



Original Research Article

A model for the effective inclusion of indigenous agricultural knowledge and practices in a school agriculture curriculum

***¹Constantino Pedzisai and ²Soul Shava**

Abstract

¹Centre for Indigenous Knowledge and Living Heritage, Chinhoyi University of Technology, P Bag 7724, Chinhoyi, Zimbabwe.

²Department of Science and Technology Education, University of South Africa, South Africa.

*Corresponding Author E-mail:
pedzisai@gmail.com

This paper, which is derived from a doctoral thesis, proposes a model for the effective inclusion of Indigenous Agricultural Knowledge Systems in the Zimbabwe Secondary School Agriculture Curriculum. The model is informed by literature and research participants interview contributions. The research participants comprised twelve local farmers, six agriculture teachers, two Agriculture Education Officers, two university Agriculture lecturers, three college Agriculture lecturers and two Agriculture Extension officers. A careful comparison of components of indigenous agricultural knowledge and practices in the Zimbabwe Secondary School Agriculture Curriculum and those that existed in the studied communities had revealed a huge gap that needed to be uncovered by including more indigenous knowledge into the curriculum in question. The study then modified the Participatory Curriculum Development cycle proposed by Rudebjer, Taylor and Del Castillo's (2001:18) to design a Participatory Curriculum Development model for effective inclusion of indigenous agricultural knowledge in the school curriculum. An analysis of the model found it to be very tenable.

Keywords: IAKS Model, Effective inclusion, Indigenous Agricultural Knowledge, Zimbabwe Secondary School Agriculture Curriculum.

INTRODUCTION

Inclusion of Indigenous Agricultural Knowledge Systems (IAKS) in the curriculum change to the existing colonially derived agricultural curriculum. There are curriculum development models that are used to manage curriculum change. Two contrasting curriculum development frameworks or models are the classical model and the participatory model (Van Crowder, 1998). The classical model is also referred to as the 'rational' approach while the participatory model is also called the 'interactive' approach.

The classical approach to curriculum development is objectivist hence product-oriented. According to this paradigm, it is the duty of the professionals and experts to set the aims and objectives of the curriculum (Van Crowder, 1998; Dawson et al., 2017). These professionals and experts believe that they have sufficient technical knowhow to produce the desired curriculum package

(Taylor and Beniast, 2003; Van Crowder, 1998). The model assumes that all stakeholders (teachers, students, communities, employers and so forth) agree on common educational goals and, therefore, dialogue and consensus-building among stakeholders are not required.

On the other, the participatory approach, one of the most celebrated curriculum change models to have emerged, follows a 'subjectivist', process-oriented paradigm. It puts emphasis on participation and interaction among the various interested groups (Gasperini, 2000). The goal is to stimulate different actors to participate in a dynamic, interactive process that allows their perceptions of the 'ideal curriculum' to be made explicit and compatible with the needs of the user system (Taylor, 2000; Van Crowder, 1998).

According to Ayoub Mahmoudi, Khoshnood and Babaei (2014), Rudebjer, Taylor and Del Castillo, (2001)

And Jurmo (1987) the participatory model is the brainchild of Brazilian language educator, Paulo Freire. This Freirean approach has also been referred to as the problem-approach (Auerbach and Wallerstein, 1987; Wallerstein, 1983), the learner- approach (Anorve, 1989), the liberatory approach (Shor and Freire, 1987). Ayoub Mahmoudi, Khoshnood and Babaei (2014: 88) aver that "From Freire's perspective, curriculum planning is a fully people-oriented process in which starting point is people and their expectations and wants". Freire believed that curriculum planning is an ongoing process which can be done through mutual participation of diverse stakeholders. Based on this perspective, curriculum planning is not upward-down process as all of the people who are involved in the education and learning process should play their role in educational plan in the best manner (Ayoub Mahmoudi, Khoshnood and Babaei, 2014: 88). Education is, thus, an instrument for increasing people's critical consciousness. In this regard, conferment of critical consciousness is considered as starting point of curriculum planning process in Freire's perspective.

Freire (1972) views curriculum planning, in which control has an upward-down process, as an instrument for imposing dominated culture to new generation. Based on Freire curriculum planning, elites and senior managers are not the singular officers of educational plan development, but curriculum planning is a participative process in which all stakeholders are involved. The Freire an approach to education bases the content of lessons on learners' cultural and personal experiences. Since Freire curriculum plan derived from learners' experiences and their life realities, educational plans should be developed based on the help of professors, experts, parents, teachers, local groups, and needs and realities of social life (Dinarvand and Imani, 2008). In this regard, Freire (2007) focused on the role of parent and student councils in schools decisions so as to develop a democratic climate in educational system. Knowledge is, thus, not extended from those who consider that they know to those who consider that they do not know (Freire, 1974) but is instead built up in the relations between human beings and the world, relations of transformation. The approach to curriculum development, which has emerged in recent years, is unlike the traditional approaches to curriculum development which are largely expert-led and hierarchical (Taylor, 2000).

Rudebjer, Taylor and Del Castillo (2001) in their book *A Guide to Learning Agro forestry* proposed a framework for developing agro forestry curricula in Southeast Asia. The authors base their cycle on the Freire an approach to curriculum development. This Participatory Curriculum Development cycle is shown in Figure 1.

The Participatory Curriculum Development model emphasises the involvement of all the stakeholders throughout the curriculum development process. These

stakeholders include policy makers, administrators, experts, employers, clients or 'end-users' such as community members, researchers, farmers, donors, parents, materials or book producers. Trainers, learners, institutional managers, subject matter specialists, technical and support staff (Hodgkin, 2007; Taylor, 2000; Taylor and Beniest, 2003). As such, each context would have its own specific list of stakeholders.

Rudebjer, Taylor and Del Castillo (2001) underscore that the PCD ensures that all stakeholders are taken on board throughout the five interconnected stages of the PCD cycle at whose heart is stakeholder involvement. They go on to sequentially identify these five stages as:

- Situational analysis
- Aim and goal formation
- Planning
- Implementation and
- Evaluation.

Situational analysis entails needs analysis about the education system, the learners, teachers, communities, and parallel systems. The information pertaining to situation analysis is collected through job analysis, research, field experience and policy analysis. The next step, formation of curriculum aim and goals, is derived from situation analysis. Aims guide the direction in which a programme of learning will take place. The aims are continually modified.

The fourth stage focuses on development of curriculum materials which are first trialled in pilot schools before implementation on a larger scale. This large scale implementation is monitored and evaluated to assist in the final implementation of the new look curriculum initiative. Obanya (1987) contends that monitoring and evaluation must be carried out at every stage to determine deficiencies so as to take corrective action.

The object of this paper, which was part of a doctoral research, was to propose a model for successful implementation of components of IAKS that still needed to be included in the ZSSAC. After analysing components of IAKS that were currently included in the Zimbabwe Secondary School Agriculture Curriculum (ZSSAC) and also investigating those IAKS (knowledge and practices) that existed within the communities whose comparison a huge gap of IAKS components which needed to be included in the ZSSAC was revealed. These IAKS aspects had stood the test of time and still continued to be practised despite colonial and neo-colonial subjugation. Then the burning question was how IAKS could be effectively included in the Zimbabwe secondary school Agriculture curriculum? This multiple case study, thus, used research participants views and literature on Participatory Curriculum Development (PCD) cycle with respect to evolve a modified approach for incorporating those aspects of IAKS by that still needed to be included in the ZSSAC.

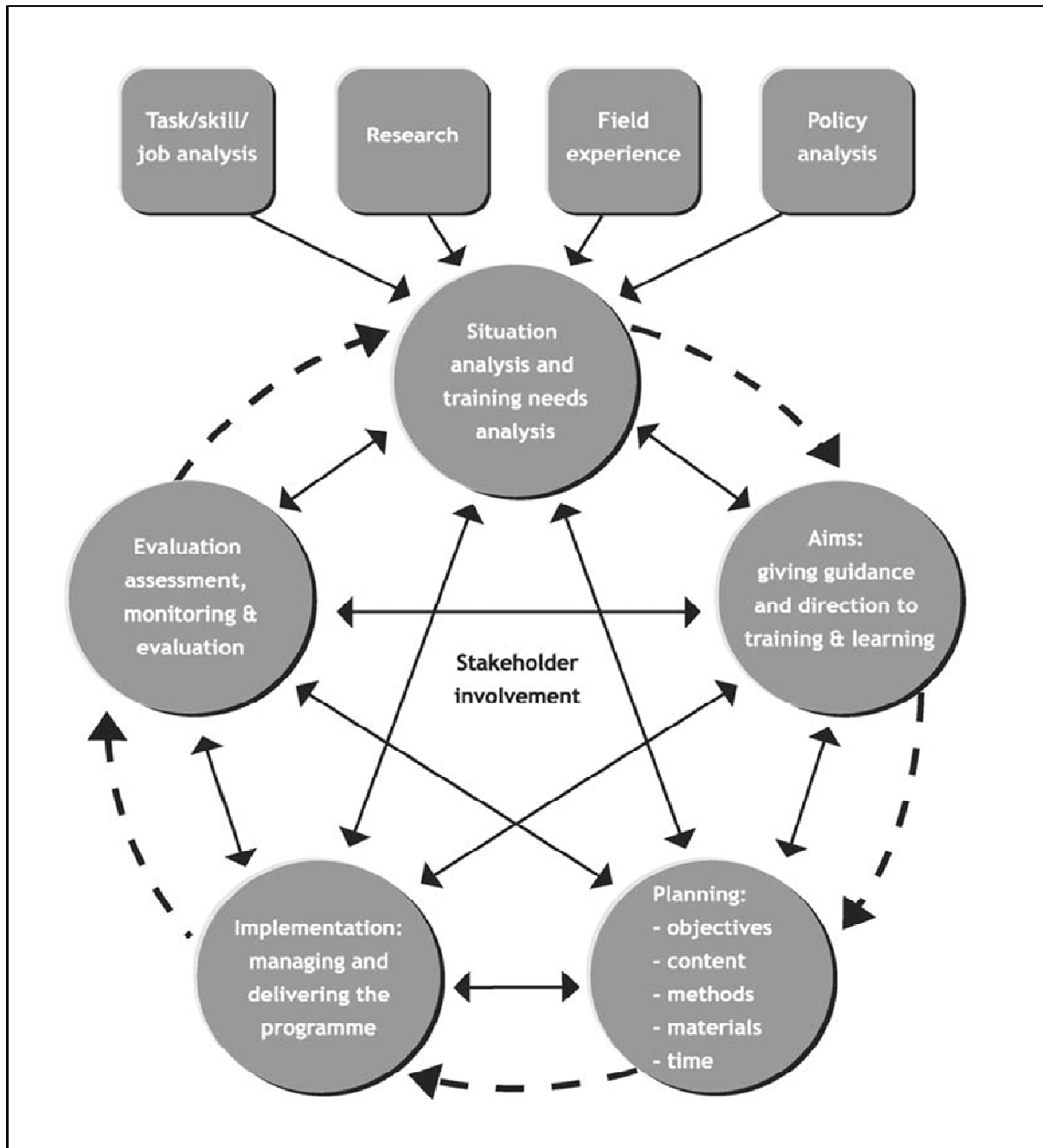


Figure 1. The Participatory Curriculum Development Cycle (Adapted from Rudebjer, Taylor, and Del Castillo, 2001:18).

Statement of the Research Problem

A careful comparison of components of IAKS in the ZSSAC and those that existed in the studied communities revealed a huge gap of IAKS components which needed to be included in the ZSSAC. These IAKS aspects have stood resilient in indigenous text community co despite colonial and neo-colonial subjugation. They, thus, continue to be practised by the indigenous communities. Hence, the

need to propose a Participatory Curriculum Development (PCD) model that could be used to incorporate those aspects of IAKS that still need to be included in the ZSSAC.

Research Questions

- Which model can be proposed for the effective inclusion of the IAKS in the ZSSAC?

- How tenable would the proposed model be?

METHODS

The model was informed by literature and interview contributions of research participants. Data were, thus, interviewing twelve local farmers, six agriculture teachers, two Agriculture Education Officers, two university Agriculture lecturers, three college Agriculture lecturers and two Agriculture Extension (AGRITEX) officers. Prior to development of the model, the doctoral study analysed components of IAKS that were currently included in the Zimbabwe secondary school Agriculture curriculum and investigated those IAKS (knowledge and practices) that existed within the community whose comparison revealed a huge gap of IAKS components which needed to be included in the ZSSAC. These IAKS aspects had stood the test of time and still continued to be practised by local communities despite colonial and neo-colonial subjugation. This multiple case study, thus, adapted the Participatory Curriculum Development (PCD) cycle and participants views to incorporate those aspects of IAKS by that still need to be included in the ZSSAC. The data yielded by interviewing the research participants were analysed manually using Braun and Clarke's (2006) thematic analysis approach where in emerging themes within data were identified, analysed and reported to beef up the model.

RESULTS AND DISCUSSION

The Proposed Curriculum Development Model for inclusion of aspects of IAKS in the ZSSAC

Informed by literature and interview contributions of the research participants, this research proposes a model for the effective incorporation of IAKS into the ZSSAC. The process of developing the envisaged curriculum model is marked by eight stages and suggested activities for each phase. The model, which is gender sensitive, involves all the stakeholders throughout the eight stages of the curriculum development process. It is, thus, a Participatory Curriculum Development model. The stages are shown in the Table 1.

Stage 1: Identification of stakeholders

Identification of stakeholders would be carried out in two phases. Firstly is the listing of the groupings from which the interim stakeholders are subsequently drawn. The second process involves the interim stakeholders convening a meeting in which they co-opt additional members on merit.

Research participants generally indicated that the

initial phase would involve the researcher identifying and listing the organisations or groupings from which the stakeholders are drawn. Each organisation would be contacted to provide its interim representative(s). This was well captured by the following captions:

Agriculture teacher B: There should be involvement of all those people who have a stake in the curriculum process. These stakeholders should represent all beneficiaries of the new-look curriculum initiative.

Local farmer D: Previously we were ignored in the development of curricula yet we are the direct beneficiaries of the education system. The government should take cognisance of our knowledge of indigenous knowledge throughout the curriculum development process.

This research identified and justified the stakeholders as shown in Table 2.

As was indicated, the second phase of determining the stakeholders witnesses the interim stakeholders convene a meeting in which they co-opt additional members on merit. AGRITEX officer C stated that:

It is incumbent upon the initially established interim body of stakeholders to validate and co-opt specific stakeholder members.

The stakeholder body, therefore, has power to add or subtract members from the list until they have a final list. This process would be followed by outlining the role of each stakeholder in the development of the curriculum. These roles, which evolved from the interviewees, are shown in the Table 3.

After defining the roles of the stakeholders, the members are then apprised on the potential of the Participatory Curriculum Development approach. The inclusion of aspects of IAKS in the ZSSAC is also demystified. When the stakeholders are clear about what the inclusion entails they help identify organisational challenges they may confront during the inclusion of IAKS in the curriculum. Ideally, this first stage, identification of stakeholders, ends with stakeholders delineating the main steps of action in the curriculum development process. The stakeholder body would lead in the designing, planning, implementation and evaluation of the curriculum. Justifications for their involvement in the curriculum process are also indicated.

Agriculture teacher A opined that:

The stakeholders would be active participants throughout the entire curriculum development process.

The emphasis is, thus, on active participation of all stakeholders throughout the entire curriculum development process from design, planning, development of materials to implementation and evaluation of the programme (Bovill and Bulley, 2011; Drawson, Toombs and Mushquash, 2017; Gasperini, 2000; Hodgkin, 2007; Taylor, 2000; Taylor and Beniast, 2003; Van Crowder, 1998). Participatory Curriculum Development is an acceptable approach to Indigenous research (Drawson, Toombs and Mushquash, 2017). The

Table 1. The proposed participatory curriculum development model for incorporating indigenous agricultural knowledge systems in the Zimbabwe secondary school agriculture curriculum.

Stages	Activities
1. Identification of stakeholders	<ul style="list-style-type: none"> • Identification of the stakeholder groups • Validating specific stakeholders and their roles in the development of the curriculum • Appraising stakeholders on the potential of the Participatory Curriculum Development • Demystifying the inclusion of IAKS in the ZSSAC • Identification of organisational issues with respect to the new look ZSSAC • Delineating the main steps of action
2. Analysis of components of IAKS currently included in the zssac	<ul style="list-style-type: none"> • Analysis of policy documents on agriculture • Analysis of the existing ZSSAC; aims, content, materials, methods and assessment instruments • Analysis of tertiary agriculture curricula; universities, agriculture colleges • Analysis of primary school agriculture curriculum
3. Investigating aspects of IAKS existing within the communities	<ul style="list-style-type: none"> • Identification of aspects of IAKS in the community through interviews and the spot observations • Use of IAK scholars and specialists
4. Suggesting components of IAKS that still need to be included in the ZSSAC.	<ul style="list-style-type: none"> • Comparing IAKS in the curriculum and IAKS in the community • Development of a gap in knowledge, skills, values and attitudes required for the new curriculum • Determining training and retraining needs of agriculture teachers
5. Developing curriculum frameworks	<ul style="list-style-type: none"> • Development of curriculum aims • Development of general IAKS topics for the curriculum • Development of main areas of content
6. Detailed curriculum planning to include aspects of IAKS that still need to be incorporated into the curriculum	<ul style="list-style-type: none"> • Development specific learning outcomes for the new look curriculum • Including Development of detailed curriculum content • Preparation of learning materials • Identification of learning methods • Development of assessment instruments • Retraining teachers to reskill them on their deficiencies
7. Implementation of the IAKS curriculum in schools	<ul style="list-style-type: none"> • Trialling new curriculum with groups of students • Application of active and experimental teaching methods • Using learner- centred teaching and learning materials • Evaluation of the teaching and learning materials and adjust as required • Delivering the new curriculum on a wider scale
8. Evaluation of the programme	<ul style="list-style-type: none"> • Developing and refining the monitoring and evaluation system with respect to stakeholder participation, teacher performance and student performance • Determining the impact of curriculum

Table 2. Stakeholders and their justification.

Stakeholder Group	Justification
Ministry of Primary and Secondary Education	Policy makers as owners of the syllabi
Ministry of Higher and Tertiary Education and Technology Development	Policy makers and trainers of teachers and AGRITEX officers
Ministry of Agriculture and Mechanisation	Responsible for production of National Agriculture Policy makers on Agriculture and training of AGRITEX officers
Curricularists	Provide specialist and practical guidance on curriculum development process

Table 2. Continue.

Indigenous farmers and elders in the community	The actual holders of the IAK
Women	Are important players in seed bank creation, management and food security
Youths (including students)	Future generation
AGRITEX officers	Extension services in the community
High school agriculture teachers	Implementers of the curriculum
Tertiary agriculture lecturers	Trainers of Agriculture teachers and AGRITEX officers
IAK scholars and academics	IAK lecturers or researchers
Relevant Non-Governmental Organisations	They are promoting indigenous sustainable agriculture practices in the communities
Commerce and industry	Absorbers of agriculture graduates

Table 3. Stakeholders' roles in curriculum development.

Stakeholders/Types	Functions and Contributions
Curriculum specialists	Designing curriculum Writing lectures
Teachers of subjects	Participating in writing and developing teaching-learning materials Teaching
Higher education lecturers	Participating in developing and writing teaching material Teaching
Youths (including students)	Evaluating the curriculum
Women	They are important in food security
IAK academics and scholars	Carrying out research Consulting the content Participating in teaching
Policy makers (Policy Officers in the respective government ministries)	Participating in curriculum design
AGRITEX officers	Participating in development of teaching material Participating in training needs assessment
Non-governmental organizations	Consulting Signing training contracts Participating in training course design
Local farmers and the elderly	Providing IAK knowledge Participating in research activities Participate in teaching and reskilling of teachers

use of the model would enable the less powerful in society such as indigenous farmers, the poor and the learners, regardless of gender, to actively influence curriculum decisions which directly affect their lives. Most of these ordinary people live in rural areas and they have had very little involvement in the development of

education curricula which, however, affects them directly. Engagement of the local farming community in the curriculum development as well as implementation processes would be the key since they are the custodians of IAKS. Stakeholder consultations throughout the curriculum development process subscribe to M/M

theory of Archer (1995) that parts of the system work in unison for a common cause. This leads to a successful curriculum development process. In addition, the stakeholders develop a sense of ownership of the curriculum so necessary for its successful implementation (Obanya, 1987).

Participants who were Agriculture educators were of the position that there would be need to carry out research to compare IAKS aspects currently included in the curriculum with those existing in all the communities of the ten administrative provinces of Zimbabwe in order to determine aspects of IAKS (knowledge and practices) that could potentially be included in the ZSSAC. One Agriculture college lecturer had this to say:

We would continue to do research; localized research covering all our provinces to capture the IAKS that should be included in the across all levels of the Agriculture curriculum in schools, universities and colleges.

The agriculture teachers and AGRITEX officers lamented their lack of knowledge of IAKS aspects, hence the need to transform agriculture education curricula in tertiary institutions (universities that teach agriculture, Agriculture colleges and teacher training colleges) to train Agriculture teachers and AGRITEX officers in line with the demands of the new curriculum. One Education Officer indicated that:

Those agriculture teachers and AGRITEX officers who were already practising would be retrained to equip them with the requisite knowledge, skills, values, attitudes and methodologies for the teaching of IAKS aspects in the ZSSAC. This is because they were exposed to Western agricultural practices during their initial training.

According to Bishop (1995), teachers need retraining to reskill them in line with a curriculum change. The indigenous farming community would also be used to impart the requisite IAKS aspects to teacher and AGRITEX trainees.

Obanya (1987) and Bishop (1995) observe that it is the duty of the stakeholders to develop a curriculum framework, an organised plan or set of learning outcomes that defines the content to be learnt by the students and the parameters on which students will be assessed. Generally research participants indicated the need to identify the curriculum aim, content, learning materials and methods. University lecturer E stated that:

Such an exercise would make the curriculum planning phase easier.

The study noted that once all the preparatory modalities had been accomplished, the curriculum package would then be developed. While this would be done by curricularists, extensive consultation with all stakeholders, especially with the farming community who are holders of the knowledge, would continue. Justification of local farming community was capture from Local farmer G who had this to say:

We are the elders in the community. We have seen it all. We know our indigenous farming methods. It is only

us who can lead in the curriculum development process not only for the benefit of our children, but for Zimbabwe as a whole.

The research participants generally expressed the opinion that after the development of the curriculum plan, there would be need to trial it in selected schools and evaluate it before implementation in all schools. The Agriculture Education officer who himself was a curriculum specialist posited that:

Any curriculum initiative which is not pilot- tested cannot have its tenability guaranteed. We need to guard against failure of initiatives by trialling them in selected pilot schools.

Trialing guarantees successful implementation of an envisaged curriculum initiative (Bishop, 1995; Kim, 2011; De Vaus, 1993) since the trial would be evaluated and recommendations from the evaluation used to polish it up. All stakeholders would continue to be consulted in the processes.

Any teaching programme needs to be evaluated to determine its worth. Hence, representing other research participants one AGRITEX Officer who was also a curriculumist posited that:

Once implementation is over, the curriculum should be evaluated to determine the achievement of the learning outcomes and make adjustments as appropriate.

Local farmer J who was also a councillor made the observation that:

Evaluation of the curriculum would help the stakeholders in deciding whether particular aspects of the curriculum should be adopted, altered or eliminated.

The overall motive of evaluation is to determine whether the curriculum is producing the expected results. Obanya (1987) contends that monitoring and evaluation must be carried out at every stage of the curriculum development process to determine deficiencies and take corrective action.

Stage 2: Analysis of aspects of IAKS currently included in the ZSSAC

Led by policy makers, IAK scholars and academics, the stakeholders analyse policy documents on general agriculture and the existing ZSSAC with respect to aims, content, materials, methods and assessment instruments. They also analyse agriculture curricula in tertiary institutions, namely, universities, agriculture colleges, teacher training colleges and vocational training centres that offer agriculture education. The agriculture curriculum of primary education may also be analysed to determine continuity. It is the duty of the professionals and experts to lead in setting the aims and objectives of the curriculum (Van Crowder, 1998; Drawson, Toombs and Mushquash, 2017) since they have sufficient technical knowhow to produce the desired curriculum package (Taylor and Beniast, 2003; Van Crowder, 1998).

Stage 3: Investigating aspects of IAKS existing within the communities

The study established that through research and consultation with the elderly in society and local farmers, aspects of IAKS in the community are identified. The elderly and local community are the custodians of Indigenous agricultural knowledge and practices (Pedzisai, 2013). IAK academics and scholars interview the elderly and local farmers. This process is accompanied by on the spot observations of farming activities in the community. As allude to earlier on the professionals and experts have the technical knowhow of curriculum development (Taylor and Beniast, 2003; Van Crowder, 1998).

Stage 4: Suggesting components of IAKS that still need to be included in the ZSSAC

In this stage, a comparison of data obtained through analysing of aspects of IAKS currently included in the curriculum and those aspects of IAKS existing in the community, a gap in indigenous agricultural knowledge, skills, values and attitudes required for the new curriculum is identified. This identified gap determines the training and retraining needs of Agriculture teachers. Hence, policy documents and agriculture curricula for tertiary institutions should be revised in line with the new curriculum initiative.

Stage 5: Developing curriculum frameworks

Stakeholders guide the setting of aims of the curriculum. The aims are used to articulate what the curriculum intends to achieve. Aims give shape and direction to the curriculum. The development of aims is followed by the development of the general IAKS topics for the curriculum from which the main areas of content are derived.

Stage 6: Detailed curriculum planning

At this stage specific learning outcomes, for the new look curriculum, are developed followed by development of detailed curriculum content. Learning materials, in the form of textual and non-textual materials are prepared and learning methods identified. This stage also sees the development of assessment instruments and the retraining of teachers to reskill them. This stage is often a lengthy and intensive process that involves all stakeholders to make various contributions.

Stage 7: Implementation of the IAKS curriculum in schools

When a detailed curriculum plan has been developed, the new curriculum should be trialled with groups of students or in selected schools. During the trialling, active and experiential teaching methods are applied using learner-centred teaching and learning materials. The teaching and learning materials are evaluated and adjusted as required. When the stakeholders are satisfied that the curriculum is polished after the necessary adjustments have been made, the new curriculum is then delivered on a wider scale to cover all the ten provinces of Zimbabwe. The local farmers, teachers and students are the main stakeholders involved at this stage. Other resource people may also play key roles. For instance, farmers and AGRITEX officers may make important contributions where field practice is involved.

Stage 8: Evaluation of the programme

Evaluation determines whether the curriculum is producing the expected results. A wide range of stakeholders is involved in the evaluation process. For instance, students who were taught the curriculum, lecturers and local farmers who taught the programme and other participants through evaluation of the programme determine its impact. The evaluation helps in developing and refining the monitoring and evaluation system with respect to stakeholder participation, teacher performance and student performance.

This section showed the process of designing a Participatory Curriculum Development model that would be used to incorporate those aspects of IAKS that still need to be included in the ZSSAC. Identification of relevant stakeholders would be followed by analysing aspects of IAKS currently included in the ZSSAC. This stage would be followed by investigating aspects of IAKS existing in the community. A comparison of aspects of IAKS currently included in the ZSSAC and those existing in the community may establish a gap of IAKS aspects that still need to be incorporated into the ZSSAC. Then, curriculum frameworks are developed by stating the curriculum aims followed by the development of the general IAKS topics and main areas of content; after which a detailed curriculum is planned. This is done by developing specific learning outcomes for the new look curriculum, followed by the development of detailed curriculum content learning materials, identification of learning methods, development of assessment instruments and the retraining of teachers to reskill them. The detailed curriculum is trialled with groups of students or in selected schools, evaluated and relevant

adjustments made. The polished curriculum is then implemented on a larger scale in all schools. Lastly, the curriculum is evaluated to determine whether it is producing the expected results.

The tenability of the proposed model

The proposed PCD model has a lot of positives which work towards its acceptance as an approach for effective integration not only of the resilient IAKS into the ZSSAC but inclusion of IKS in curricula across disciplines.

The proposed PCD model begins with identification of stakeholders who are both diverse and relevant. As shown in Tables 2 and 3 these stakeholders have a stake in the curriculum in question. Their involvement is thus crucial. It is a subjectivist, process-oriented paradigm that puts emphasis on participation and interaction among the various interested groups (Gasperini, 2000). While the researchers make the initial identification of stakeholder groupings, it is the initially selected members who go on to identify other stakeholders from their constituencies. Ideally these are selected on merit. Such a model is thus democratically conceived since it aims to develop the curriculum through the efforts of a group of individuals from different sectors in the society who are knowledgeable about the interests, needs and resources of the learner and the society as a whole. The curriculum would, thus, be a product of many minds and energies. The PCD model emphasises active participation of all stakeholders throughout the entire curriculum development process (Bovill and Bulley, 2011; Dawson, Toombs and Mushquash, 2017; Gasperini, 2000; Hodgkin, 2007; Taylor, 2000; Taylor and Beniest, 2003; Van Crowder, 1998), that is, from situational and needs analysis to aim and goal formation, planning, implementation and evaluation of the programme. Stakeholder consultations throughout the curriculum development develop stakeholder sense of motivation, commitment and ownership of the curriculum so necessary for its successful implementation (Obanya, 1987).

Any curriculum must adapt its educational activities and services to meet the needs of a modern and dynamic community. The Curriculum is based on the needs of the people; a curriculum reflects the needs of the individual and the society as a whole. Such a curriculum meets the challenges of times and makes education more responsive to the clientele it serves. The needs analysis clearly indicates that the PCD model is responsive to the needs of the community. There is cooperative effort between the school and the community towards greater productivity. Infusion of IAKS into the ZSSAC would result in contextually relevant and meaningful learning by students. The inclusion of IAKS aspects (knowledge and practices) proffers contextual relevance through tapping into students' lived experiences. If something that is

taught at school is what is practised at home, it makes a lot of sense to the students. That way an experiential continuum will be realised whereby students relate home experiences with what they learn at school. Student learning depends on community beliefs, acceptable identities and the consequences for a student's life inside and outside the classroom. This gives learners opportunity for recognition of prior, home-grown, local knowledge and experiences that yield intrinsic motivation, critical thinking, independent decision making, cultural empowerment and meaningful learning. Hence, a focus on teaching agriculture should develop connections between what is taught at school and the everyday life of the pupils leading to a higher involvement and commitment of pupils and their parents and a kind of ownership of the educational process.

Local farmers and the elderly in society are the custodians of indigenous knowledge. This characteristic is taken advantage of at every stage by making them be at the forefront of the curriculum development process. They know the indigenous agricultural knowledge which has stood the test of time in their communities despite colonial and neo-colonial subjugation. They are conversant with indigenous instructional materials and methodologies.

The model ensures that the curriculum is the result of a long-term effort from as evidenced by the development process from stage 1 up to stage 8 (See Table 1). A good curriculum is a product of long and tedious process. A long period of time would be taken in the planning, management, evaluation and development of a good curriculum.

The PCD model provides for the logical sequence of subject matter. This would be ensured by the use of curricularists, subject matter specialists and agriculture educators who would lead in the planning of classes and activities. Such a curriculum is developmental and provides continuity of experiences.

The Curriculum has educational quality. Quality education comes through the situation of the individuals' intellectual and creative capacities for social welfare and development. There is nothing more qualitative than a curriculum which taps into the culture of the learners. The curriculum helps the learner to become the best that he can possibly be. The curriculum support system is secured to augment existing sources for its efficient and effective implementation.

The evaluation aspect provided for by the PCD model is indicative of a curriculum which has administrative flexibility. A good curriculum must be ready to incorporate changes whenever necessary. The curriculum is open to revision and development to meet the demands of globalization.

Zimbabwe is an agricultural country. A focus on teaching agriculture should connect school with the everyday life of the pupils in rural areas (Engler and Kretzer, 2014:224). This will lead to greater involvement

and commitment of pupils and their parents and a kind of ownership of the educational process.

CONCLUSION

This paper proposed a Participatory Curriculum Development model that would be used to incorporate those aspects of IAKS that still need to be included in the ZSSAC. Identification of relevant stakeholders would be followed by analysing aspects of IAKS currently included in the ZSSAC. This stage would be followed by investigating aspects of IAKS existing in the community. A comparison of aspects of IAKS currently included in the ZSSAC and those existing in the community may establish a gap of IAKS aspects that still need to be incorporated into the ZSSAC. Then, curriculum frameworks are developed by stating the curriculum aims followed by the development of the general IAKS topics and main areas of content; after which a detailed curriculum is planned. This is done by developing specific learning outcomes for the new look curriculum, followed by the development of detailed curriculum content learning materials, identification of learning methods, development of assessment instruments and the retraining of teachers to reskill them. The detailed curriculum is trialled with groups of students or in selected schools, evaluated and relevant adjustments made. The polished curriculum is then implemented on a larger scale in all schools. Lastly, the curriculum is evaluated to determine whether it is producing the expected results. The process has justification since it takes all the relevant and diverse stakeholders on board throughout the development process. This breeds motivation, commitment and sense of ownership among the stakeholders. The model also puts the local farmers and the elderly in society at the forefront of the curriculum development process since they are the custodians of indigenous knowledge.

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