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Learning to become entrepreneurial through a change laboratory methodology

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Abstract

Following Clark's early work, the concept of the entrepreneurial university has been circulating for a number of years. Being entrepreneurial entails that staff develop the sort of open-ended, problem-solving, and innovative solution-generating thinking underlying the concept. This manner of thinking may be important as an orientation to working life both inside and outside the university, not only in the commercial sense, but also in dealing with societal issues. Although there are guides as to what areas a university should develop to become entrepreneurial, there is little guidance as to how staff may explore and develop their own entrepreneurial thinking. This article suggests that the problem and solution generating approach of the change laboratory, underpinned by the theory of expansive learning (and transformative agency), may provide such guidance. Furthermore, forwarding this approach may support the critical developmental and transformative role that universities can play in society and so serve to balance out the more commercial thrusts often proposed by managing bodies.

Keywords: entrepreneurship; expansive learning; transformative agency; university

Introduction

Since Burton Clarke's (1998) description of the entrepreneurial university, focusing on keystone exemplars such as the Universities of Twente, Strathclyde, and Warwick, there have been increasing pressures on universities worldwide to adopt entrepreneurial approaches to their research and in particular their teaching activities (Jones, et al., 2014). This push is particularly evident in the newly emergent universities of technology (UoT) in South Africa, with suggestions that the sector should adopt similar entrepreneurially-focused strategies to the above exemplars (Du Pre, 2009), including commercialization. This, it was suggested, along with other thrusts such as technology transfer, would allow these UoT to occupy a niche which could distinguish them from the more traditional universities with a focus on theoretically-orientated qualifications. Developing culture and skills in order to enact entrepreneurship for both staff and students was strongly suggested in the literature at that time (for example Kagisano 5, 2006; Du Pre, 2009;

Kagisano 7, 2010). More recent strategic planning documents from UoTs have further projected the importance of developing the entrepreneurial university and entrepreneurial thinking, and this same sentiment is expressed in the Universities South Africa (USAf) seminar on entrepreneurship (UNECA, 2021). However, as USAf points out there is insufficient detail about how entrepreneurial culture and thinking could be developed with the existing academic staff in universities. There is thus a pressing need for the development of entrepreneurial learning theory coupled with a mindset change at universities (UNECA, 2021) to develop such thinking and culture.

Along with developing entrepreneurship, technology transfer and other pushes, academic staff in UoTs were also required to take on more expanded roles in line with those of traditional universities, such as offering degrees and conducting and publishing research in prestigious journals (Kraak, 2009). In fact, as USAf points out (UNECA, 2021), engagement in these multiple activities may take up time that could otherwise be devoted to entrepreneurship development. The institutions which preceded the UoT, the Technikons, had a clear mission and vision, the training of technicians and technologists for workplaces. Academic staff were frequently drawn from the ranks of the professions. Though this training mission still persists, the current staff were also confronted with quite substantial changes to the structure and culture of their institutions but with limited guidance and support as to how to achieve these new objectives. They appeared to be pushed and pulled in often different directions. This sentiment was echoed in the oft quoted observation from the current head of the UoT sector, that the sector may have 'lost its way' (Van Staden, 2016).

In Activity Theory terms, staff in organisations are confronted with some form of guiding object that gives purpose and motivation to their work. However, the object often changes over time, becoming increasingly complex and often contradictory in nature and staff may experience confusion and despair as to what they are working towards. In such situations, engaging staff in expansive learning may assist them to develop agency through 'the rediscovery of what the activity is, whom it serves and what is its purpose' (Sannino, et al., 2016: 248). As teaching and learning professionals in the UoT sector, the authors of this article were keenly aware of the conflicting nature of staff's working lives. In this study, therefore, the initial aim was to support staff at a UoT to reimagine new possibilities for the object of their university, through using a change laboratory methodology.

In the expansive learning work (Figure 2 below) conducted in the change laboratory (CL) at the university reported on here, staff were able to propose innovative solutions to problems and new possibilities to focus and motivate them in their work emerged. These were important developments in their own right, but additional benefits also accrued. In engaging in the semi-structured change laboratory, staff were also learning. They were learning to recognise and understand disharmonies in their institution, and through this to create innovative solutions in the form of new possibilities for work. In learning in this way staff were also learning to think entrepreneurially (Shumar & Robinson, 2019; Morselli, et al., 2014).

Although Universities South Africa advocates the incorporation of 'entrepreneurial thinking' into South African university cultures (UNECA, 2021) exactly what constitutes such thinking is not clearly defined. Robinson and Shumar, however, in addressing university cultures, suggest that developing entrepreneurial thinking in the university context involves firstly 'thinking differently' through 'focus(ing) on everyday practices that cause irritation or frustration, and which are identified as disharmonies' (2014: 428/9). Thereafter, actors seek to develop new concepts that can address these disharmonies.

Entrepreneurial thinking has much in common with the concept of 'intrapreneurial capabilities' (Guerrero, et al., 2020: 2). Intrapreneurship is similar to entrepreneurship except it is about fostering innovation in the form of new products or processes within an existing organization. Intrapreneurial capabilities are then dynamic capabilities such as 'taking risks, sensing opportunities and transforming routines to become more innovative and proactive' (Guerrero, et al., 2020: 2). The value of developing such capabilities within the university, the authors suggest, is in their mobilization to support the university in becoming more entrepreneurial. Intrapreneurial capabilities are then understood as higher-level competencies which underpin entrepreneurship. The CL described in this article could thus be described as a type of intrapreneurial initiative.

Developing entrepreneurial thinking is also concerned with developing higher-level competencies which can underpin entrepreneurship and is the preferred concept used in this article. This is because developing such thinking focuses on collective rather than expert initiatives, on identifying and attempting to resolve disharmonies and is not necessarily coupled with commercialization (Shumar & Robinson, 2019). This type of thinking is, furthermore, more in line with expansive learning and activity theory approaches discussed below.

As was reported in this research, developing entrepreneurial skills and culture within the university is often difficult. Thus, the argument put forward in this article is that expansive learning in the CL, as well as assisting staff to confront and solve their immediate problems in working life, may also assist them to develop the volition and tools for entrepreneurial thinking, so ultimately contributing towards developing the entrepreneurial university.

The relationship between entrepreneurship and CL methodology is not an entirely new concept on the African continent. For example, in Mukute, et al. (2018), CL research the problem of organic farmers' productivity in resource-poor and competitive environments under conditions of climate change was examined. Similar work on organic farming enterprises in Zimbabwe was also conducted by Mudokwani and Mukute (2019). However, these CL were concerned with issues of enterprise development and sustainability in agriculture, rather than entrepreneurially-linked issues within Higher Education.

The entrepreneurial university

Clarke (1998) identified essential qualities for the entrepreneurial university, for example the presence of a centralized, high level steering core and an overall willingness of staff to adopt entrepreneurial approaches. As well as including developing students' entrepreneurial skills,

Clark's entrepreneurial qualities were put forward as one of the pillars of the newly emerging UoT in South Africa (Du Pre, 2009). Clark adopted a 'monocultural' view of the entrepreneurial university, that it emanated from a single, shared, and centralized initiative (Finlay, 2004: 431). However, Finlay (2004), in reviewing the development of entrepreneurial culture at the U. Strathclyde (one of Clark's study sites) argued that entrepreneurial culture originated from more fragmented, bottom-up changes within departments or workgroups rather than being centrally steered. University culture, in Finlay's (2004) view, is thus better described as a number of partially overlapping communities of practice than as a monoculture which can be steered in a particular entrepreneurial direction). This resonates with Grant's observation that future developments in response to changes and threats to universities can more creatively and hopefully emanate from the 'tiny universities' that make up the whole (2019: 9). It must be acknowledged that Clark was aware of the concept of the 'multiversity' and of different Faculties' interests but his monocultural orientation remains dominant (Clark, 2001).

A second critique of Clark's work is that entrepreneurship should not just be restricted to direct market activities (developing and selling product, for instance) or trying to make the university operate under more market-like regimes, a move to what some authors refer to as 'academic capitalism' (Nikunen, 2012: 271). A slightly different version of entrepreneurship within the university sector concerns fostering the sorts of approaches and thinking required by entrepreneurs in order to produce knowledge and products of value. Though this does include economic value, it can also include the development of new possibilities, ideas, and processes for improving social life (Shumar & Robinson, 2019; Morselli; Costa & Margiotta, 2014; Spinoza, et al., 1995). Furthermore, entrepreneurial education, for whichever purpose, is necessarily underpinned by the constructive and collaborative development of a creative, critical, and problem-solving mindset orientated to real occurrences in working life (Smith & Patton, 2014; Teerijoki & Murdock, 2014; Mueller &Andersen, 2014). Such an approach may be more in line with universities as institutions which have a developmental and transformative role in society (Ashwin, 2021) and which support values such as critical thought, democratic rights, and social enlightenment in times of rapid change (Barnett, 2004).

For Shumar and Robinson, entrepreneurial thinking amongst university staff involves initially focusing on 'disharmonies' and 'discomforts' in working life and then working knowledgeably and creatively to come up with innovative solutions, so creating new possibilities or 'social worlds' (2019: 154). Such work is best conducted collaboratively through harnessing distributed expertise and may involve progressively making ideas/solutions more concrete (which includes an element of risk taking).

> Entrepreneurs are individuals who remain focused on disharmonies and think about how to overcome them. In order to do this, they need to assess how much the disharmony is a social phenomenon—how many others share the same discomfort.
>
> And then they must marshal their resources, imagination and social capital in order to think about how to change their situation. As stated above, this may bring new products or

> services into the world, but it also necessarily and fundamentally brings about a new social world in the process. (Shumar and Robinson, 2019: 154)

Through engaging in these sorts of activities, staff may also develop their ability and volition to solve problems, and so develop individual and collective agency (Morselli, et al., 2014; Shumar & Robinson, 2019).

Developing entrepreneurship and innovation are often emphasized as important strategic initiatives in UoT policy documents, and the university under study here is no different as can be seen in the university's Innovation and Entrepreneurship Strategy (documents supplied by workshop participants). The Strategy places much emphasis on the future central role that entrepreneurship should play within the university and highlights the need to develop an entrepreneurial culture in order to meet regional socio-economic needs. Furthermore, the strategy exhorts the university to become a leading centre of innovation which promotes and houses startup companies, in particular those associated with 4IR technologies. The university has already gone some way to establishing this culture through the establishment of a Technology Transfer Unit, manufacturing, fabrication, and 'ideation' laboratories and through offering entrepreneurial courses and workshops for staff and students. The Strategy also proposes ambitious goals for the university, such as the development of an online entrepreneurship course for students and a specific number of student and staff startup companies developed each year.

In addition, in planning for its Vision 2030, this university through engagements with external stakeholders and internal roleplayers espoused to be an engaged, transformed, and entrepreneurial university. These focuses were included within the university's strategic goals and graduate attributes (documents supplied by workshop participants). Taking note that this direction may be relatively novel, university management committed financial and human resources to realise this initiative over the coming years.

In general, whereas innovation is the development of new ideas or processes, entrepreneurship involves putting these ideas into practice in some form of new enterprise. The two are, however, inextricably linked and need to be combined in understanding how entrepreneurial thinking can be developed.

Activity theory and expansive learning in the change laboratory (CL)

Activity theory

Activity Theory studies learning and change in organizations. The unit of analysis of the organization is the activity system (Figure 1) which represents the dynamic and often contradictory nature of the people, processes and artifacts that make up the system (Virkkunen & Newnham, 2013). The workings of the system are usually understood from the perspective of one group in the system, the subjects. A key principle is the observation that the system is always working on or towards something, the object, that both motivates and challenges the workforce (Engeström, 2001). Drawing on Vygotsky's earlier work, people's attention on the object is always

mediated by the available resources in the system as a whole. Furthermore, people do not act in a unified fashion but bring different interests and skills to bear on the object of the system and may take on different and sometimes competing roles. People who make up the community also operate according to prescribed rules and more tacit norms and cultural practices. Members of the system, however, do not always follow the rules and roles as set out, and new artefacts may introduce further disturbances, thus resulting in contradictory pushes and pulls emerging in the system over time (Engeström, 2001). Through exploring these contradictions, participants in the activity system may engage in expansive learning so exploring new horizons.

An activity system does not usually exist in isolation, but as part of a number of interconnecting systems which influence work on the object of the central system under examination (Virkkunen & Newnham, 2013). For example, systems of work and educational policy will exert influence on the central system of interest within the rules, tools, and object. When conducting the CL, however, the participants try to depict these influences within the activity system of interest, in this case that of lecturers' work environment.

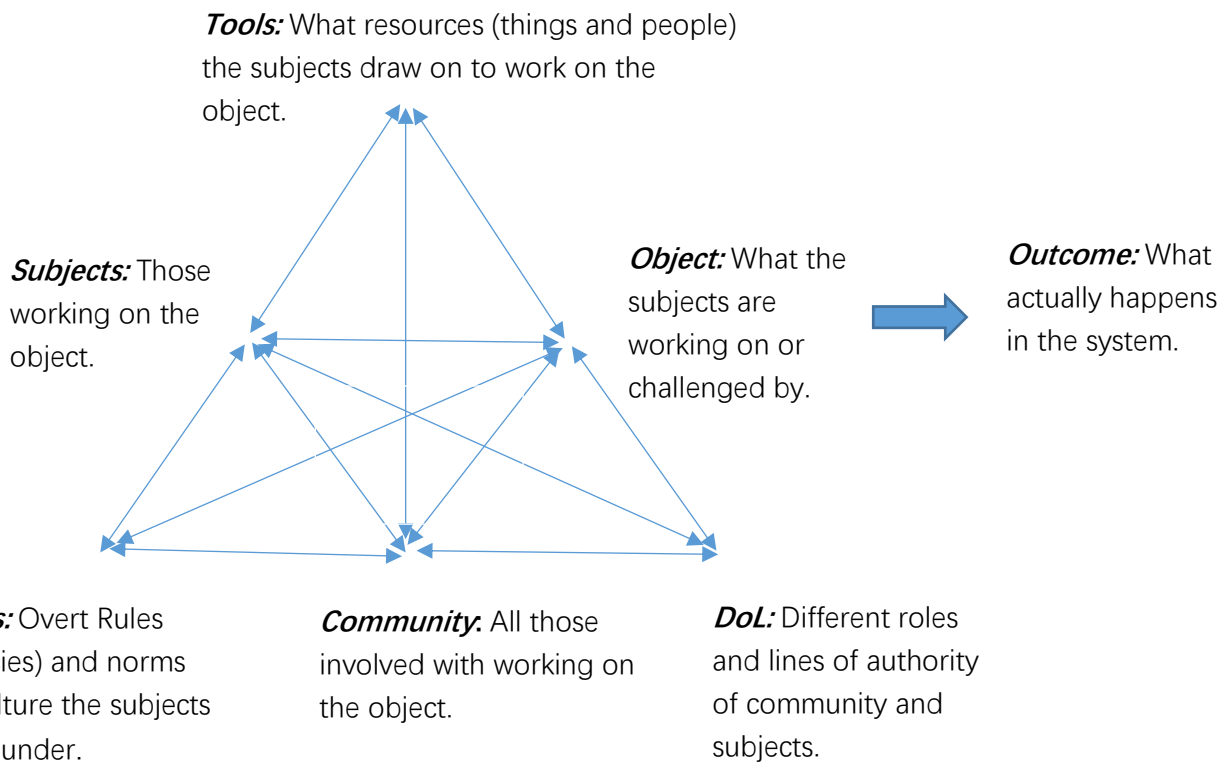

Figure 1: An activity system as the unit of study (After Virkkunen & Newnham, 2013: 34)

Expansive learning

In expansive learning (Figure 2) in the change laboratory workshops staff first individually and then collaboratively surface recurrent problems in working life. These problems are then analyzed systematically and historically as contradictions within the organizational system of the university,

with a particular focus on the contradictory nature of the object. Through actively and collaboratively surfacing these contradictions staff are then enabled to propose new and innovative solutions which may serve to resolve these historically accumulated contradictions (Engeström & Sannino, 2011). A new, more advanced, and potentially useful object may emerge from this process.

Expansive learning (EL) involves a number of pre-arranged learning actions from participants. These are shown as the EL cycle of actions in Figure 2 (the cycle is essentially open and stops after step 7 when the new practice is finalised). Though this may seem to be an over-determination of how learning will occur in the CL, the actions are not inviolate and are often remolded to reflect the interests and collective agency of the participants (Bligh & Flood, 2014; Virkkunen & Newnham, 2013). EL begins with much attention being paid to disharmonies or conflicts participants experience in working life, and these are discussed firstly from an individual standpoint then later segueing into a more collective understanding. This 'frontloading' is a critical part of the EL cycle, and much time is spent here, which makes the process somewhat different from other problem-solving processes such as action research (Virkkunen & Newnham, 2013). The early conflict-identification learning action is important, not just because it defines what may be wrong and/or that current practices are unsatisfactory and do need to be rejected/questioned, but also because it can stimulate participant's volition to engage in seeking solutions (Engeström, et al., 2014). This learning action can be seen as commensurate with what Shumar and Robinson (2019) describe as the initial entrepreneurial move in organizations, that of recognizing disharmonies.

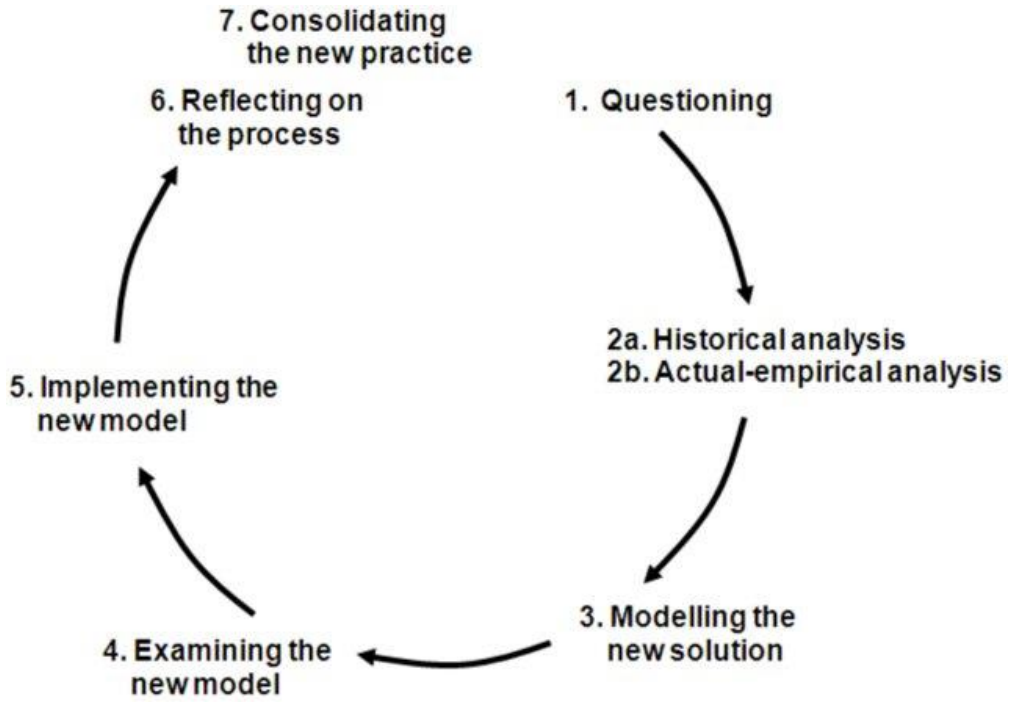

Figure 2: Expansive learning cycle (adapted from Engeström 1999).

Following on, surfacing challenges or 'what is threatening our work' (Sannino & Engeström, 2017) alone is insufficient. A second stimulus to spur the participants forward is needed which can assist them in better understanding and so potentially breaking out of their difficulties. In the CL This secondary stimulus is traditionally in the form of the activity system diagram and its elements (Figure 1), provided by the facilitator of the CL. The task of the participants is to situate their discomforts/difficulties within the system. In so doing they are able to see these difficulties, not just as isolated events, but as relational happenings resulting from or aggravated by the other elements of the system. Participants are also abstracting their experiences so that they can be understood more systematically. This second action of 'analysis' (Figure 2) is usually conducted in two ways. Firstly, in terms of how difficulties are experienced currently and secondly how they have developed over time. Thus, for example, participants may locate a difficulty of having to conduct research as being a problem of having too many conflicting objects to work on in the present, which is in turn aggravated by their lacking the resources to conduct research. Historically, this difficulty may be traced to the universities' need to improve their research rankings. In actual practice participants engaging in experiential learning in the CL move back and forward between these two forms of systemic analyses, so cementing their understanding of the main problems in the activity system as contradictions that have arisen and become embedded over time (Virkkunen & Newnham, 2013). As activity systems are object driven, the key contradictions often relate to the object itself, and the contribution of the other elements of the system to these contradictions (Sannino & Engestrom, 2017).

In understanding and working with contradictions, EL draws on dialectical philosophy as espoused by the Marxist philosopher Ilyenkov (1976) who himself draws from the earlier work of Hegel, Spinoza and Marx. Simply put, as an organisation evolves systemic difficulties emerge which may be superficially resolved or simply papered over, a natural human instinct in order to make things work (Glassman, 2000). This may function for a time but as the system changes some of these previously unresolved core contradictions come to manifest themselves as difficulties experienced by practitioners in conducting their daily work. Because the origins of the current difficulties have become obscured, it is difficult for practitioners to deal with them in any meaningful way. In EL, the identification of experienced difficulties as historically accumulated contradictions within the activity system, within or between the different elements, is thus a key moment in participants' attempts to resolve them (Virkkunen & Newnham, 2013). Gaining this measure of deep understanding of the problem is akin to what Shumar and Robinson (2019) refer to as gaining a creative and knowledgeable approach to disharmonies in entrepreneurial thinking.

At this point the impetus is to locate a new concept, process or tool that can assist in resolving the identified contradiction. As an exemplar, which is well known in the academic development literature but can also be understood through the lens of resolving contradictions, is the conflicting issue of academics having to both conduct disciplinary research and concomitantly improving student teaching and learning, with limited time (see, for example, Clegg, 2008). Once it was identified that improving teaching involves research and that

researching one's disciplinary field is necessary for more dynamic teaching, a new concept that could contribute to and so develop both objects could be developed (for example, involving students in research projects related to their curriculum). This concept is 'a dynamic unity of opposites' (Sannino & Engeström, 2017: 83) in keeping with the dialectical philosophy underpinning Activity Theory. These new concepts can be likened to the innovative solutions or new possibilities that emerge through entrepreneurial thinking (Shumar & Robinson, 2019).

In expansive learning the identification of this new concept is also a form of 'possibility knowledge' (Sannino and Engeström, 2017: 81). It is the first stage towards developing an innovation or new vision but at the start it is still quite abstract. The new vision needs to be examined through modelling it, firstly in the imagination within an envisioned new activity system (Virkkunen & Newnham, 2014) and then through actual experimentation in the real world. Modelling and experimentation (learning actions 3 and 4 in Figure 2) involve taking the original, abstract concept and progressively adjusting it to change and improve the original object-orientated activity system. Thus, EL is often described as a process of ascending from the abstract vision to a more concrete and practical manifestation (Engeström, et al., 2014). Subsequent actions in the EL cycle are aimed at further adjustments to the original vision.

The development and refinement of new visions into new social systems (activity systems) can furthermore be likened to what Shumar and Robinson (2019) and Spinoza, et al. (1995), refer to as bringing about new social worlds within the entrepreneurial context (furthermore, actually implementing the model in the CL could be likened to the more traditional entrepreneurial start-up phase of a new business).

The change laboratory (CL)

In CL work the researcher sets up a working group who were interested in developing potential solutions to broad issues in their working lives. It is a form of interventionist research, in which both the facilitator and participants are contributors, aimed at changing or improving organizations through framing new possibilities (Virkkunen & Newnham, 2013).

The CL is a structure which aims to enable the expansive learning cycle. The change laboratory involves 4-8 workshop sessions, beginning with the participants raising troubling issues in their working lives. The facilitator usually first researches and presents the participants with some of the main issues that have already been raised about their organization, in order to stimulate debate. This can take the form of newspaper articles, videos or interviews with key informants. The role of this stimulatory material is to begin the EL cycle and to facilitate staff's movement through the various learning actions in Figure 2. The facilitator makes extensive use of newsprint records to highlight the issues raised by staff, new ideas or thinking tools emerging and the emergent past, current and future activity systems. Sessions are videotaped and key developments from previous sessions shown to participants in subsequent sessions to ensure continuity within the EL cycle. (Virkkunen & Newnham, 2013).

Expansive learning and entrepreneurial learning

Business operators are often confronted with changing circumstances and thus what worked well in the past may no longer be sufficient. As the level of disturbances increases the operator has to challenge current practices in order to seek new ways of working. Being a 'true entrepreneur' requires that the operator works with and reflects on all the material and social issues involved in the difficulty, and through this construct a new way of working (Spinoza, et al., 1995: 56). Mueller and Andersen thus propose that entrepreneurship education has to 'reach beyond the 'known world' and deal with the uncertainties and contingencies that will arise in the unknown (2014: 500).

As Morselli, et al. (2014) illustrate in their research on student learning, expansive learning has many congruencies with entrepreneurial learning. Entrepreneurial learning involves, firstly, developing a rich and collaborative understanding of disharmonies in society, followed by the development of innovations which may resolve these. Entrepreneurs then experiment with these innovations in order to concretise them and so create a useful, societal intervention (Shumar & Robinson, 2019). These stages can be matched to the experiential learning cycle in Figure 2, which also provides a more detailed account of how learning occurs towards envisaging change.

As Sannino and Engeström (2017) suggest, workplaces often remain locked into current problematic practices. Engaging in expansive learning in the CL can assist workplaces in coming up with new ways of thinking that may assist them in breaking free and advancing forward from these problems. This 'possibility knowledge' can be likened to developing an innovation and its further development in practice as akin to entrepreneurial processes. Thus, through assisting staff to understand and potentially resolve problems, the CL is also a vehicle to support the key strategic thrusts of innovative and, possibly, entrepreneurial thinking amongst staff.

In order to illustrate this claim, a case study of the learning actions of a group of academics in a change laboratory focused on developing innovative ideas to reimagine the university is presented. The case study broadly follows the logic of the learning actions of the EL (Figure 2), namely: questioning of current practices and raising of conflicts both individually and collectively; current and historical activity system analysis of these conflicts to locate major contradictions in the system; modelling or proposing a possible resolution to the contradictions as a new concept or vision for the future; and experimenting with and concretizing this vision.

Case study of the change laboratory

Learning action 1 (see Figure 2) - Questioning and raising of conflicts

Prior to the first workshop the participants were provided with written and video information on the current debates about the sector, for example material highlighting the loss of prior identity and the imposition of a research agenda. In order to begin the discussion, the facilitator asked for comments on the material provided. Staff were encouraged to bring forward any anecdotes or metaphors about current difficulties they experienced in their daily work. The objective here was to raise and discuss nagging and unresolved problems or 'disjunctures' which 'threatened' staff's ability to carry out the work they wish to do (Engeström & Sannino, 2011: 383). As with

typical CL work, substantive time was spent on these sorts of discussions, and gaining agreement from the participants on some of the main issues (Virkkunen & Newnham, 2013) (the capital letters, such as K, Z etc., in brackets refer to different participants, the lecturers, in the workshops). The staff were very clear that what drives their work is successfully teaching students:

> A joy is when I'm able to help people whether it be socially or academically and when I know that I've made a difference in their lives knowing that I'm making a difference in a student's life … (K).

> The joy for me is really to see students' success and to see students' engagement (Z).

Much of this teaching is focussed also on developing students as work competent practitioners. However, the participants also highlighted a number of tensions that threatened this drive towards successful teaching. There was some confusion as to the identity of the university. Whereas the previous focus of the Technikon (the precursor to the UoT) was on closeness to workplaces, both in their own skills set and the competencies they were developing in students, this had changed. There was also now an increasing focus within the university on doing research and being more like a traditional university, but the university itself is not necessarily prepared for this move:

> When it was the old Technikons, we knew exactly what we were standing for, what we were giving. Then we became a University of Technology then it was all confused. We had to try to be like a university but we were actually not, and we sit in between and we are being pushed now to become these research academics, whereas we actually just want to focus on skills and I want to teach my students skills … you want to be relevant to the workplace (M).

Furthermore:

> We used to be known for producing students with high level skills having lecturers and staff with high level skills that have been exposed to the industry; this balance between skills and knowledge or, research and experience … we need to find that 'sweet spot' (Z).

This tension between being close to and responsive to industry yet also being required to conduct research was then aggravated by additional demands being made on them; for example, staff refer to university strategic objectives such as developing their own and students' innovative and entrepreneurial abilities as well as having to respond to increasing managerial quality demands. Staff were often feeling overwhelmed by the demands being made on them:

> You know, if you look at the big picture, the workload that comes with everything, trying to balance teaching, research, the industry links because we are closely related to industry, up skilling ourselves, the administration that comes with teaching and learning, we also are expected to market our programmes … an analogy, is this octopus … trying to get its tentacle on everything and be in control of your situation … (H).

> Sometimes you're expected to do things beyond your scope, for instance marketing your programme … (Z).

> … I feel like I became a Jack of all trades but a master of one and not a master of none (J2).

The situation is further worsened for the participants in the CL by what they perceived to be poor cooperation from the university administration. It almost seems that different support units work in isolation, often working in 'silos':

> Something that frustrates me is when I am trying to achieve something but I'm hindered by like let's say different stakeholders … (K).

> … So it's all about communication and cooperation of the support systems that we have at the university … (H)

> … it is very clear and that is the lack of support systems, clear processes, people not reacting on your enquiries … (J1).

> … like a couple of the participants mentioned (the problem) is the bureaucracy and the red tape (Z).

In addition, the participants raised the issue of where decisions about the trajectory of the university are being made. They sensed that there is a disjuncture between what they as academics are doing on the ground and the sorts of 'improvement' decisions being made. These sorts of hierarchical decision-making processes may be a hangover from the previous Technikon days which were characterised by such top-down decision making (White, et al., 2011).

> For us, it's maybe a very difficult, stressful goal and for management it's this very wonderful goal that's going to improve the business. … the people making the rules were maybe not academics. … it's going to be a bigger mess than in reality it seems to management (J2).

> Some of the decisions are made by Council … they are from outside and my question is do they actually have our interests, I mean as in the academic environment of our Faculty and students, at heart? (H).

Learning action 2 - Activity system analysis of current and historical conflicts

Once the main disjunctures and conflicts have been identified, the next action is to gain a deeper more systematic understanding of these difficulties. Participants collaboratively and with the assistance of the facilitator recontextualized the disjunctures/conflicts as relating mostly to the object of the system; the tools they need to work on this object; the rules they operate under; and the divisions of labour. Thus, rather than seeing difficulties as isolated events, they are now depicted relationally as being part of the activity system as a whole. Furthermore, disjunctures can be understood in a more abstract depiction, as contradictions within the system (Virkkunen & Newnham, 2013; Engeström & Sannino, 2010).

As is shown in the analysis in Figure 3, staff come to realise that they are required to work on too many objects that push and pull them in different directions, often leading to a sense or 'outcome' of despair and confusion. These contradictions are exacerbated, firstly, by difficulties with tools (administration and their own skills) to work on these contradictory objects and secondly by the problematic divisions of labour, both vertically (hierarchies) and horizontally (silos within the university and their many roles). Other factors such as who the subjects of the university system should be, and its rules and norms further exacerbate the situation (the 'rules' include national policy directives as well and the 'outcome' would necessarily affect students as well). 'Stakeholders' included, amongst others, constituencies such as industry, university administrative and management bodies, and students). This was, however, only the first stage of the systematic analysis and abstraction of the conflicts staff experienced.

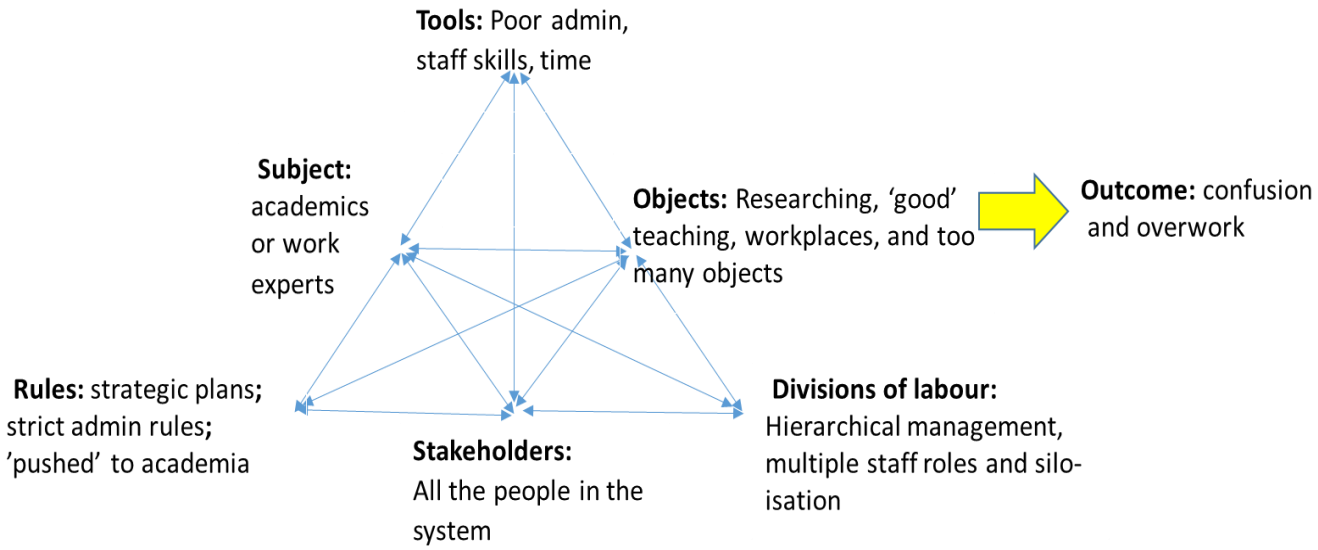

Figure 3: Activity system analysis of the present situation

The second systematic analysis was a historical activity analysis. What emerged strongly was the shift in time of the object of the university, from a past strong focus on workplace ties to a current weakening of these ties. Though this issue had already emerged, the history modelling more emphatically illustrated this development over time.

Learning action 3 – Modelling a new activity system of the future to resolve contradictions

The participants and facilitator now had systematic, abstract representations of the conflicts staff experienced on the ground. The next action was to locate potential bridging concepts between what appeared to emerge as the main, identified conflicts. What seemed to recur in the current and historical analysis was the increasing distance between the university and the world of work, thus generating the new idea of the need for some form of renewed work linkage. The new idea or vision for the future is at first very abstract and open-ended. It can be likened to an innovation, i.e., a new way of looking at a problem, that can provide some value to society. However, innovations need to be developed further if they are to be made operational in society (Rip, 2012). Likewise, in the CL the new idea or vision initially developed needs to be concretized through developing connections to other aspects of the activity system of the university (Sannino & Engeström, 2017). Thus, the vision of 'renewed work linkages' became the object of a new activity system of the future, and the workshop participants now build the activity system around this (Figure 4). Such building involves the group posing questions such as 'what tools, rules and divisions of labor are necessary to concretize the new vision in real life?'. Building on the new idea in this way can be likened to operationalizing an innovation through entrepreneurial activity.

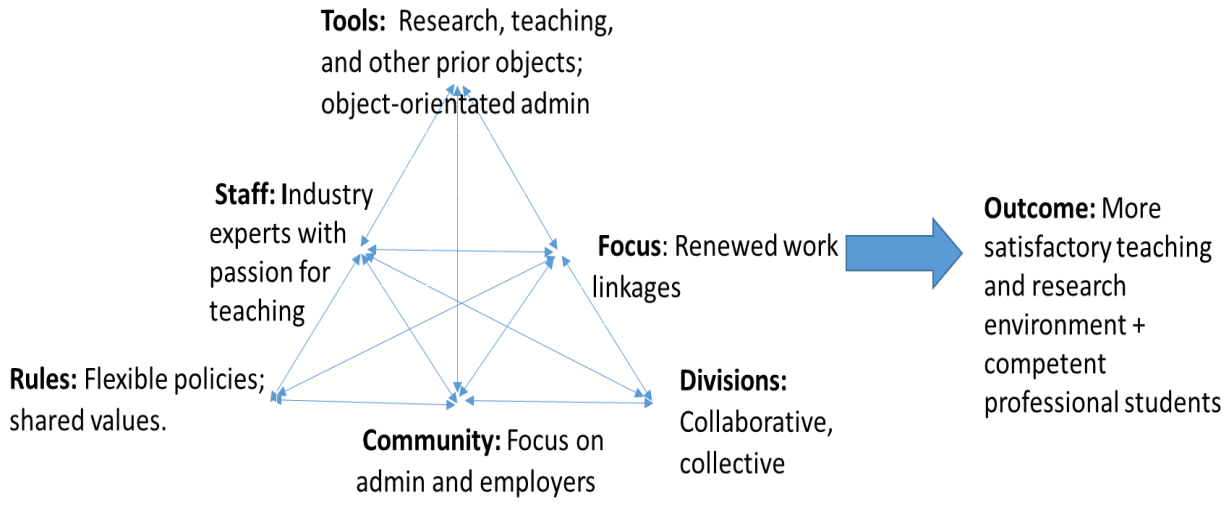

Figure 4: Activity system of the future with new single object

With the new object of 'renewed work linkages' participants agree that objects such as research, teaching for workplace competence, innovation and entrepreneurship can then be moved up to tools which could assist in accomplishing the more singular and fundamental object.

'Research' can be re-thought of as work- or society improvement research, which could be conducted by student-lecturer-supervisor triads during students' WIL as well. At this point the administrative difficulties remained, but the group suggested a renewed focus on this administrative part of the 'community' and their integration into the new object-purpose of the system (Figure 4). Furthermore, a greater focus on collaborative decision making, ideally located at departmental and faculty level, could better support the renewed linkage.

The CL participants were building or modelling the innovation, not yet in real life but in the imagination, within the walls of the CL, an essential step in developing this new vision (Virkkunen & Newnham, 2013). The next actions involved taking the vision developed thus far out into the real world. A first step towards this action is presenting the vision to an outside, additional management grouping (Virkkunen & Newnham, 2013).

Learning action 4 – Experimenting with the new concepts through taking the CL back to management, and the issue of entrepreneurship

After five CL sessions and the development of a singular object of 'improved work linkages' and the shifting of the multiple objects to the tools (including developing entrepreneurship) required to work on this object, the proposed new UoT activity system was presented to Faculty management for comment. Faculty management suggested that administrative difficulties and inflexibility within the UoT was already being dealt with at a committee level and that the CL findings would be useful in supporting this forum's work; thus, not all CL work raises new issues but may rather also support current, ongoing initiatives.

In addition, Faculty suggested that the CL new focus of 'improved work linkages' could be accomplished through promoting innovative and entrepreneurial approaches in the university. Such an approach could assist graduates to enter employment and at the same time help develop a more commercial arm of the university, thus bringing in third stream funding. The Faculty reports that this issue of commercialization is important for the university against the backdrop of reducing Government subsidies. However, Faculty Management raised two constraints to this possible initiative. Firstly, there was the issue of staff's knowledge and skills:

> … you wake up one morning they said now you've got to be teaching students about entrepreneurship about innovation, whatever, staff do not have that skill set to do all this kind of things you see … you cannot actually learn from somebody who has not done that particularly thing you see. It's a little difficult to say that I can maybe teach students to be an entrepreneur when maybe the last entrepreneurial thing they've attempted was to maybe sell vetkoeks (simple streetfood) and all that … it's not going to work (Faculty Management respondent 1)

Secondly, Management suggests that there was not currently a strong culture of entrepreneurship within the university itself. This could in turn be related back to the rigid infrastructure and limited opportunities for staff and students to explore new ideas:

> Although the university wanted to be entrepreneurial or they want their students to be entrepreneurial, it's part of the Vision 2030 of the university, yet, on the other side we do not have the culture of entrepreneurship, that innovation in our effectiveness and efficiency in what we do and how we do it as Prof M. said, he wanted to do something innovative but the bureaucracy stopped you know that process ,,, so if the university shows with all the systems and the policies that there's ease in getting around and doing things more effectively and efficiently, that may also promote this culture of innovation and entrepreneurship and also spinoff in terms of teaching, research outputs and so on (Faculty Management respondent 2).

A core issue being raised by management is that a new vision of the university, with its closer links to work, needs to incorporate the development of staff's entrepreneurial and innovative skills, as well as developing an overall culture of 'entrepreneurship'. Developing staff in this way (as well as students) is referred to in the university's entrepreneurial strategy, for example in the form of regular training workshops (documents supplied by workshop participants).

Discussion: developing entrepreneurial thinking through the change laboratory

The CL work in this research only progressed as far as learning action 4, examining the model through trying it out and experimenting with it, but only through presenting it to the Faculty Management Committee for their comments. The following stages of full-on implementation and evaluation of the new project were not conducted. However, the essential steps that link the CL to developing entrepreneurial thinking can still be ascertained.

The workshop participants begin with conflicts in their working lives in the CL then progress to coming up with an innovative solution, the renewed focal point or object of relations to work. In the modelling/experimenting phases where the CL findings are taken back to management, an interesting phenomenon emerges. Management suggests that entrepreneurship is a necessary function of the UoT, in particular to support student employability, but that staff lack the skills to teach it, and the overall culture of the institutions is not conducive for innovative and entrepreneurial thinking. The suggestion is that there needs to be some form of entrepreneurial development amongst staff if the UoT is to fulfill this function, a point that resonates with the challenges to developing entrepreneurial thinking at universities more generally (UNECA, 2021). However, even though the strategic plan highlights a number of important current entrepreneurial developments and ambitious future plans (documents supplied by workshop participants) exactly how staff are to be assisted to think entrepreneurially is not clearly laid out. Mueller and Anderson (2014) suggest that entrepreneurial education needs to assist people in breaking out of the known world in order to deal with an as yet unknown future. They do this by collectively constructing new meanings, a point also raised by Morselli, et al. (2014). Thus,

one suggested approach to foster the sorts of thinking needed for entrepreneurial activity could be that of the change laboratory itself.

Within the learning process of ascending from the abstract to the concrete through expansive learning (Engeström, et al., 2014) staff are also learning to come up with new visions or possibilities for the future that have not previously existed. Expansive learning has many congruencies with entrepreneurial learning. Entrepreneurial learning, at least amongst university academics, involves firstly developing a rich and collaborative understanding of disharmonies in society, followed by the development of innovations which may resolve these. Academics then experiment with these innovations in order to concretise them and so create a useful, societal intervention (Shumar & Robinson, 2019). These stages can be matched to the experiential learning cycle in Figure 2, which also provides a more detailed account of how learning occurs towards envisaging change. It is thus possible to tentatively claim that change laboratory work has the potential to develop and support staff's ability to think innovatively and entrepreneurially, a point also raised by Morselli, et al. (2014), though in their case with a focus on student development.

Conclusion

As pointed out, staff engaging in expansive learning in the change laboratory are also learning to think entrepreneurially. This matters if as USAf suggests: 'With economies under severe stress and crippling unemployment rates, the emphasis on generating more innovative and entrepreneurial cultures is both promising and necessary' (UNECA, 2021:6). Thinking entrepreneurially, however, does not have to be restricted to economic factors. As Shumar and Robinson (2019) persuasively argue, entrepreneurial thinking also supports the development of staff and students' agency to create new values and transform the world for their own and the broader community's betterment, which are surely important contributions a university can aspire to. This is also what Engeström (2007) means when he refers to change laboratory work as having the potential to assist participants in breaking with fixed past ways of operating and opening up new possibilities for action.

As an endnote, the concept of 'intrapreneurship' within the university was referred to in the introduction. Broadly, this can be understood as doing things better and more productively within an existing organization, often as an antecedent to developing the entrepreneurial university (Guerrero, et al., 2020). For the reasons given, the authors preferred the use of the concept of entrepreneurial thinking. However, promoting the concept of intrapreneurship may have more purchase with staff, for example in challenging restrictive bureaucracy as suggested by Faculty Management, as a stepping-stone towards enhancing a more externally-focused entrepreneurial strategic thrust. Furthermore, if the concept could be enlarged to include the sorts of collective, analytical learning actions and the development of academic agency envisaged in expansive learning and entrepreneurial thinking, it could go some way in supporting the universities' transformatory role in society.

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