's role in terms of CHAT

The GTAs have complex relationships in their roles and responsibilities in supporting lecturers and students. Therefore, to adapt to the shift to online environments they changed their practices accordingly. Victoria mentioned, "The role of the GTAs is primarily to be a middleman between the lecturer and the students, and we need to provide a bridge between what students don't know and what they are supposed to know". Here Victoria referred to Vygotsky's (1986) Zone of Proximal Development (ZPD) which states that mediation happens in a unique social space that opens up in interaction (Hardman & Amory, 2014). Many of the GTAs mentioned the two organisational roles in their responses- lecturer-GTA and student-GTA. Ali commented, "I think the lecturers should have more meetings with us so that we know exactly what and how to engage with the students". The response from Ali indicated that in the online

space GTAs need more training and the lecturers' perspective on how the GTA can improve engagement in the online space.

Conclusion

The GTAs roles and responsibilities during COVID-19 presented some form of taking contentions and contradictions. Firstly, because the role and responsibilities in the online teaching, learning, and assessment were not clearly communicated to them during training, this resulted in role ambiguity. Secondly, during the semester, GTAs were assigned to different types of tasks (as the need arose) that each required a specific level of time and effort (role conflict). Finally, the GTAs had no means of renegotiating the GTA terms once they were appointed (role-taking).

The similarities and differences in the roles and responsibilities of the different categories of student assistance should be distinguished. The GTAs, TAs and tutors, should be differentiated according to their qualifications and experience along the administrative-teaching-research continuum (Smith and Smith, 2012), since most of the GTAs mentioned that they are mostly busy with non-teaching tasks and technology, creating role strain. To solve these role conflicts, GTAs should get more IT support and teaching opportunities, helping the lecturer and students in the education process and preparing GTAs for the future as would-be academics. GTAs should have constant

communication with lecturers to discuss the progress of students with lecturers. However, lecturers are overloaded and do not always have time to meet with GTAs (Wald & Harland, 2020). To solve this problem, there is a need for regular meetings to discuss preparation and feedback. Second, the lecturers should be part of the GTA training sessions. Regular GTA-lecturer interaction can assist in preparing GTAs for future academics.

This study did not only aim to argue for changing the roles of GTAs due to the COVID-19 pandemic but also demonstrated how CHAT can be a useful reflective framework to analyse and understand the complexity of roles and pedagogical practices of GTAs within the COVID-19 context. It recognises that those practices may be specific to a particular institutional context rather than being accepted as representative of a wider view. However, it demonstrates how CHAT can be used as a thinking tool for pedagogy and how personal pedagogical stances influence student learning. CHAT also allows consideration of how to practise within a system that may be developed in the future to resolve contradictions.

Disclosure

The authors reported no conflicts of interest for this study.

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