

Understanding practice: a method

Activity systems analysis

Derick du Toit & Charles Chikunda



Association for Water and Rural Development (AWARD)

Company Reg. No. 98/03011/08
P O Box 1919
Hoedspruit 1380
Limpopo
South Africa

Non-profit org. Reg. No. 006 – 821
Tel: 015 – 793 0503
E-mail: sharon@award.org.za
Website: www.award.org.za

ACKNOWLEDGEMENTS

Funding for this guideline was provided by a co-operative agreement from USAID

RESILIM O - Cooperative Agreement nr AID-674-A-13-00008

The USAID: RESILIM O project is funded by the U.S. Agency for International Development under USAID/Southern Africa RESILIENCE IN THE LIMPOPO BASIN PROGRAM (RESILIM). The project is implemented by the Association for Water and Rural Development (AWARD), in collaboration with partners.

July 2015

RESILIM-O

RESILIENCE IN THE OLIFANTS PROGRAM

Cooperative Agreement nr AID-674-A-13-00008



USAID
FROM THE AMERICAN PEOPLE

SOUTHERN AFRICA

Understanding practice:

Activity systems analysis

Activity theory is not a specific theory of a particular domain, with specific techniques and procedures. It is a cross disciplinary approach offering conceptual tools and methodological principles which can be used to understand and support collective human activity and learning. The core assumption of activity theory is that consciousness and activity are dynamically interrelated (Loent'ev, 1972). This is a fundamentally different assumption to traditional knowledge transfer approaches which rest on the assumption that knowledge precedes action. Activity theorists reject this as false, rather *conscious* learning is understood to emerge from “activity (performance), not as a precursor to it (Jonassen et al, 1999, 62). There are two other aspects of activity theory that influence the way in which one would engage with stakeholders and support collective action and learning, these are:

- Activities are socially and contextually bound which means that an activity can only be understood or developed by understanding the context within which it has emerged or needs to exist
- Activities develop through time. Understanding the historical development of an activity is key to being able to support further development of the activity and learning (Jonassen, 1999).

In collective action the outcome of an activity can only be reached if actions and operations of a particular activity are co-ordinated. This requires an understanding of the activity and how actions and operations are taking place towards an agreed upon outcome.

From the research findings it has become clear that in order to support collective action for IWRM it is necessary to:

- a) understand all the potential constraints that may inhibit collective action at the different levels of action (See the literature review of collective action)
- b) understand and support contextually situated activities of IWRM around which stakeholders need to engage in collective action.

Activity theory sees an activity as consisting of the following:

- A subject. This is a person or individual who engages in the activity and acts upon the object.
- An object. The physical or mental object that is sought by the subject. The nature of this object will influence the way in which the subject acts upon it. For example, collective action usually occurs around a local object such as a crop, in IWRM the object be it water allocation or regulation is not situated within a local context. This influences the way the subject (all the effected stakeholders) will act upon the object.
- Tools. Tools are anything that influences the way in which people act and think. Tools can be physical objects but they can also be cultural beliefs or mental models. The kind of tool that is used will alter the activity, and be altered by the activity.

This interplay of subject, object and tools towards a collective goal (or production of a goal) happens within a broader frame of rules, community and division of labour. Rules being explicit and implicit rules of behaviour that govern action that are agreed upon by the community. The community is the broader social space within which the activity is taking place. Division of labour is how action within the activity system is divided between different subjects. Figure 3 is a graphic representation of an activity system.

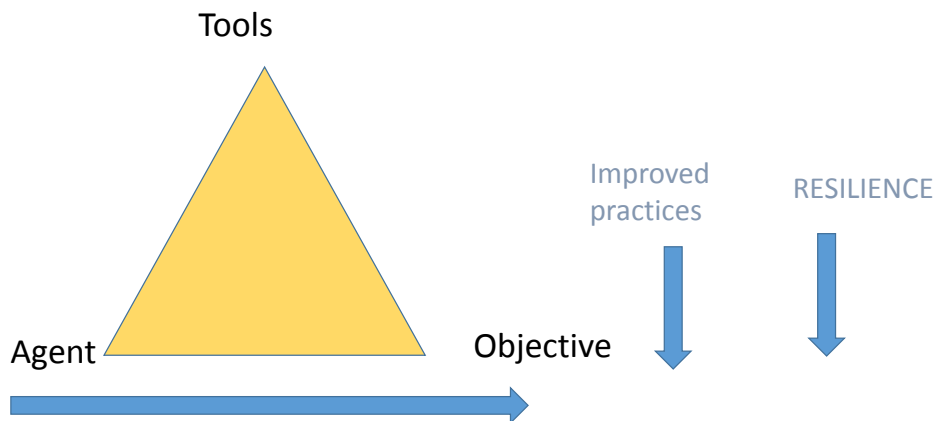


Fig 1 The first generation activity system

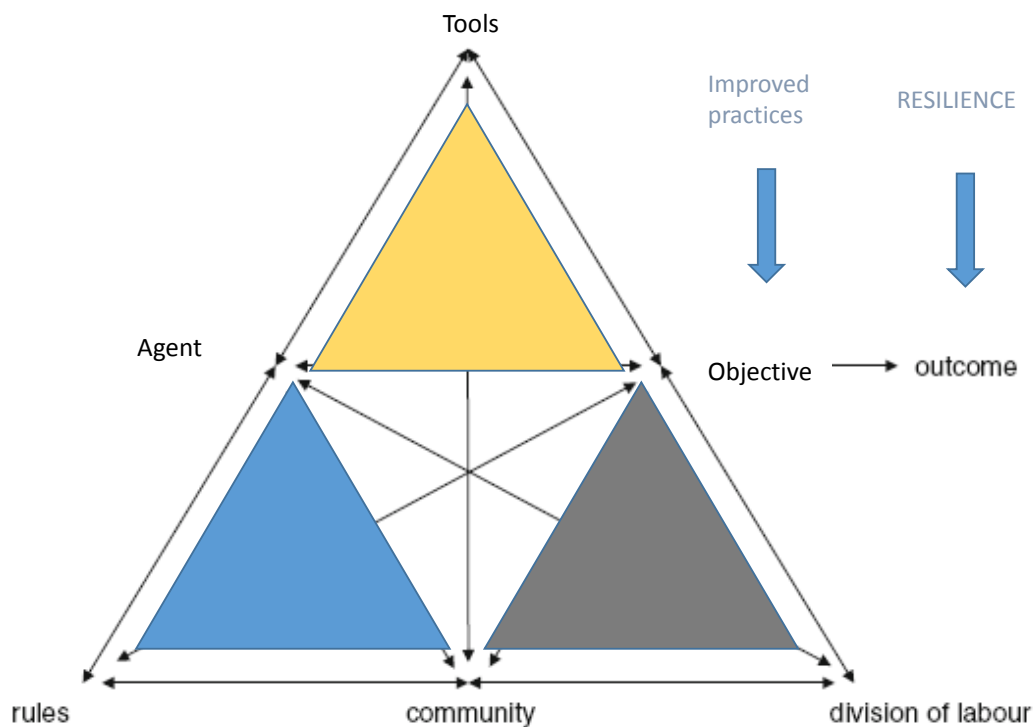


Figure 1. The second generation activity system showing attention to context (Adapted from Engestrom et al.1999).

In this model the subject tries to change something (object) in order to achieve a goal (outcome). This is mediated by tools (artefacts), the rules that apply in that activity, the community that is involved in the activity and the division of labour between members of the community. The activity system is again situated within a broader frame (as mentioned above), a cultural context and a historical context. Understanding context then becomes vital for being able to support IWRM activities and the learning that needs to happen within an activity system.

Basic principles of activity theory

Activity theory is based on three general principles that are mainly concerned with the analysis and interpretation of data that record and describe human behaviour and action. They are as follows:

1. The entire activity system is the unit for analysis.

Engelstrom (1996) maintains that conventional cognitivist views identify the given problems and knowledge domains - or the individual's mental models and cognitive structures- as the context of problem solving, thinking and learning. This view excludes the fact that an individual exists within a society whose actions are contained and influenced by a cultural-historical context. Engelstrom explains: "...if we take a prolonged look at any institution, we get a picture of a continuously constructed collective activity system that is not reducible to series or sums of individual discrete actions". The challenge then is to understand the indirect or even hidden influence of individual actions on the creation and reproduction of activity systems and how the different components of the activity system create and reproduce the action of the subject (individual or group). This means people not only use tools, they also renew and develop them, whether consciously or not. They not only obey rules, they also mould and reformulate them.

People, through their practices within a given activity, both change and transform the world. This in turn changes the way we practice. "Humans are thus both producers of knowledge and the co-creators of the world around them." (Burt *et al*, 2012, r 23)

2. The activity and its actions need to be analysed historically

This principle distinguishes between modes and historical types of a given activity. The mode refers to the way the activity is organised and carried out by its participants at any given time. Historical types can be characterised by means of two variables: degree of complexity and degree of centralisation (Engelstrom, 1996). For example, if the complexities of interactions are very high for a given activity, then centralised control and extreme division of labour create motivation and quality problems. As complexity increases in systems so does the tendency for decentralised work teams to reconceptualise and plan the objects and products as well as the organisational forms of their work. This means that questions of How? Are extended to why? For whom? Etc. with the consequence that activity systems start to reconstruct.

3. Inner contradictions as the source of change and development

Activity systems are characterised by inner contradictions. In all activity systems there are fundamental contradictions that reside in each component of that system. For example, the intentions of subjects in an activity system emerge from contradictions such as the contradiction between what they believe they need to know in order to accomplish a goal and what they do know at any point in time (Jonassen, 1999).

Secondary contradictions may introduce a 'disturbance' or perturbation that may lead to an overall crisis in the activity system. These contradictions are not something to be avoided rather they are the source of innovation and change. Contradictions usually jolt automatic habitual operations (operations are actions which have become automatic and require less conscious effort) back into conscious actions that need to be reviewed and possibly changed.

Step-by-step process for working with Activity Theory

Activity theory can frame research, practice and learning from understanding the context of an activity system all the way through to engaging with change-orientated learning which the purpose of changing practice. Below are a series of steps developed by Jonassen (1999):

Step 1: Clarify the purpose : understanding the context within which action (or activities) are occurring, the motivation for a particular activity and any contradictions in relation to the context and motivation, in order to develop a thorough understanding of ‘the intentional dynamics of the activity system’ (Jonassen, 1999, 71)

Outcome: To guide the construction of the problem space (in terms of goals and motivation)

Step 2: Analyse the activity system: defining the components of the activity system (subject, object, community, rules and division of labour) and understanding contradictions.

Outcome: Description of all aspects of the problem/project. This process can also lead to recommendations of how the subject can address the problem or what learning/skills the subject needs to address the problem.

Step 3: Analyse the Activity Structure: This means analysing all the activities that the subject engages in both consciously and unconsciously. The underlying question here is “Why are people doing what they are doing?”

Outcome: A description of activities, actions and operations that are required to engage with the problem or contradictions. An understanding of how the subject engages and can engage with the object.

Step 4: Analyse tools and mediators: Understanding the tools and signs that mediate the interactions between subject, community and object).

Outcome: An understanding of what constrains action according to the tools that are used and what tools are needed (such as educational processes) within the activity system

Step 5: Analyze the context within which the activity occurs. This includes both the internal context of the activity (such as the objects and goals) as well as the external context (such as tools and broader movements in society)

Outcome: Identifying the interactions that will be needed to enhance learning in this particular context.

Step 6: Analyze the Activity System Dynamics Looking at description of activity system that one has developed and assessing how all the components affect each other. Jonassen calls this a ‘final reality check of the system’ (Jonassen, 1999).

Outcome: Interconnection between different aspects of the system and an understanding of what is needed for learning to occur. Any new processes that emerge out of a learning process are tested.

Below is a table of potential questions for each step, adapted from Jonassen (1999).

Table 1: Guiding questions for Activity System analysis (drawn from Jonassen, 1999)

PHASE 1 Scoping practice	Details
<p>Clarify purpose of Activity system (Understand contexts in which activities occur)</p>	<ul style="list-style-type: none"> • What is the expected outcome of the activity? • How is the success of the outcome evaluated/known? • Generate a list of problems that the agent(s) of the activity system deal with. • What groups/people successfully complete the activity? • When and where do problems usually occur? • What communications surround the situation or activity?
<p>Division of labour (Who is involved)</p>	<ul style="list-style-type: none"> • Who are the participants in the particular activity? • What are their roles? • What are their beliefs? • How are tasks shared? Is division of labour flexible? • What is the expected outcome of the collective activity? • What struggles are or have been evident in the group? • What perceived rewards does the subject envisage if the goal is accomplished?

<p>Community</p> <p>(Define the relevant sphere of impact/influence/ in relation to communities/ geographic location/infrastructure)</p>	<ul style="list-style-type: none"> • Scope the extent of the context (level, scale location, time) • Clarify scope and extent of the activity within the context or community of influence (part of a catchment, municipality, farm, infrastructure system etc) • How does location in the system affect you and • How do you affect it? Explain in detail • How do conflicts influence interactions? • How do other communities view and value the goals of the activity?
<p>Tools</p>	<ul style="list-style-type: none"> • What tools might be used in this activity? • What tools do they find unhelpful? How willing are they to try new tools? • How readily available are these tools to you? • What are the physical and mental (ideas and ways of thinking) tools used to perform different activities, in different settings and across activities? • How have these tools changed over time? • What are the drivers of change to these relationships?
<p>Rules</p>	<ul style="list-style-type: none"> • What formal or informal rules, laws or assumptions guide the activities? • To what degree are these explicitly stated? • What rules are important in your sector (legislation, guidelines etc) • How might these rules have evolved? • Are they task specific? • How widely understood are these rules? • Are there problems with these rules for your activities?

Phase 2 is a deeper analysis to be conducted with a select group of recipients who show a deeper understanding of the system and can be engaged in the deeper analysis

PHASE 2 Analysis	
<p>Understand the agent/s (motivations & interpretations and perceptions)</p>	<ul style="list-style-type: none"> • Generate list of motives and goals of each group involved in activity • What expectations are there? • Who sets those expectations? • Which expectations may change the dynamics of the activity? • What are the perceived tensions/problems associated with the activity and how are these seen to effect the activity?
<p>Changes and transformations in practice</p>	<ul style="list-style-type: none"> • How has the practice(s) transformed over time? • Can this transformation be viewed in terms of historical phases? • What do subjects think about these foundations? • What are the contradictions from the viewpoint of subjects?
<p>Analyse the context Internal or subject driven factors</p>	<ul style="list-style-type: none"> • What are the beliefs, assumptions, models and methods that are held by the subject(s)? • How do subjects refer to their experiences in other groups? • What theoretical foundations/ways of thinking have dominated actions • What type of language do they use?
<p>External or community driven factors</p>	<ul style="list-style-type: none"> • What is the nature of social interactions around an activity? • What social interactions/actions are considered to be critical? • What type of limitations will be placed on the activity internally and externally? • How are the tasks organised among stakeholders? Is this dictated or emergent? • Is there a difference between formal rules and implied rules?
<p>Analyse Activity System Dynamics</p>	<ul style="list-style-type: none"> • What are the interrelationships that exist within the components of the system? • What factors have driven the formation of relationships?

- | | |
|--|---|
| | <ul style="list-style-type: none"> • How lasting and permanent have these been? • What factors have kept relationships together or driven them apart? • Are there issues of power? • What are the drivers of change to these relationships? |
|--|---|

What activity theory gives IWRM is an analytical tool that can help us:

- a) understand how activity systems are currently functioning by analysing the different components of an activity highlighting where contradictions and gaps lie.
- b) A clear understanding of an activity as it is situated in a cultural-historical context.
- c) Develop and simulate learning environments based on an understanding of learning as emerging from activity, where diverse stakeholder groups get to review their practice within a particular activity.
- d) Ongoing monitoring and evaluation of practice by reflecting on how a change in practice influences the different components of the activity and whether this leads towards reaching the collectively agreed outcome of the activity.

References

- Benvenisti, E. (1996). Collective action in the utilization of shared freshwater: The challenges of international water resources law. *Am. J. Int'l L.*, 90, 384.
- Bhaskar, R., & Danermark, B. (2006). Metatheory, interdisciplinarity and disability research: a critical realist perspective. *Scandinavian Journal of Disability Research*, 8(4), 278-297.
- Burt, J., Berold, R., & Rivers, N. 2011. Review of social learning literature relevant to knowledge flow in the water sector. WRC Deliverable, Project K5/2074.
- Du Toit et al (2005) Preparing people for integrated catchment management: A proposed learning alliance for the implementation of a new legal framework for water management in South Africa. "Reflexive learning in context." Association for Water and Rural Development (AWARD)
- Du Toit, D. R. and S. R. Pollard . (2008). Updating public participation in IWRM: a proposal for a focused and structured engagement with Catchment Management Strategies. IWRM Special Edition of Water SA Vol 34 No 6
- Department of Water Affairs & Forestry. (2007). Resource Directed Measures: Module 1 Introductory module. Pretoria, South Africa.
- Department of Water Affairs & Forestry. (2004) National Water Resources Strategy. Department of Water Affairs and Forestry, Pretoria.
- Department of Water Affairs (2012) Olifants Classification project Question and Reponses document. Unpublished report. Resource Classification project
- Engestrom, Y. (1996). Interobjectivity, ideality, and dialectics. *Mind, Culture, and Activity*, 3(4), 259- 265.
- Engeström, Y., Engeström, R., & Vähäaho, T. (1999). When the center does not hold: The importance of knotworking. *Activity theory and social practice: Cultural-historical approaches*, 345-374.
- Ison, R.L.; Steyaert, P.; Roggero, P.P.; Hubert, B. and Jiggins, J. (2004). The SLIM (Social learning for the integrated management and sustainable use of water at catchment scale) Final Report. The SLIM Project supported by the European Commission.
- Jonassen, D. H. and Rohrer-Murphy, L (1999). Activity Theory as a Framework for Designing Constructivist Learning Environments. *Educational Technology Research and Development*, Vol. 47, No. 1 (1999), pp. 61-79
- Ostrom, E. (2004). Understanding collective action (2020 Vision Focus Brief 11(2)) Washington, D.C.: International Food Policy Research Institute (IFPRI)
- Ostrom, E. 1998. A behavioral approach to the rational choice theory of collective action. *American Political Science Review*92(1)

- Pollard, S., D. du Toit, and H. Biggs. (2012). A guide to complexity theory and systems thinking for integrated water resources research and management. Water Research Commission project report K8/854, Pretoria.
- Pollard, S. & du Toit D.R. (2011a). Towards the sustainability of freshwater systems in South Africa: An exploration of factors that enable or constrain meeting the Ecological Reserve within the context of Integrated Water Resources Management in the catchments of the Lowveld. TT 477/10 Water Research Commission Pretoria, South Africa.
- Pollard, S. & du Toit D.R. (2011b). Towards Adaptive Integrated Water Resources Management in Southern Africa: The Role of Self-organisation and Multi-Scale Feedbacks in the Letaba and Crocodile Catchments. Water Resources management Volume 25, Issue 15 pgs. 4019 - 4035
- Pollard, S.R., du Toit, D.R., Reddy, Y. & Thlou, T. (2007). Guidelines for the development of catchments management strategies: towards equity, efficiency and sustainability. Department of Water Affairs and Forestry, Pretoria
- Schelling, T. C. (2010). Game theory: a practitioners approach. Economics and Philosophy, 26(01), 27-46.
- Republic of South Africa. (1998) National Water Act. Act no. 108 of 1998. Republic of South Africa, Cape Town
- Republic of South Africa. (2005) Intergovernmental Relations Framework Act. IGRFA. Republic of South Africa, Cape Town
- Senge, P. M., & Scharmer, C. O. (2006). Community action research: learning as a community of practitioners, consultants and researchers. Handbook of Action Research: Concise Paperback Edition, 195-206.
- Steins, N. A., & Edwards, V. M. (1999). Platforms for collective action in multiple-use common-pool resources. Agriculture and human values, 16(3), 241-255.
- Vygotsky, L.S. (1978). Mind in society. Cambridge, MA: Harvard University Press
- Wals, A. E. (Ed.). (2007). Social learning towards a sustainable world: principles, perspectives, and praxis. Wageningen Academic Pub.
- Warner, J. F. (2006). More sustainable participation? Multi-stakeholder platforms for integrated catchment management. Water resources development, 22(1), 15-35.
- Warner, J. F., & Verhallen, J. M. M. A. (2005). Multi-stakeholder Platforms for Integrated Catchment Management. Towards a comparative typology. Water Resources Management Monograph. Pg 213-226. Wageningen University: Netherlands
-