



Technical Report

Cultural Historical Activity Theory as a tool for reimagining WIL: Conducting contradiction analysis workshops and the implications for Change Laboratory work

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Abstract: In this report we describe the rationale and structure for conducting a series of separate Cultural Historical Activity Theory-inspired contradiction analysis workshops focused on work-integrated learning. The events occurring in each separate workshop are then illustrated and the benefits gained from the participants' perspectives are highlighted. Overall, participants clearly valued gaining a collective and systematic understanding of difficulties with their WIL initiatives. Furthermore, from the perspective of the researchers, the workshops appeared to identify motive and interest for participants to move further with a full-scale change laboratory.

Keywords: Work Integrated Learning; Contradiction analysis; Workshop design; Project report.



1. Introduction

In this South Africa-Sweden project, academics with specialist knowledge of work-integrated learning (WIL) and Cultural-Historical Activity Theory (CHAT) collaborated on knowledge development to enhance teaching practices and student learning towards productive outcomes related to societal challenges. The cross-border ‘contradiction analysis’ workshop collaboration aimed to enhance our understanding of the difficulties which universities experience in conducting WIL, and how such difficulties may be addressed and potentially overcome. Based on our research work, it was hoped that we would be able to assist participants to create a model for WIL that is able to accommodate both changes in workplaces, changes in university structure and focus, and at the same time assist the university in achieving the Sustainable Development Goals (for example, providing quality education and access to decent work). The methodology used to conduct this research was the activity system of WIL as a tool to highlight contradictions within the structure and processes of WIL. The research was carried out in the form of workshops at various institutions and conferences during 2023.

The workshops were designed as interactive sessions with the use of a pre-prepared CHAT tool, the activity system of work-integrated learning programs. In the ‘crash course’ on CHAT The activity system was explained to participants as being composed of mutually dependent elements. In short, the elements refer to what the participants understand they are working on making happen within the university (the object or raw material); what they are using to do this work (tools); who else is involved with working on the object (community); and how the work of the participants (the subjects) is governed by the rules/culture they operate in, and how the roles are divided up and who holds the most authority (division of labour).

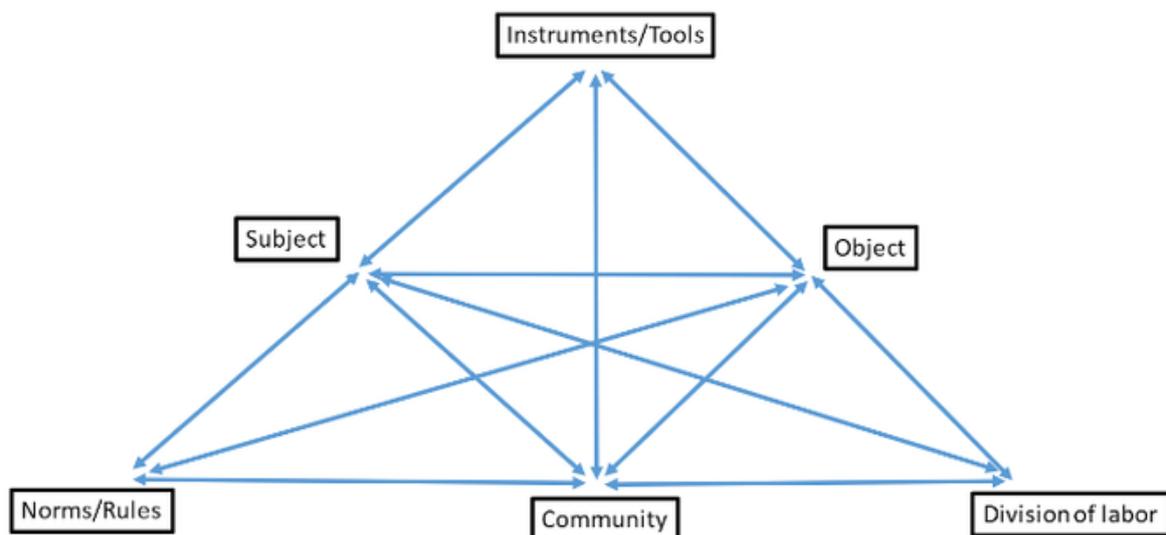


Figure 1: An activity system from second generation CHAT (Engeström, 2015).

Workshop participants were expected and encouraged to actively bring forward examples from their lived experience of work-integrated learning models in order to populate the activity system and thereafter to conduct contradiction analyses using the CHAT tool. In order to do this, participants were provided with their own sheets of newsprint and Koki pens. The main function of the contradiction analysis was to enable participants to transition from narrative, often individual, discursive manifestations of difficulties to understanding them, both individually and collectively, as systematic contradictions within and between the above elements.



Through gaining such detailed and systematic knowledge, participants may begin to recognize opportunities for future developments.

The structure of each contradiction analysis workshop was as follows:

1. Participants were given a crash course on CHAT through being introduced to the activity system mode of analysis;
2. Each participant drew a triangular depiction of their WIL system and populated the activity system elements;
3. Participants identified two to three main contradictions in their system and shared these with the group as a whole;
4. Participants Collectively discussed the emerging contradictions;
5. Participants reflected on the contradiction analysis process.

Key to this research was encouraging the workshop participants to understand WIL in all its often-contradictory material and social relations, and that participants themselves were multi-voiced thus requiring some form of 'polyphonous orchestration' (Engeström, 2015: 248). Such dialectical thinking also encouraged participants to identify contradictory pressure points, not as developmental barriers, but as opportunities for future changes. When seen in this way our relatively time-limited CHAT workshops may set the scene as an easy and accessible introduction to change laboratory work towards the development of new and improved WIL concepts and processes.

In reflecting on the workshops many participants identified the need for further analysis to explore emerging contradictions, thus supporting our argument to consider the contradiction analysis workshops as a precursor, prompt and stimulus for participants to engage in change laboratory work.

Altogether five one-to-three-hour contradiction analysis workshops were conducted in which participants grappled with WIL issues and difficulties encountered. The contexts and locations of the workshops were different but in each case the same process of conducting contradiction analysis was followed. Despite these contextual and geographical differences many similar contradictions and suggestions for ways forward for WIL practices emerged.

Two workshops were conducted within the WIL units of South African Universities of Technology. Such universities are characterized by their historical closeness to workplaces and the community, and their focus on WIL. Here, participants were interested in challenges in conducting WIL but were unfamiliar with CHAT. We coded these workshops as 'specific' to WIL and institutional. Three workshops were conducted at international conferences in which the conference organizers welcomed new approaches to conducting research and participants either had an interest in WIL or in CHAT.

The purpose of conducting the workshops at conferences was two-fold. Firstly, as a means to try out the workshops with mixed, international groups of participants and secondly to promote the use of CHAT contradiction analysis as a useful analytic methodology in understanding WIL. The World Association of Cooperative Education (WACE) has a WIL focus, and the workshop participants were thus similar to those from the above two universities, being familiar with WIL but not necessarily with CHAT. We thus coded this workshop as 'specific' to WIL but international rather than institutionally-bound. The South Africa-Sweden University Forum (SASUF) conference involves academics from South African and Swedish universities. As the workshop was advertised as a WIL event, the participants were mostly WIL practitioners or those involved in WIL in some fashion, but there were three non-WIL participants as well. This was thus



comprised of a 'mixed' WIL/Non-WIL, international group. Again, the participants were mostly unfamiliar with CHAT research approaches. The International Conference on Information and Communication Technology in Education (ICICTE), on the other hand, attracted practitioners who were interested in WIL but were not necessarily involved with WIL programmes, and who were unfamiliar with but interested in CHAT research.

The first workshop was conducted at the SASUF conference in early 2023. As SASUF encourages South African-Swedish innovative collaborations, this provided an ideal platform to test out the model of conducting contradiction workshops. As the workshop was extremely successful it was decided to follow up with similar workshops at locations, venues and dates available to us where we believed there was interest in WIL, CHAT or both of these. The sequence and characteristics of the contradiction analysis workshops is shown in Table 1.

Table 1. The conducted workshops during the project so far.

Order of workshop and time	Place	Participants	Type of group	WIL scholars/practitioners	CHAT scholars
1 – 2h	SASUF, Cape Town, South Africa	12	Mixed international	Yes, majority	No
2 – 1h	ICICTE, Lesvos, Greece	10	Mixed international	Yes, minority	No
3 – 1h	WACE, Waterloo, Canada	8	Specific international	Yes	No
4 – 2.5h	CPUT, Cape Town, South Africa	9	Specific institutional	Yes	No
5 – 3h	MUT, Durban, South Africa	8	Specific institutional	Yes	No

2. Workshop at the South Africa-Sweden University Forum (SASUF) conference, South Africa

Workshop report by Christine Winberg

SASUF provides an opportunity for university academics and students to collaborate on conducting research workshops and seminars on innovative concepts and research methodologies in support of the Global Sustainability Goals. The conferences alternate between Sweden and South Africa, and this workshop was conducted in Cape Town South Africa in March of 2023, as a collaboration between the University West, Sweden, and the Cape Peninsula University of Technology, South Africa. The workshop was open to any delegates at the conference from Swedish and South African universities, and participants with an interest in WIL were invited to attend. One or two of the participants had limited knowledge of CHAT, but the theory was generally unfamiliar to them. Nine out of 12 of the participants were academics involved in some way with WIL. This was the first contradiction analysis workshop conducted and the collaborators were unsure whether or not participants with no or very limited prior knowledge of CHAT would be able to engage productively with the methodology. However, the quality of the analyses presented by the participants and their reflections on opportunities for further analytical work encouraged the Swedish and South African team to extend the workshops to other conferences and institutions.



The workshop participants presented their reflections on WIL (or in two cases on work difficulties more generally) using the CHAT tool of the activity system triangle, covering areas such as design, business, ICT, teacher education, hospitality, information systems, and agricultural extension.

The first presenter had found a “disconnect between what is happening at universities and the ... graduates finding employment”. They hoped to achieve the outcome of enhancing graduate employability but were concerned that WIL might not be a useful mediational means for employability in current South African economic and higher education contexts, which the presenter described as “all messed up”. Presenters 2 and 3 in their activity and contradiction analyses had similarly uncovered challenges in placing students in companies in a declining economy. Presenter 4 uncovered contradictions between the tools, which included the WIL policy and the university regulations, and the larger community of stakeholders, including potential employers, who did not value the university-led mediational means. Presenter 5 had encountered similar contradictions in an international project with the intention of improving marketing qualifications. Employers felt undermined by the universities’ insistence on their right to set the standards for the assessment of students in practice. Presenter 6 explained that “what we want is a future-fit curriculum that will produce graduates who are future-fit to boost the economy and what we basically want is all-round strategic thinkers, critical thinkers, resilient graduates and entrepreneurial thinking. So that’s the vision”.

Presenter 7 found that the challenges in higher education management compromised the quality of a teacher education programme: “when there is this huge conflict between your resources and your object, it’s going to affect everything. And it means that the desirable outcome sort of just keeps escaping, going further and further away”. Presenter 8, also in the field of teacher education, found a disconnection between what the student teachers were learning at university and the realities of the classroom, with each site working ‘independently’.

Presenter 9 focused on implementing sustainable farming methods in Zimbabwe but grappled with the difficulty of trying to do this where poverty levels were high. This encouraged the presenter to reconceptualize the object of the activity system as one of “build[ing] a stronger community instead”.

Finally, presenter 10 in the field of Hospitality presented their intention to “basically try to help [hospitality students] to become self-sustainable and [achieve] self-management, that would be the end goal”, when they enter the workplace. The contradiction seemed to be between students’ desire to “want to know exactly what I want them to do” and the lecturers desire that they use the available tools to work things out for themselves: “You need to go – and creatively solve the problem’.”

What was common across presentations was their concern with how higher education relates to its broader contexts, including sustainability issues, societal change, new technologies, students’ mental well-being, workplaces, enterprises, local authorities, and communities in need. These presentations all aimed to address different aspects of education and its alignment (or lack of alignment) with the world beyond the university. For most of the presentation, the desired outcome was graduates who are well-prepared, employable, and capable of contributing positively to society and the economy. The object that each project had as its focus varied from students’ well-being to students’ problem-solving practices, and from building entrepreneurs to building a community, and more. Participants identified several contradictions within their WIL projects, such as conflicts between higher education and its broader contexts, and between what higher education valued and what private enterprises valued, and between what higher



education provided and what schools, communities and workplaces needed. There were also contradictions within the higher education activity system, such as policy constraints, resource limitations, and resistance to change, or between a teacher education department and a school. A common contradiction discussed was the misalignment between higher education and the realities that students would face in the world beyond the university.

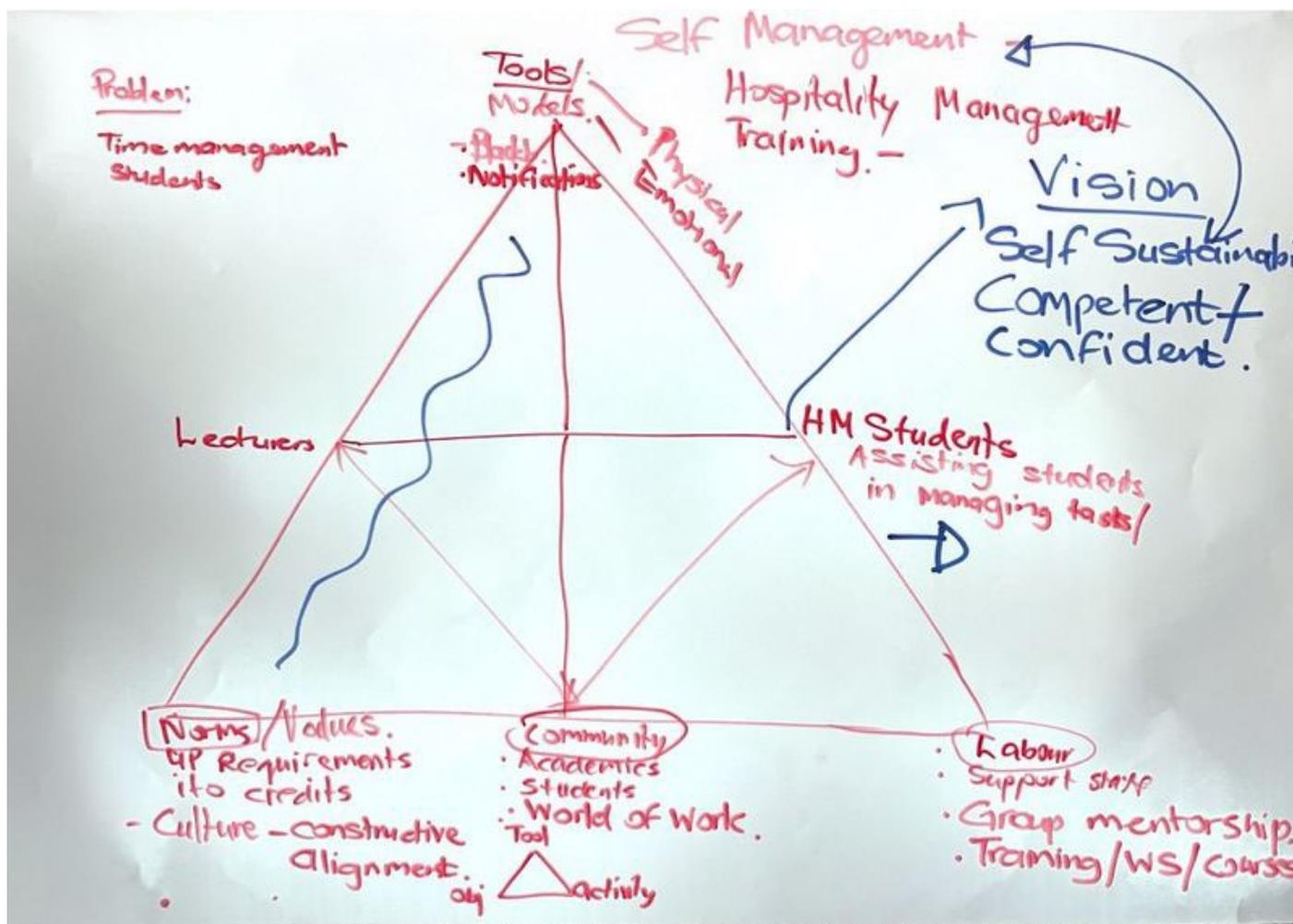


Figure 2: Hospitality activity system analysis.

2.1 Participants' reflections

Participants acknowledged that the activity and contradiction analysis enabled them to identify contradictions and problems within their systems. They discussed the benefits of this analytical practice, including the potential for further research and exploration drawing on the tools and methods of CHAT. The workshop participants acknowledged the importance of understanding contradictions and how the activity and contradiction analysis could lead to creative solutions and further research endeavors.

3. Workshop at ICICTE, Greece

Workshop report by Maria Spante

The International Conference on Information and Communication Technology in Education (ICICTE) is dedicated to addressing the multitude of challenges and emerging trends



brought about by technological advancements and policies in educational environments. In keeping with the established tradition of preceding ICICTE conferences, ICICTE 2023 serves as a platform that unites a global network of scholars and practitioners within a forum setting, thereby fostering an environment conducive to engaging discussions on contemporary ideologies and practical applications of technology in education. Though not specifically about technology, the strong focus of the conference on conducting workshops aimed at innovations in education provided a suitable platform to further extend the WIL CHAT initiative begun at the SASUF workshop. ICICTE extends an invitation for submissions of papers, workshops, and posters centered around various general themes, while also proposing specific specialized topics for exploration by its participants. The conference was held on July 6-8, 2023, in Lesvos, Greece.



Figure 3: Created posters of participants in the workshop.

The workshop at the ICICTE conference was part of the general conference program and open to everyone who was interested in the topic. There was no need to apply for attendance in advance. The goal was to attract scholars engaged in work-integrated learning at their universities. However, in this workshop with 10 participants (see picture below of the creations of the participants), only one WIL scholar attended, and the rest gave examples of various practices from their own lived experience in their university activities. Thus it was difficult to obtain extensive information specifically about reimagining WIL from this workshop. But we were able to show that doing contradiction analysis with the help of the second generation AT tool of the activity system triangle was a fruitful approach, even though the workshop was time-limited and involved a mixed audience.

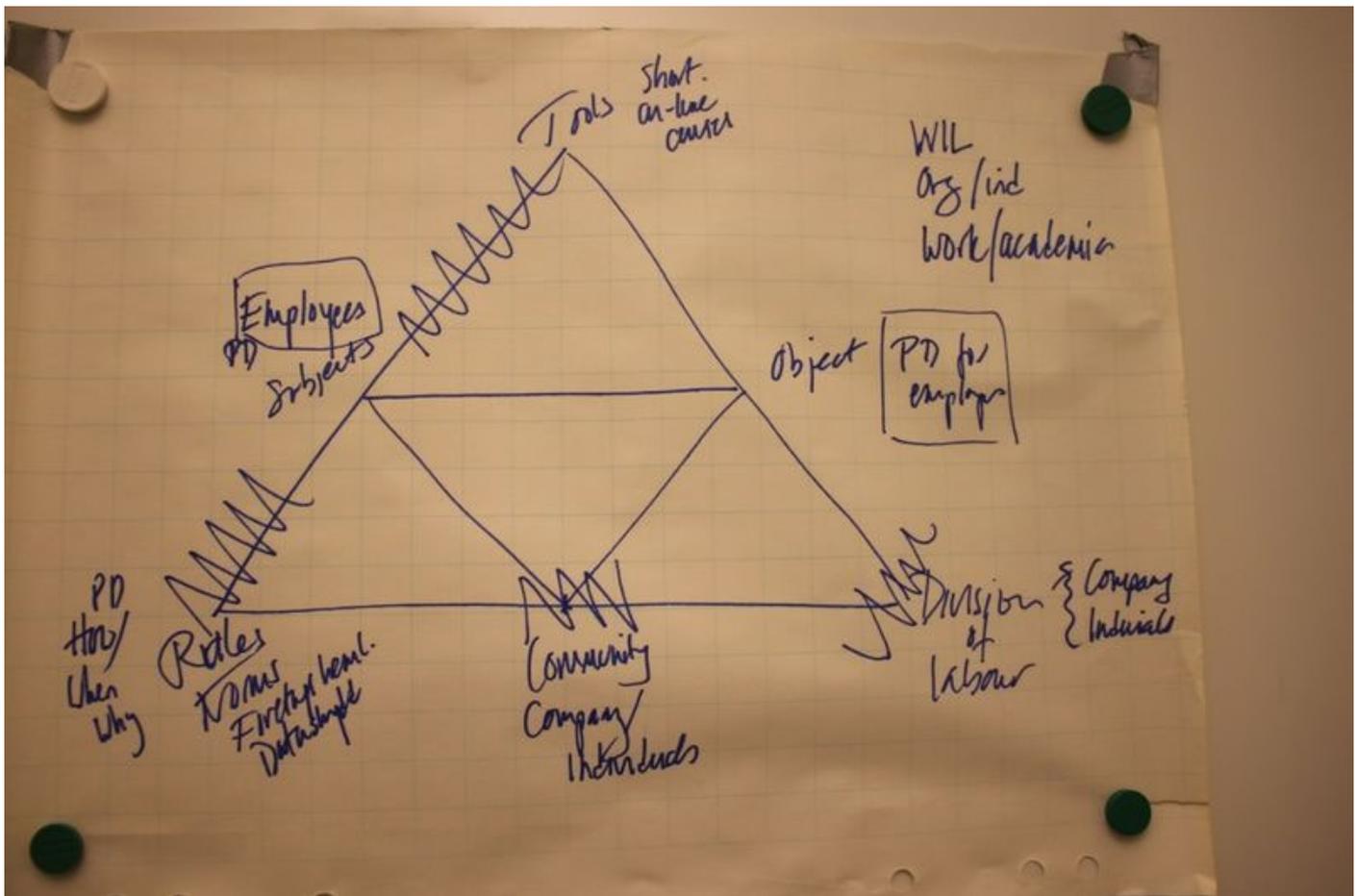


Figure 4: WIL scholar working with exploring contradictions in the activity system.

In this workshop none of the participants were CHAT (or AT) scholars; at best, they had heard about CHAT. Despite this, they could embrace the task of depicting the triangle in their handwritten posters, inserting the nodes, and providing suggestions of what would make sense for them to add in each node. After that, they were instructed to find contradictions within or between nodes given their own experience of being involved in the activity. It worked surprisingly well. During the individual work with each triangular analysis, they could speak with each other, ask for clarifications from the workshop facilitator and were also encouraged to embrace the idea that this was their first attempt and, therefore, if they were to do it again it might look different. This practice reassured the participants that there was no one correct answer in their CHAT interpretations stemming from their own experience.

3.1 Participants' reflections

After each participant had made their oral presentation of their activity system, and talked about what they perceived as contradictions, we made a round of reflections about how they experienced the workshop, particularly addressing the relevance of doing the work with the triangular analysis. They said that depicting their own activity system was something that made them more aware of the complexity involved in their example. Furthermore, they thought it was clarifying to think about the relations between nodes and how these relations also influenced the contradictions that they experienced. Participants were sometimes challenged in coming up with new visions for their activity system. In particular one participant, who was working on teacher training student portfolios as their activity system, struggled to move beyond a filled



portfolio as their vision for the system. But after some collective discussion they were able to change their vision to that of having students with a strong toolkit to become insightful and empowered teachers when learning at university. That discussion also brought up the idea among the participants that the collective, analytical practice was helpful to go more in-depth into the nodes as well as the identified contradictions of the system. As a result, the interpretation of the workshop was that the triangular tool that participants made and used themselves became a material means for the explicit articulation of complexity in activity systems. At the same time, it clarified where the tensions in the activity systems were situated as a start for a more in-depth collective investigation when sharing their work. Furthermore, participants also said that they were inspired to apply the analytical tool to investigate other activity systems in more depth. They also discussed how the contradiction analysis revealed contradictions as possibilities for development rather than something to avoid. Here, it seems that the CHAT-driven workshop was fulfilling its core idea and goal of addressing contradictions as drivers towards dialectic thinking.

For the only WIL scholar in the room (see fig 3), the major contradictions were identified as being between the university and industry with their different ways of working, rules and regulations that make personal and practical development hard for their students. This clarification was uncomfortable for the participant since the idea of WIL is built on university/industry collaborations. The workshop did, however, support her desire to involve her colleagues more extensively in thinking analytically about WIL in order to address this and other current tensions. She wanted, in particular, to break with some routines she felt caught up in that did not support her vision of WIL. Of course, there is a need to take all these positive remarks with some precautions since people are generally polite to workshop hosts. But it also seemed that there was something honest and sincere about the evaluation of the meaningfulness of the tool, and an appreciation of it as a depiction of their everyday hassles at the university.

4. Workshop at WACE, Canada

Workshop report by James Garraway

The World Association for Cooperative Education (WACE) conference was held at the University of Waterloo, Canada in June 2023. The conference theme was ‘The future of work: engaging work-integrated learning to achieve innovation, entrepreneurship and economic recovery in an uncertain world’. The conference draws in WIL practitioners, researchers and administrators from around the world. WACE is a large international conference with delegates from over 20 countries. The aim of the conference is to promote the sharing of experiences and case studies of WIL practices from different institutions. It was thus an ideal venue to further explore the usefulness of the WIL contradiction analysis workshop. Furthermore, it exposed the conference participants to a potentially novel approach to researching WIL.

The contradiction analysis workshop was open to anyone who attended the conference and formed part of the general, advertised programme for the conference goers. Workshop participants (eight in all) included four WIL senior administrators, two WIL coordinators and two educational advisers for WIL. All were involved in some way with placing and monitoring students. They were drawn from a number of Canadian and United States universities (Guelph, Dalhousie) and from one Rwandan university in Africa. This was thus a ‘mixed international’ workshop rather than being specific to a particular university. None of the participants had CHAT experience or even knowledge of the theory. The workshop only lasted one hour, as this



was the time allocated. The room had to be rearranged so that there were desks and newspaper for drawing.

The facilitator first outlined the purpose of the workshop – to assist staff in locating and better understanding key contradictions in their WIL endeavors. Thereafter, there was a crash course in using the activity system triangle as an analytic tool for approximately ten minutes following which participants worked individually on their own system diagrams. There was talk between them as they did this, and as a facilitator I helped with questions such as where to place particular issues on the triangle. Thereafter, each participant presented their triangle and answered one or two questions from other participants and from the facilitator (for example, about clarity). One exemplar is given below (the email address is that of the facilitator).

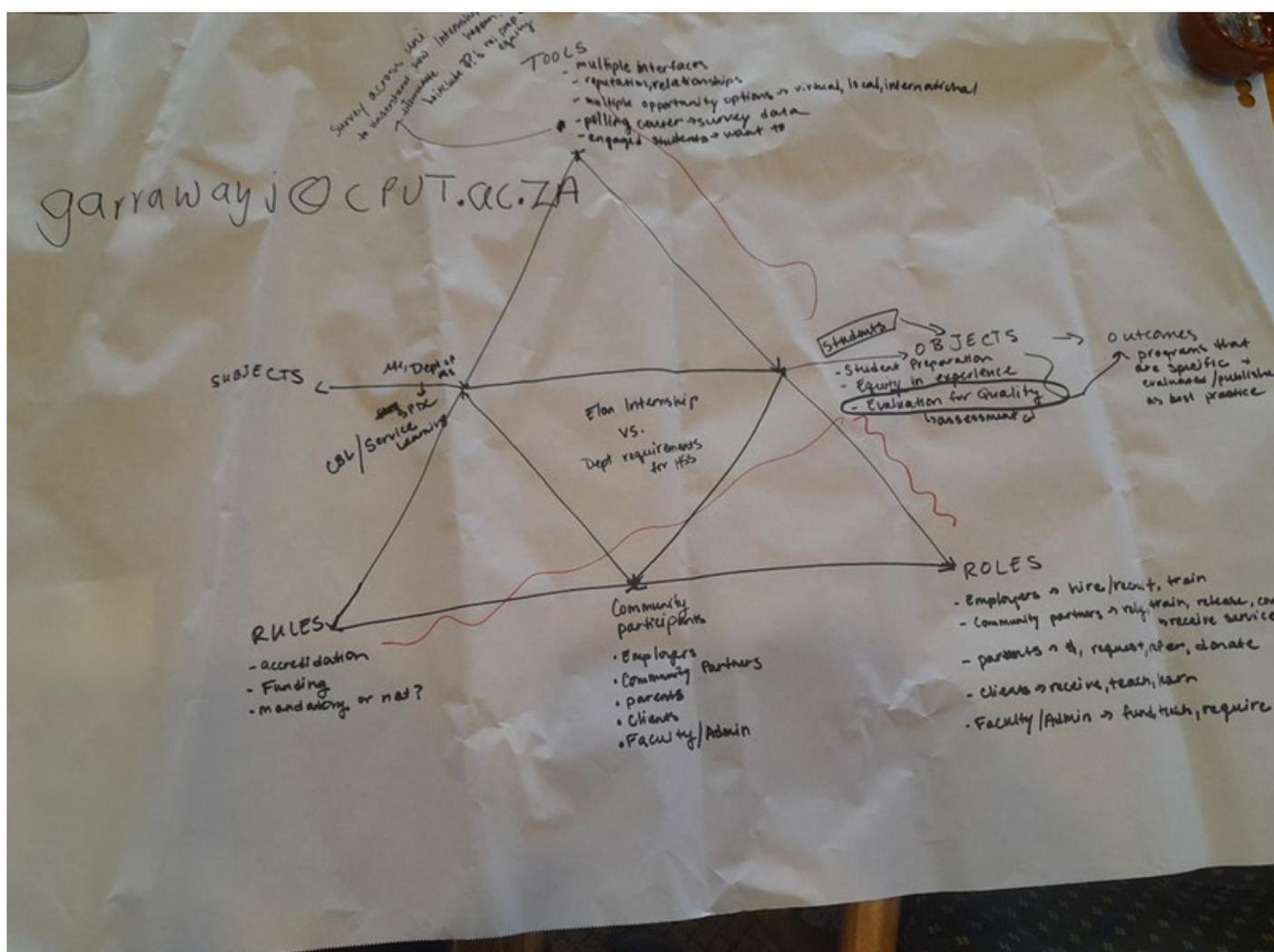


Figure 5: WIL scholar's depiction of their activity system at WACE.

For the African colleague the main contradiction was about finding projects which students could productively engage in within different workplaces. There was also family pressure to get qualified, return home and work which acted against students embarking on extended learning in internships.

In the Canadian universities, despite their long experience with WIL, there was often a mismatch between the needs of employers and what students were actually studying. There was



a tendency for Faculty to remain 'siloed' and an unwillingness to engage with potential employers as this was seen as the job of the central WIL unit. This disjuncture was occurring within an environment of plentiful, rich work opportunities for students. In one university there was an almost contradictory problem – each department forged its own relationships with relevant workplaces. It was, however, recognized that there was a need for such a central unit, as there needed to be standardization of codes of conduct, assessments and appeals processes.

4.1 Participants' reflections

The benefits of using contradiction analysis were firstly in seeing all the actors involved in WIL and, more importantly, where the tension points were; for example, as one participant stated, 'I started to understand where the friction parts are'. For some participants the analysis provided them with a 'eureka' moment of seeing things they had not before noticed. This understanding had the potential to lead in at least two different directions. There was firstly the identification that WIL was something of a community of practice initiative and thus there needed to be more enhanced co-design between different actors involved in WIL – one example involved greater curriculum contribution from the teaching and learning centres. A second, related benefit was using the contradiction analysis as an evaluative tool of current programmes, again opening up areas for improvement. Overall, there was a sense that seeing WIL in this systemic and 'community of practice' manner would be a step towards improvement. There was definitely, as one participant put it, 'takeaways' from the workshop which required follow-up.

5. Workshop Cape Peninsula University of Technology (CPUT)

Workshop report by James Garraway

CPUT is a relatively new university derived from a previously designated higher education technical institute (a 'technikon'). It prides itself on its close relationship with workplaces, and its ability therefore to place its students in WIL. Each programme has an academic who teaches on the regular courses as well as acts as a WIL coordinator. This entails preparing students for their WIL as well as monitoring and assessing their progress in conjunction with workplace supervisors. WIL is coordinated by a small central unit which attempts to deal with logistical, legal and health-related issues for students on WIL. As can be seen in the workshop narrative, there have been recent changes to how WIL is conducted, basically moving from a full year to 6 months or, in some cases, to internally conducted project work. This was a result of WIL not receiving subsidy and other issues such as difficulties in finding suitable workplaces in a relatively static economy. Students in Engineering are sometimes remunerated but generally students are not remunerated for WIL. Though WIL generally functions effectively at the university, there are problems and nagging issues which WIL coordinators have not had opportunity to collectively discuss and frame in any depth. The university WIL Director felt that running the contradiction analysis workshop (she had previously attended the SASUF workshop) would be a useful exercise for the staff.

An invite was put out to the departmental WIL coordinators and nine CPUT staff attended the workshop in September 2023, drawn from Engineering, Fashion Design, Chemistry, Mathematics and Business studies. Unlike the conference workshops, this workshop was focused within a single university. Participants were all departmental WIL coordinators with at least 5 years' experience in this role. The workshop lasted approximately 2.5 hours. We began with an introduction to CHAT, as none of the participants were aware of the theory. They were taken through the activity system analysis and shown how to highlight contradictions in their diagrams. Staff preferred to work in pairs on their contradiction analysis which allowed for much



discussion and comparison across different programmes. Thereafter each dyad presented its triangular analysis to the whole group and the contradictions and other difficulties were shared and discussed, as is described below. At the end of the workshop, we asked for reflections on the usefulness of the workshops and the way forward.

In Engineering, students are placed for one year and expect to be paid for this period. However, the university has no subsidy for WIL which could be repurposed to pay students. Workplaces thus seek funding from the Sector Education and Training Authorities (SETAs – bodies which accumulate a training levy from industry and disburse this back to them to support internal training and development of staff) in order to pay students. A first contradiction centred around different rules between the universities, workplaces and government institutions. Universities had recently reformulated their WIL period from January to November/December to June to December (6 months). However, industry wanted students to start at the beginning of the year and, furthermore, funding was granted from SETAs from the beginning of the year rather than in June, creating problems for industry to recoup monies and thus to place students. In addition, the structure of qualifications has changed, and industry is confused about what was on offer. Industry had not adapted to this new regime. Some departments were moving to more project based internal WIL but this was problematic as the universities did not always have the tools/resources to conduct project-based learning effectively, an object-tools contradiction. A further problem related again to rules, as promulgated by the Engineering Council, that only certified Engineers in the workplace could assess students' WIL, but many Engineers are not so certified, meaning that the university lecturers had to take control of assessments.

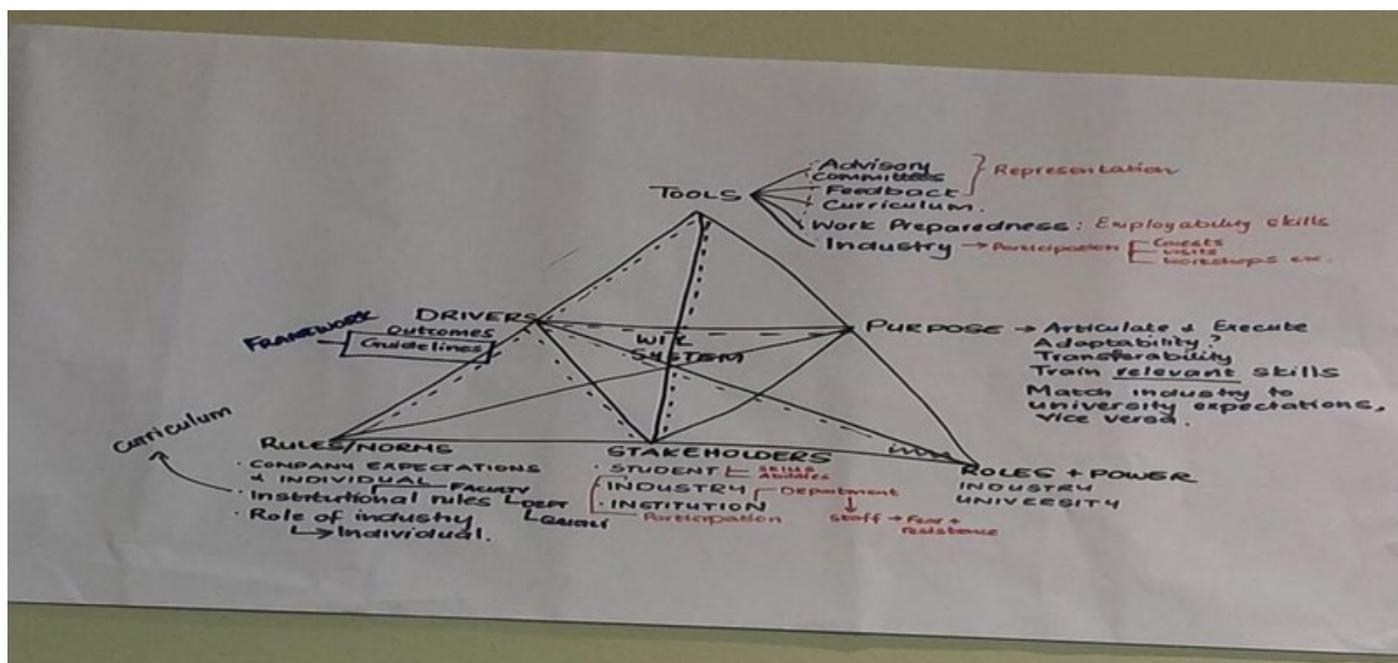


Figure 6: An example of a contradiction analysis diagram from CPUT.

Again on tools, industry may experience a mismatch between what is taught at university and what students can do at work; sometimes industry is required to assess against a set of university outcomes which they are unable to achieve. The role of advisory committees (bodies which attempt to coordinate workplaces and university curriculum within faculties) was seen as vital here. If students can be better aligned to workplaces then there is the opportunity for



them to contribute to the workplace, a powerful learning tool, or at least learn to be adaptable to different workplaces (another tool).

Project-based WIL was seen as advantageous more generally as it did not require funds or involve issues such as health and safety and transport. But there were problems. Firstly, Industry had to be on board to provide suitable projects, and industry mentors, and secondly the projects missed out on achieving the social objective of WIL which can only be achieved in a real workplace (a problem of tools).

If WIL is about work-ready students then perhaps a reconsideration of work-readiness needs to be done, an issue of contradictions between tools and the object. In the past students were expected to find employment in big companies but increasingly they are expected to form their own companies or work in smaller start-ups. Thus, one move was to more entrepreneurial in-house projects that would better prepare students for a different workplace 'object'.

A big issue is the WIL coordinator workload and hence their ability to problem-solve, monitor and forge relationships with companies. Over the lockdowns driven by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the strain of coronavirus that causes COVID-19, many companies had changed and closed down and there was a lot of 'forging' to do. All of this takes time and effort which WIL coordinators do not have. Added to this, the 'rules' insist on the university taking on more students but there are simply not enough workplaces to accommodate them, at least for authentic learning.

The whole point of WIL is gaining real work experience, but companies often do not have spaces for this, they have a lean operation with all jobs filled. The result is students sometimes doing menial, low-level learning work.

5.1 Participants' reflections

Though many of the issues were already known, the workshop was still 'enlightening' in that it elucidated and essentialized the challenges staff faced. There were huge benefits to be gained from using the disaggregation method of the activity system, as a tool for collaborative work and knowledge sharing, and for developing new opportunities and possible solutions. There was an interest in using this type of workshop to get out of the 'rut' they felt they were stuck in (the double bind). Furthermore, there was interest in taking the workshops further so that there could be a discussion/pressure put to the SETAS and the Education Department about funding issues. Participants were also interested in further WIL research stemming from the contradiction workshop.

6. Workshop at Mangosuthu University of Technology

Workshop report by Fundiswa Nofemela and Thulile Duma

The aim of the workshop was to identify difficulties or 'chokepoints' which may be inhibiting optimal WIL work at MUT. As with CPUT, the Director of WIL believed that the contradiction analysis workshop would provide a useful forum for collective discussion of departmental difficulties with WIL and could also provide impetus for improved practices.

On October 13th, a three-hour contradiction analysis workshop using Cultural Historical Activity Theory was held at Mangosuthu University of Technology (MUT), in the city of Durban, South Africa. MUT has a similar purpose and history to that of CPUT. It was attended by eight WIL coordinators from different departments and the WIL Director at MUT and is thus a fixed institutional type of workshop.



Activity theory, in the understanding of the workshop reporters, is a multi-paradigm concept for identifying problems, diagnosing contradictions, analyzing them and then assisting participants or organizations in developing solutions. Activity theory employs a diagram to represent many components, with the subject, topic, tools and object forming the core triangle. Furthermore, norms, community and labor division are significant since they are seen as enablers or disablers. These connections are crucial in any situation involving transformation or comprehension of the process. We have outlined the different stages in the three-hour workshop, with a focus on participants' understanding of contradictions in their WIL systems, and their reflections on the usefulness of the contradictions workshop.

- **Stage 1:** Dr. Nofemela, Director of Cooperative Education at MUT, commenced the program by introducing the facilitators. She went on to give a brief introduction of the workshop's goal, which was to master the CHAT model for understanding inconsistencies in our WIL systems.
- **Stage 2:** For 10 minutes, the facilitator presented a short interactive lecture about CHAT. She developed a graphic with various nodes and explained how they connect or are interdependent. She then gave the group of WIL coordinators paper and pens to make their own diagrams after explaining how it works. In their case, the subject is the WIL coordinator, the tools are the resources and what they want to achieve with their students is the object. She also stated that another section of the diagram with norms, community, and the distribution of labor is required. She also went through the system's connections. Participants were invited to draw connecting lines to demonstrate the relevance of system interdependence. These linkages influence the WIL deliverables.
- **Stage 3:** Participants were asked to sketch their diagrams for at least 5 minutes. They were then required to put them on the wall and provide feedback on what they had written and how it related to their involvement with WIL. It took more than 30 minutes to do that activity. What was crucial in those accounts were WIL participants' shared experiences and thoughts. The highlight was that WIL coordinators were enthusiastic about their work.
- **Stage 4:** The group was then instructed to point out any inconsistencies in their WIL involvement or its functioning. Despite the coordinators' desire to carry out their responsibilities, they experienced many difficulties which was described as an indication of a contradiction. The group was given three minutes to circle such contradictory places on their diagrams, without writing them in words. They were then requested to provide a concise report on those contradictions.

These constraints or contradictions within their activity systems are grouped into themes as follows:

6.1 Theme 1—Frustrations and isolation

Seemingly, WIL coordinators felt that they were overworked; one participant stating 'I am stretched'. This is because, while they have the extra workload of WIL, they still have a full teaching and research workload like all other lecturers. This causes mixed emotions for WIL coordinators because they like what they do but the lack of time and support they get from the system makes it difficult for them to do the job successfully.



Fig 7: MUT contradiction analysis diagrams for collective discussion.

6.2 Theme 2—Culture and language barriers

The history of South Africa has a bearing on these cultural issues as most students at MUT speak their home language, IsiZulu, and English. But the farming community are mostly Afrikaans speakers. Agriculture WIL students thus experience language barriers in the industry because they often have to supervise Afrikaans-speaking labourers and work with Afrikaans speaking farmers.



6.3 Theme 3—Ethical issues

In South Africa, all companies are required to contribute 1% of their payroll to the sector training authorities or SETAs. Companies can then claim this money back to pay for any training they offer, for example the training of WIL students.

The industry wants competent WIL students who are ready to perform the duties of full-time employees. In some cases, an industry takes on more students than usual in order to get more money from the SETAs. They then, in turn, retrench their full-time paid employees to save on labor costs.

6.4 Theme 4—The importance of WIL at MUT

MUT has received national recognition for its WIL best practices, so staff might expect there to be more funds allocated to this work. However, MUT, like all other universities, is experiencing budget cuts in many areas including in its WIL programmes, even though the number of students who need WIL has increased. The WIL coordinators are thus required to do more with less resources, even though MUT has received accolades for its WIL work.

6.5 Theme 5—Collaboration

Collaborating with other departments will allow the WIL coordinators to do more, but that there were also problems with working with the community: 'It (doing the activity system analysis) helped us to see what connects different parts of the WIL system together, and thus what helps us in our work and what does not help us'.

6.6 Participants' reflections

This stage provided the group with an opportunity to present their reflections on the benefits (or not) of doing the contradiction workshop. The WIL coordinators were happy with the exercise and clearly enjoyed engaging and participating in the workshop, despite their having a busy work schedule.

Participants firstly pointed out that they benefitted from sharing information and difficulties with their colleagues from different departments. The activity system tool forced them to 'dig deeper' into issues and problems that needed to be addressed, even though these had been around for a number of years.

The triangular analysis helped them to understand WIL as a system involving many inter-related parts and conflicts between them, with different people involved at different levels, some external and some internal: '... the idea of everything being linked up and the idea of system dynamics ... the triangle helped us identify the 'oomphs' (difficulties) in order that we can come up with solutions'.

Participants stated that CHAT might be utilized not just for system problems, but also in their daily tasks, such as evaluating WIL logbooks. 'I benefited from the information sharing in this session, I'd like to try to create a framework based on activity theory that I could use to grade my students' logbooks.'

Overall, participants were able to see things about WIL they had not previously been aware of and to understand the WIL system is dynamic, more like a 'ship moving'. The contradiction analysis workshop was 'like a crash course for WIL' and there is a lot that still needs to be done. As one participant suggested 'I think we need more workshops after this contradiction analysis one'.



7. Reflections on contradiction analysis: Implications for change laboratory work

Participant reflections on the WIL contradiction analysis workshops were unequivocal that further exploratory workshops were needed. Participants spoke of ‘contradictions as possibilities for further development’; ‘a lot more workshops need to be done’; (the workshops are) ‘a step towards further improvements’ and that ‘there needs to be further research stemming from the contradiction analysis workshops’.

In more recent work the project team experimented informally with an additional workshop task as a follow up to the contradiction analysis. Workshop participants were tasked with providing a historical narrative which they thought may underlie their identified contradictions. Participants enthusiastically provided rich and thoughtful narratives, thus partially mirroring the change laboratory process, albeit in a limited way.

An important characteristic of Cultural-Historical- Activity-Theory (CHAT)-driven research is that it not only addresses difficulties and injustices in working life, but also offers methods for breaking such historically emerging injustices that manifest themselves in different types of dilemmas, conflicts, and double binds (Engeström & Sannino, 2011). CHAT-driven research also has methods for breaking patterns and feelings of hopelessness of historically emerging difficulties and injustices through its activist perspective (Sannino, 2011). A change laboratory (CL) is a process aiming for the collective interpretation and suggestions of how to break contradictory situations and work towards an innovative vision. The arrangement of a CL aims to support the collective to become the drivers of the new suggestions and models and is therefore in stark contrast to other, similar implementation processes (Sannino, 2011). The development process has also the capacity to stimulate collective agency in small groups.

However, to initiate a CL is not an easy task and it may thus be seen as not feasible, particularly where work groups are not motivated to engage in a complex process. The above contradiction analysis workshop descriptions and participant reflections, including our experimentation with historical analysis, suggest that we may have developed a method for diagnostic and collective reflective action to identify motive and interest, or ‘needs state’ (Engeström, 2015: 39), to move further with a full-scale change laboratory.

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