

Simulating the Implementation of the Administrative Justice Act with ThinkLets and GroupSystems: A Comparative Analysis from Three Field Studies

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ABSTRACT

We present in this paper the results of three simulation exercises performed as part of a series of field studies whose object is the implementation of the Promotion of Administrative Justice Act. The unit of analysis of the study is the process facilitation, which in the context of the field studies and the research design, took the form of AJA awareness raising workshops and the use of a Group Support System (GSS) tool. The notion of a thinkLet was used as a basis for conducting the simulation exercises using GroupSystems. Each workshop, which included the GroupSystems simulation exercise, was treated as a single case. These guidelines are effectively used throughout the conduct of this study and to analyse the results of the simulations. The results presented here constitute a one year milestone in a longitudinal project led by the second author.

Keywords

Decision Theory, Decision Justification, Administrative Justice Act, Group Support Systems, Simulation, ThinkLets

INTRODUCTION

The work reported on in this paper forms part of a longitudinal Interpretive Information Systems (IS) study that is to span a period of six years, this being the second. Its background is underpinned by a doctoral study conducted by the second author entitled 'an analysis of group decision justification and its implications for GSS use and design ideals', whose completion coincided with the bringing into effect of Section 33 of the South African Constitution. The Section required the government to pass a law setting out the details of the right of everyone in South Africa to just administrative action. This law was passed in the year 2000 as the Promotion of Administrative Justice Act (AJA) (3 of 2000). The AJA sets out procedures that administrators must follow before taking a decision and afterwards. The procedures apply to all organs of state, arguably including Tertiary Education Institutions. For example decisions related to student admissions, employment and labour related issues to mention but a few.

The steps prescribed by the AJA were found to be intriguing and attractive to research from decision theoretic and Information Systems points of views. Furthermore, there were striking similarities between what Phahlamohlaka (2003) called prerequisites of decision justification and the steps prescribed by the AJA process. It is not our intention in this paper to focus on theoretical aspects, but Figure 1 provides a high level picture that serves as a theoretical basis for the study. After going through the rest of the paper, the reader may be interested to compare the components of this framework with the thinking behind the AJA as well as the steps it prescribes. It was these procedures, their close relationship to the logics of decision justification and how their implementation could best be supported through the use of computer based technology that the second author identified as areas of importance, interest and further study

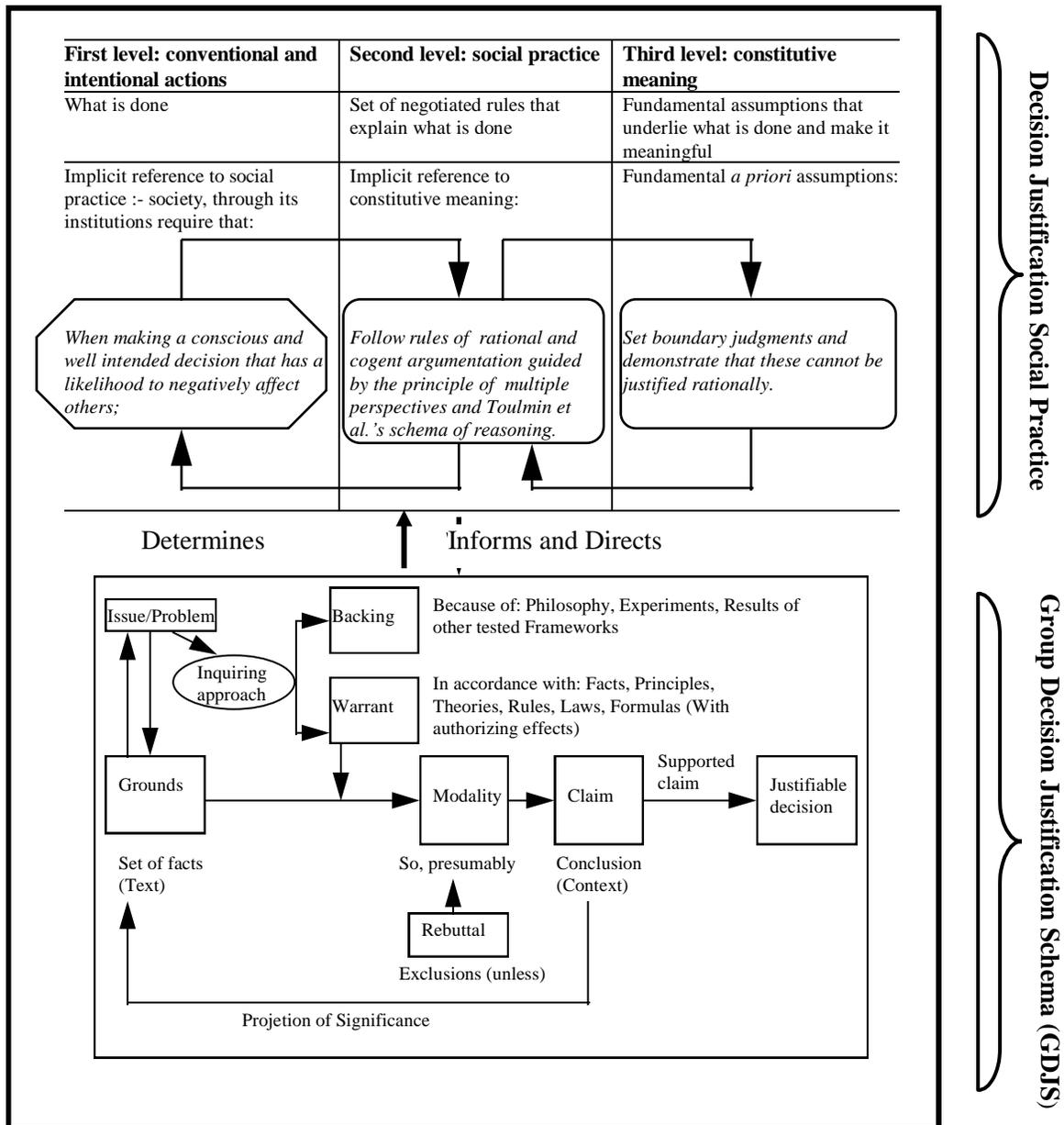


Figure 1: Group Decision Justification Framework (GDJF); Source (Phahlamohlaka, 2003)

Two research projects were initiated in 2003. The first was entitled “enabling access to human rights through thought processes and web-based Group Support Systems tools”. The aims of the project were: (1) to explore innovative ways in which web-based GSS could enable access to human rights by ordinary South African citizens and (2) to explore, as part of this access seeking process, efficient forms of engagement between ordinary citizens, administrators and managers. The primary research questions for the study included:

- How best can the ordinary South African public be enabled and empowered to exercise their constitutional rights espoused by the AJA?
- Can a thought process and Web-based technologies be used to support this enablement?

- To what extent would Web-based technologies be considered relevant in this process?
- Are these technologies considered as potentially valuable in enhancing a better understanding and implementation of the Act?

The second project was an expansion of the first one, with one more aim added: (3) to identify and harness opportunities for sustained collaboration and interaction by communities who would use web-based GSS tools within e-government contexts in South Africa. For this second project, collaboration engineering through the notion of a thinkLet (Briggs et al, 2003) and participation in their creation and packaging was adopted. The main research question here is:

- What features are needed in web-based collaboration tools and how should interfaces be designed to enable citizens to interact effectively with government and public bodies in South Africa?

The projects have since been successfully linked and funded by the National Research Foundation (NRF), with several post graduate students and co-investigators researching different topics. Topics already addressed by students and co-investigators include: ‘enhancing procedural fairness in administrative action of the Administrative Justice Act of South Africa using web-based Group Support Systems’(Twinomurinzi, H. and Phahlamohlaka, L.J, 2006); ‘information flows for meaningful implementation of the Administrative Justice Act of South Africa’(Alexander, P.M. and Phahlamohlaka, L.J, 2005)); and ‘towards a Collaboration Engineering Framework for the Implementation of the Administrative Justice Act of South Africa’(Wooding, T. and Phahlamohlaka, L.J, 2005).

In this study, the notion of a thinkLet was used as a basis for conducting a simulation exercise using GroupSystems as a tool in a workshop setting. The aim was to raise awareness about the process involved in the implementation of the act using a real case and to demonstrate the possibilities for the use of computer-based technologies to support this process.

The study follows the Interpretive IS research tradition and embeds the thinkLet notion and the simulation exercises within the critical appraisal guidelines proposed by Atkins and Sampson (2002). Each workshop, which included the GroupSystems simulation exercise, was treated as a single case. This enabled us to use these guidelines to structure and to present the results of the simulation. Atkins and Sampson give five guidelines to follow when conducting single case study research; *the way of thinking, way of controlling, way of working, way of supporting* and *way of communicating*. The guidelines are in line with Klein and Myers (1999) and Walsham’s (1995) recommendations on good interpretive case study research in Information Systems.

The rest of the paper is organized as follows: We next discuss the requirements of the critical appraisal guidelines followed by a brief background on thinkLets and Group Support Systems. The design of the simulation exercises is next presented followed by a presentation of the three field studies. The analysis of the simulation exercise in line with the critical appraisal guidelines is presented. Further research areas are pointed out and the paper ends with a concluding discussion.

THE CRITICAL APPRAISAL GUIDELINES

The critical appraisal guidelines for single case study research were proposed by Atkins and Sampson (2002). The guidelines provide a rigorous set of criteria in the form of a checklist against which a piece of research can be assessed. According to Atkins and Sampson, the use of such guidelines is common especially in evidence based disciplines such as medicine. Their guidelines are informed by well-established authorities on interpretive IS research, such as Klein & Myers (1999) and Walsham (1995) among others (Phahlamohlaka, 2003). Furthermore, Atkins and Sampson used Bronts et al. (1995), who proposed a framework for investigating IS development methods based on five classification elements: *way of thinking, way of working, way of controlling, way of supporting* and *way of communicating*. The *way of thinking* describes the assumptions and viewpoints of the researcher in the context of the current research and thus makes explicit the philosophical context in which the research is conducted. The *way of working* defines and orders the tasks and sub-tasks that are to be performed in the research exercise, and also provide guidelines and heuristics on how these tasks should be carried out. The *way of controlling* sets out how the research exercise should be managed while the *way of supporting* details how tools can be used to support the research exercise. The *way of communicating* describes the form in which the research is to be presented. The framework thus covers both the research approach which is “a way of going about one’s research, embodying a particular style and employing different methods” and the research method which is “a way to systemise observation, describing ways of collecting evidence and indicating the type of tools and techniques to be used during data collection” (Cavaye, 1996, p.227).

These guidelines are effectively used throughout the conduct of this study. In addition, the results of the simulations are analysed through the application of the guidelines. Each Workshop was treated as a single case framed following the notion of a thinkLet using GroupSystems as a tool.

BRIEF BACKGROUND ON THINKLETS AND GROUP SUPPORT SYSTEMS

The literature presents many definitions of a Group Support Systems (GSS). In this paper, we adopt the definition of a Group Support System as a combination of approaches, software and technology constructed to bring together and reinforce the dialogue, deliberations and decision-making of groups (Shen et al, 2003: 209). There is a vast amount of literature on GSS research since they surfaced in the 1970s. Reported results have however been inconclusive and often contradictory. According to Briggs et al. (2001), one cause of the conflict and ambiguity in GSS research results may be the result of focusing on what they say is a less-than-useful level of abstraction: GSS itself. They argued that in GSS research, the thinkLet may be a more useful unit of comparison than the GSS. They were conceptualised with a goal of building repeatable collaboration processes in Group Support Systems use and research. A GSS research approach based on this notion of a thinkLet was then proposed by Briggs et al. (2001), as a way to create repeatable patterns of thinking. A thinklet, according to the authors, encapsulates three components of a GSS stimulus: the *tool*, its *configuration*, and the *script*. They report on having documented about 60 thinkLets that map to seven basic patterns of thinking: *diverge*, *converge*, *organize*, *elaborate*, *abstract*, *evaluate*, and *build consensus*. Each thinkLet creates some unique variation on its basic pattern. By focusing research on thinkLets, rather than GSS, they predict that field and laboratory research may be more controllable, more replicable, and better able to inform GSS development and use. They note that their field experience shows that thinkLets may be used to create repeatable, predictable patterns of thinking among people making an effort toward a goal.

The results we are presenting in this paper were based on what Vreede (2006) refers to as the spirit of the thinkLet. We carried out the simulations with the goal of capturing patterns of collaboration that could be repeated in different setting in the process of implementing the AJA.

METHOD AND DESIGN OF THE SIMULATION EXERCISES

We follow an Action Research method since we are always influencing the simulation process through the awareness raising and the training of participants in the use of Information and Communication Technology. The simulation exercises are designed following a uniform set of procedures, support material, case scenario, instructions, duration and facilitation with the goal of being able to create possible repeatable patterns of interaction between those affected by an administrative action (a decision not in their favour) and those making the decision (administrators). The two case scenarios used in the workshops were taken from the real life experiences of two case participants from the research of the first author during his Masters mini dissertation (Twinomurinzi and Phahlamohlaka, 2006). We followed the notion of a thinkLet in designing the simulation exercises based on the design illustrated in Figure 1. While maintaining the same process in the simulation exercises, in Workshop 1 to Workshop 3 the first case was used and in Workshop 4 and Workshop 5, the second case was used. At the time of this report, Workshop 6 is yet to be conducted.

Each workshop participant on arrival received a folder containing eight instruments; the workshop programme, two research questionnaires, AJA workflow diagrams for individuals and for administrators, a case scenario of a person who had been affected by administrative action, a copy of the accompanying rejection letter that the affected person received, and a copy of the criteria to qualify for a social grant that the affected person had applied for. The workshops followed six patterns; social interaction, a description of the research objectives by the project leader, AJA awareness raising, a presentation of a case scenario, simulation of the AJA using GroupSystems based on the case scenario as an example, and research feedback. The social interaction followed a general principle where everyone attending the workshop was acknowledged in person. The research project leader then described the history of the research project and requested the active participation of the participants. The AJA awareness raising was carried out by two experts from the Justice College and a Master of the High Court from the North West Province. The Justice College expert explained the historical roots of the AJA, the present implementation strategies of the AJA and expressed some challenges being experienced. The Master of the High Court illustrated the AJA using examples of cases of AJA nature that are dealt with at the High Court. The case scenario, the criteria and the rejection letter were presented by reading through them along with the participants to ensure the case to be used in the simulation exercise was read and well understood by all the workshop participants. The workshop participants were then asked to volunteer in which group they wanted to participate; either as an affected individual or as an administrator.

In the computer simulation exercises we gave tightly controlled sets of instructions and prescribed the interaction time between instruction sets. The research members facilitated the simulation at the computers where computer skills were

lacking. The simulation always started with the affected person (represented by several groups) asking for written reasons from the administrator as to why her application had been declined, in keeping with the requirements of the AJA. This was done by typing the request for reasons into Categorizer of GroupSystems and submitting them to several groups who had to respond similarly as administrators. We tightly controlled the submission times after each response on both sides so that the groups could proceed at the same pace. Several interaction cycles were allowed in each exercise and the process was allowed to continue for a maximum of one hour.

These computer simulations were followed by three research feedback sessions. The first was a group discussion where the participants, facilitated by the research members, recorded their experiences of the AJA while using technology. For the second session the participants recorded their experiences individually. The final discussion requested participants to openly offer their opinions and observations within the context of the day on anything they wished to comment on. At the close of the workshops a follow on workshop was requested and planned for with the participants. All participants expressed their willingness to continue as research participants.



Figure 2. Design of the Workshops and Simulation Exercises

As pointed out earlier, each workshop, which included the GroupSystems simulation exercise, was treated as a single case; making it possible for us to use the guidelines as they are developed for single case studies. Figure 1 encapsulates the philosophical and theoretical underpinnings of the study. It is informed by the interpretive paradigm. Because the interpretive tradition is followed and we use an action research method, we are aware of the unavoidable bias since the study is designed to raise awareness and to provide training on the AJA. The criteria of the analysis were also based on the notion of a thinkLet. The researchers were fortunate in that the independent researcher was one of the creators of the thinkLet notion. As we proceed, the research is shared with other researchers and interest groups. This is done through seminars, meetings and some presentations. For instance a seminar involving all the researchers, interest groups and participants was convened. In addition, the results of parts of the study were presented at several Universities overseas. Data was collected in different forms; technology, observations, video taping, discussions, questionnaires, written feedback and we took minutes and reports and registers for keeping of accurate records? The process is auditable because of the nature of the design through following the notion of a thinkLet. Through the use of the technology (GroupSystems), all the data from the simulation exercises was captured as is from the participants.

Various forms of evaluation and feedback were obtained over and above the GroupSystems transcripts. These included further facilitated discussions after the simulations and completion of questionnaires. Except for only one instance at Lebotloane when the person contracted to do the video recording failed to show up, all the simulation exercises were video recorded. Observation notes were made and several pictures were taken.

THE THREE FIELD STUDIES

We selected three field locations in three different Provinces were selected to carry out the simulation exercises; Siyabuswa in the Mpumalanga Province (hosted by SEIDET), Lebotloane in the North West Province (hosted by Leretlabetse Multi Purpose Community Center) and several Civil Society organizations (hosted by the University of Pretoria) in Gauteng. The choice of these locations was influenced by the availability of networked computers, their distance from the University of Pretoria as well as the willingness of the leaders from within these institutions to participate in the research project. Each of these locations presented unique environments which will be further described in the next sub-sections.

A great deal of consultation and preparation with the community leaders went into selecting twenty participants from within the localities. The leaders from the institutions played a major role in deciding who the most appropriate participants from within those communities would be. Most, but not all participants came as representatives of their organizations. The research sought to have a cross-section of participants ranging from government officials, community leaders, students, pensioners, social workers and those who were likely to attend. Written invitations that were signed by the research project leader and by the community leaders from within these institutions were sent out to each participant two weeks prior to the workshop. A substantial effort also went into preparing the actual locations for the workshops. For each location, at least two visits prior to the workshop location were necessary to ensure that the logistical details were in order and the computers were setup well with GroupSystems.

In the following sub-sections, the unique features of each field location are outlined.

Lebotloane

Lebotloane is approximately two hours from Tshwane and the location chosen for the research is a Government ICT driven Multi-Purpose Community Centre (MPCC). Lebotloane presented two unique features; the computer setup and the social processes.

Here the twelve computers and the network infrastructure were of high standard; however, the network configuration was locked allowing only four computers access to the network and Internet. This meant that only two simulation groups could be used. The social interaction processes took longer periods as the cultural practices were followed. Figure 1 below shows a simulation exercise in session and the research participants as a group outside the MPCC. The workshop was on Saturday 01 October 2005.



Figure 3. In Lebotloane

Siyabuswa

Siyabuswa is also approximately two hours from Tshwane and the location selected for the research is a community education centre (SEIDET). Similarly, there are two unique features that were presented by the Siyabuswa location; the historical relationship with the research group and the computer setup.

The project leader of the research team hails from the Siyabuswa area and the community education centre can be attributed largely to his efforts. There has therefore been a fifteen year relationship between the research group and the centre from where a significant amount of published research has already emanated. The fifteen computers at this location were of low quality and needed technical attention to make them network ready and to get them working with GroupSystems. Notwithstanding, seven of the fifteen computer were technically upgraded and were used for the workshop on 17 September 2005. Figure 2 below shows a simulation exercise in session and the research participants as a group outside the centre.



Figure 4. In Siyabuswa**Tshwane**

The Tshwane workshop was held at a newly established Group Support Systems research laboratory at the Department of Informatics, University of Pretoria on Wednesday 07 December 2005. Here the participants were specially selected from a list of people that had been trained on the AJA by the African Centre for the Constructive Resolution of Disputes (ACCORD) in 2004 in the Tshwane region and were expected to have been practicing with it. The researchers expected to listen to the experiences of the participants from the field with AJA in addition to conducting the simulation exercise. The other unique feature of this workshop was that only eight of the invited twenty three people turned up for the workshop. This could be attributed to a city environment and the lack of an organizing host, unlike the Siyabuswa and Lebotloane that were in rural areas and where community centers served as organizing hosts. Figure 3 shows a simulation exercise in session and the research participants as a group.

**Figure 5. In****Siyabuswa****ANALYSIS OF THE SIMULATION EXERCISES**

We begin the analysis of the results by combining the design and method of the simulation exercises presented earlier with the critical appraisal guidelines. From Figure 1 we look at the data from the various sources that we have following the matrix as well as how the process was actually facilitated. From the process facilitation perspective, the results showed that the process as we have designed is repeatable and predictable as shown in Figure 8. The process can be condensed into the following timed steps:

Choose this thinkLet...

- ... when you have a group of individuals who have been introduced to the AJA
- ... when you need to establish the knowledge of the AJA through role playing using technology

Do not choose this thinkLet...

- ... when the individuals have not been exposed to AJA training

Overview

The facilitator starts with the affected individual group. Participants start with an electronic list of several discussion topics. Each item on the list links to an instance of a simultaneous comment window. Each participant hops among the topics to contribute as dictated by interest and expertise.

Inputs: A list of topics that must be addressed by the team.

Outputs: A set of comments organized by discussion topic

How to use LeafHopper**Tool:**

1. GroupSystems Categorizer

Configuration:

1. Create the two groups in Categorizer, the affected individual and the administrator
2. Display the Categorizer tool for both groups

Script:

1. *Say this to the affected individual:*
 - a. "You have read the scenario and the rejection letter, with your knowledge of the AJA, "Grace" how would you respond to the Administrator?"
 - b. Type in your thoughts on the computer. Do not send them as yet. While one person types, let the others engage in discussion.
 - c. You have 10 minutes to complete this task
 - d. Now submit your questions to your corresponding Administrator. "Grace" 1 to Administrator 1, "Grace" 2 to Administrator 2 ... "Grace" n to Administrator n."
2. *Say this to the Administrator:*
 - a. "You have read the request from "Grace" as well as the rejection letter you sent to her, with your knowledge of the AJA and from the Administrator point of view, how would you formulate a response to "Grace"?"
 - b. Check that the application from "Grace" complied with the criteria for a Child Support Grant.
 - c. Wherever you find a point to note which might be of importance to "Grace", make a note of it
 - d. You have 5 minutes for this exercise
 - e. Check that you followed the criteria for procedural fairness according to the AJA
 - f. Wherever you find a point to note which might be of importance to "Grace", make a note of it
 - g. You have 5 minutes for this exercise
 - h. Discuss the notes you have raised and write a response to "Grace".
 - i. Type out the response. Do not send it.
 - j. Send the response to "Grace"."
3. Allow 3 cycles for this exercise.

Insights on LeafHopper

Sometimes your team must discuss several topics more or less simultaneously. For example, we have a colleague who worked with a series of groups on resolving pollution issues. He discovered that he got significantly more value from a group by posing three simultaneous questions in a LeafHopper...

What can we do about air pollution?

What can we do about water pollution?

What can we do about ground pollution?

...than he got with the FreeBrainstorming thinkLet using one question with three parts...

What can we do about air, water, and ground pollution?

He also got more value from the groups by posing the three questions simultaneously than he did by posing them one at a time with a DealersChoice thinkLet. Using Leaf Hopper, people could hop between the questions as they were inspired.

With LeafHopper it is not necessarily the case that every participant will see every topic. Sometimes that is exactly why you use it. If, however, you want to assure that every participant contributes to every topic, choose a different thinkLet.

LeafHopper Example

We once worked with a commercial software development team that had 12 tricky issues to resolve. They needed input from engineers, customers, product managers, developers, users, and several other success-critical stakeholder groups. They discovered a rare opportunity when all the high-powered stakeholders were to be in the same place at the same time, and managed to schedule a meeting. Then they realized that although they needed input from all the stakeholders, any given stakeholders only had an interest in about 1/3 of the issues. This meant that no matter what topic was being discussed, 2/3 of these high-powered participants would be sitting around bored. It's a bad thing to bore high-powered participants, but unfortunately, the mix of issues and interests was such that they could not simply schedule sub-sessions around each topic. We chose to use a LeafHopper to overcome this problem. The development team posted the issues to the GroupSystems Topic Commenter. They asked the participants to work first on the topics in which they had the most at stake, and on which they had the most expertise. The participants proposed options for resolving each issue, and then argued the pros and cons of the proposals. The whole discussion of 12 topics took just over an hour and a half. In a subsequent discussion, the group reached consensus on seven of the outstanding issues and assign action items for collecting information on the other five. The whole group was fully engaged in the activity throughout the event. Said one participant, "We just did a week's work in three-and-a-half hours."

What's in a Name?

A leafhopper is a small insect that is something like a grasshopper or a cricket. It hops from leaf to leaf eating what it wants, then moving on. We named this thinkLet LeafHopper because the team members can jump from topic-to-topic, contributing as they are inspired, then moving on.

Table 1. The TurnStormer thinkLet

The script with the sequence of events and instructions to the groups is as shown in Figure 6. This gives us confidence that we are perhaps approaching a design of some kind of a thinkLet.

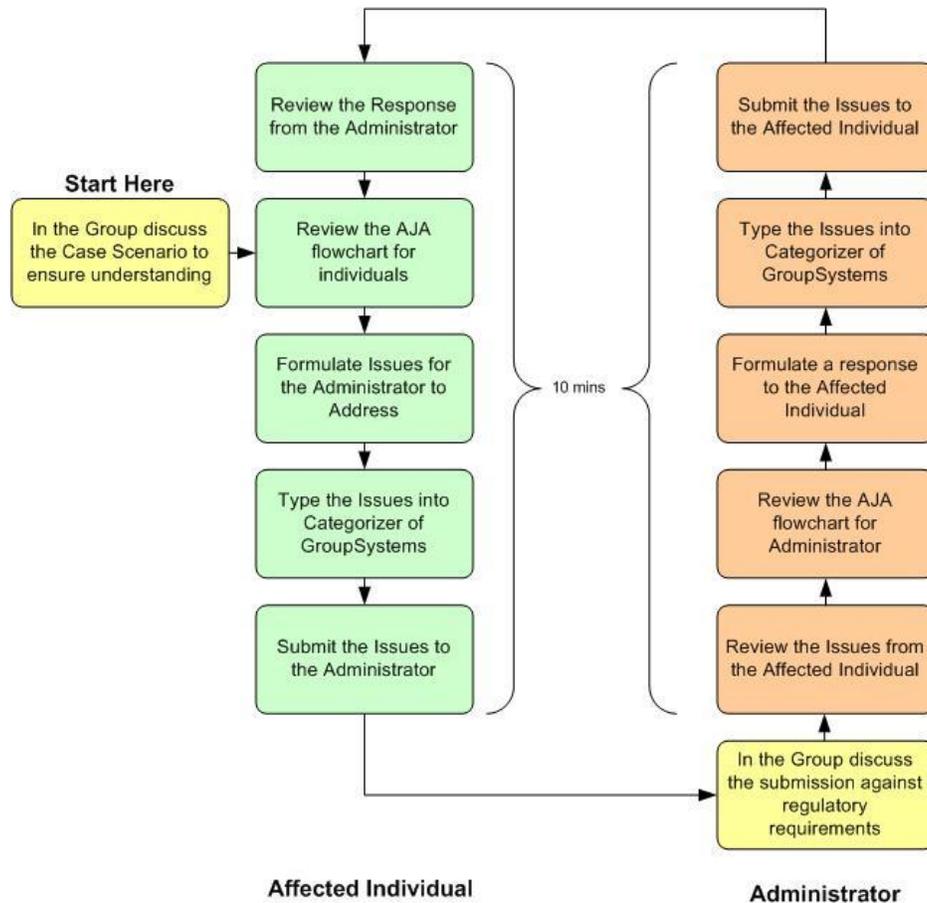


Figure 8: The Simulation Model for the TurnStormer thinkLet

On reviewing the research itself against the guidelines, we found that we fulfilled all the requirements. The research is shared with other researchers and interest groups as we proceed. The researchers were fortunate in that the independent researcher available to verify the criteria for the analysis of the research results was one of the creators of the thinkLet notion. Furthermore, this expert (Vreede, 2006), observed the recent simulation exercises and provided very important observations that we paraphrase as follows:

- The formulation of a response by a role (a turn) is a thinkLet in itself. I propose we call this *TurnStormer*". The authors agree. Each subgroup (or individual in other situations) is thinking up reasons, bits and pieces of information, and then formulate a response. "The data show that the responses are fairly polished in the sense that they consist of complete sentences and paragraphs. No sound bites. So, each role (whether represented by an individual or by a small group of participants) brainstorms elements of a response and then formulates this when it is its turn. Hence the name TurnStormer.
- Important for the effective use of TurnStormer in a simulation context is to keep the time for each role fairly short. If it takes too long, the other role(s) has to wait too long before they can respond.
- The overall process is very smooth in terms of the simulation part. What has to be checked is the quality of the output of the participants. Do they really get enough detail, enough learning, enough insight regarding the act under consideration? If not, then different script elements for TurnStormer have to be developed to entice them to provide better feedback. The authors found that a very good understanding of the act prevailed at the end of the simulations.

This can be seen from the number of people who actually applied the act to their benefit and to the benefit of others within less than a year of their exposure to it.

- It is interesting to note the similarity between the TurnStormer and the PointCounterPoint (PCP) thinkLet. Both have the participants engage in a structured exchange of ideas. Both use as many pieces of (electronic) paper as the number of roles/participants. However, the goal of both is very different: TurnStormer only focuses on a number of cycles of exchanges between roles to experience a possible situation expressed in the game scenario. PCP focuses on surfacing different perspectives, points of view, and arguments on debatable issues to hopefully move the group towards a compromise or yet non-discovered solution for the debatable issue.

As part of the evaluation, we asked the participants if

Was there an opportunity since the last workshop where you applied the principles of the AJA to assist yourself or someone in need?

- No, we tried to share with people and make them more aware of the Act
- Yes. One of the members involved in the workshop helped another member also at the workshop, this was in concern of a transfer of a child grant that was transferred to the bank but was paid to a wrong person. The one member went to the another and they reapplied and stop the wrong transaction.
- Yes, one of the participants was personally affected by the AJA and used the principles of the AJA to formulate a program to assist with the implementation of the AJA. Another one of the participants was involved in helping people who were HIV positive to get grants from the government.
- Yes, on door to door campaign, we had one family that applied for an old age grant and was not the given reasons as to why his application was unsuccessful. I helped him to follow the procedures of requesting reasons for application failure when implementing AJA and at the end he did receive the grant. At one of the workshop for youth camp, people were not aware of the Act (AJA).
- YES I HELP SOMEONE TO APPLY FOR CHILD SUPPORT GRANT AFTER APPLICATION SUBMITTED FOR SOMETIME
- Yes we did
- “No”
- “Yes”. I did advise someone that has got a child that is at school and later the teachers said the child is mentally disabled and when came to social worker they said they child must be 18 years and must have ID book”
- NO OPPORTUNITIES

In what ways would you suggest that we can make this research, especially the possibility of using ICT for government-citizen interaction more beneficial to communities and society as a whole?

- Multipurpose centres should be opened so that everyone in the community can use it and get more information and become more computer literate. Awareness workshops, public presentations, other ICT centers and schools could be used.
- CDW organisations could be empowered by government with enough accessories to promote AJA.
- Information to computer literate individuals to inform themselves and others in their communities. Use public hearings (indaba's) to transfer the information to the public. TV programs in the media, programs on radio, roadshows, marches etc. to increase awareness.
- By encouraging municipalities to avail technology to their communities so that people can assess technology and technology can serve its purpose
- Interact with the MPCC & give computer literacy to the community in order for them to become empowered with information that they can use for their advantage.
- WE NEED MORE WORKSHOPS

FURTHER RESEARCH AND CONCLUSION

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