LUIGI GIUSSANI INSTITUTE OF HIGHER EDUCATION

CRITICAL THINKING
Activation model

TEACHER PROFESSIONAL DEVELOPMENT ACTION RESEARCH 2020-2021

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ISBN: **978-9970-763-13-9**

WHY PROFESSIONAL DEVELOPMENT ACTION RESEARCH ON CRITICAL THINKING?

A systematic integrative review of the literature on critical thinking in sub-Saharan Africa showed a gap in contextualized studies. It also highlighted the dearth of knowledge related to the pedagogical approaches and strategies for the enhancement of the critical thinking skills among learners.

A grounded theory study that investigated the critical thinking conceptualization in Uganda emphasised how rare it is for teachers in the prevailing Ugandan education system to foster critical thinking. This was followed by a professional development action research that aimed to address this gap by focusing on research done in schools and with teachers, primarily and explicitly oriented towards training and transforming the educational and pedagogical practice while promoting teacher reflexivity (Cardarello, 2018; Prud'homme et al., 2011). This method of research shares characteristics with other types of participatory research including: a) The co-participation of teachers and researchers (who become also members of the educating community itself); b) The inclusion of change or transformation among the research aims; and c) The inquiry of a key theme that is identified from within and which is relevant to the research setting itself (Cardarello, 2018)

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THE OBJECTIVES OF THE RESEARCH

The main objective of this research was to generate transformative learning (Mezirow, 1991) among teacher-researchers, focusing on the development of critical thinking from within the specificity of the various subject domains.

The study focused on the following questions;

1. How useful is the collaboration between researchers and teachers in enhancing the awareness of how the critical thinking process can be fostered in the classroom?
2. How do the various elements of the critical thinking professional development approach contribute to the improvement of classroom instruction?

SAMPLING

45 Teachers

16 Teachers Sampled

425 Students

The research involved teachers from a conveniently selected secondary school located in Kira, Wakiso District, Central Uganda. The school had 45 teachers and 425 students from the underprivileged slum areas of Kireka and Naguru. Overall, 16 teachers were purposively sampled, considering those who teach English language (5), Mathematics (5), and History (6), to participate in the research. On average, the teachers were aged 32 years (ranging from 24 to 41) and had 8 years of teaching experience (ranging from 2 to 17). Almost all (15) sampled teachers had a Bachelor's Degree level of education while only one teacher had a Master's Degree level of education

DATA COLLECTION METHODS

The following data collection methods were used:

Focus Group Discussions (FGDs): Discussions with teachers, according to their subject specialisation, were conducted to explore their perceptions and experiences about the instructional designing process and facilitate peer-to-peer learning. Several FGDs were conducted throughout the iterative coaching process based on the need that teachers manifested.

Narratives: In order to explore and conceptualize the participants' perceptions and experiences, participating teachers were asked to write down a narrative about their experience on the instructional design coaching process and on the microteaching of critical thinking augmented lessons.

Lesson plan review: Teachers were asked to develop lesson plans in order to establish their critical thinking pedagogy. These kept on evolving based on the feedback from facilitators and fellow teachers.
A contextualized rubric was developed and validated through experts for evaluating the improvements of teachers in designing for critical thinking enhancement.

Video recording: In order to observe the changes in the approaches employed by teachers during lesson delivery, video recording of the lesson evaluation discussions was conducted, both during the micro-teaching sessions and during the lesson implementation in the classroom with the students.

Individual interviews: Open-ended interviews were conducted after the classroom implementation of the planned lessons to gain an in-depth understanding of the teachers' experiences, perceptions, and knowledge acquired during the implementation of the critical thinking activation lessons.

Researcher self-reflections: The researchers wrote analytic memos throughout the professional development action research process. Reflection was a key component in the research process and thinking about each iteration increased the researcher's critical thinking process, improved the coaching approach, as well as challenged their assumptions (Rodgers, 2002). Reflection provided the opportunity to improve the intervention and measures at each iteration. The process of memo writing also allowed the researchers to create a history of the decisions made while constantly reflecting on the assumptions.

THE RESEARCH PROCESS

The teacher professional action research was carried out in several successive steps:

Introduction to the new curriculum: The process starts with a brief introduction to the new competency-based Ugandan Lower Secondary School Framework that identifies the generic skills, key learning outcomes and values that are required by the new guidelines. The new curriculum is the reference point for the whole critical thinking implementation process. Critical thinking is one of the main generic skills proposed in the curriculum instruction. The facilitator presents the curriculum framework showing relatedness of all the elements and their contribution towards nurturing life-long learners that are knowledgeable, skillful, and self-conscious.

Introduction to critical thinking: The facilitators conduct a short training of one and a half days to introduce the teachers to approaches that foster deeper understanding of the content received and critical thinking among the learners. Through this training, teachers get an insight into applying various approaches that facilitate deeper understanding rather than regurgitation of what is taught.

Metacognitive sessions: After each lesson presented in the training, the teachers are asked reflective questions that help them in developing deep understanding of what and how they learnt.

Lesson design I: After the introductory training, the teachers are asked to design a simple lesson plan that, in their view, would enhance the higher order cognitive skills of the learners. The teachers meet in clusters according to the subject of specialization. At this point, it is important that the participants address the peculiarities of the subject and the specific requests of the curriculum.

Presentation of the first lesson plan and reflection: After a week, a meeting is held in which lesson plans are presented and discussed. The reflection mostly revolves around the skilling component of the proposed lesson plans and the correlation between the activities presented and the skill that the activity is supposed to foster in the learners. During the meetings, the teachers are also asked to declare the skills they wish to develop in the lesson.

Presentation on critical thinking tools: During this session, participants are introduced to the critical thinking taxonomy (tool) that breaks down the skill of critical thinking into subskills that are easily assessed and provides the sample abilities that teachers can observe among their learners to determine if the specific subskills are being developed. It also provides the dispositions with sample observable behaviours that can be assessed by the teacher. The taxonomy is key in guiding the teachers to deliberately plan lessons that foster higher order thinking skills and appropriate dispositions/values among the learners.

Presentation of the lesson development plan: Participants are introduced to a lesson development plan template (tool) that provides step by step teacher activities; learner activity; content, skills, and values; outputs; and assessment strategies. This is aimed at enabling teachers to design lessons that deliberately develop knowledge, skills and values to be assessed formatively as required by the Lower Secondary School Curriculum. The facilitator guides the participants to interpret and understand the taxonomy and lesson development plan template. The lesson development plan template is used by the teachers to plan detailed presentations and assessments during each step of the lesson.

Lesson design II: After the induction training sessions on the background to the new Lower Secondary School Curriculum and the critical thinking tools, teachers develop lesson plans in small groups that foster critical thinking. Following a period of one week, the facilitators invite subject teachers to present their lesson plans. Fellow teachers and facilitators discuss and suggest improvements to suit the learning level, target higher order thinking skills and address relevant values to be developed among learners.

Metacognitive reflection and action for improvement: Teachers are invited to reflect on what they have learnt from the feedback received from the community of teachers and facilitators. The teachers revise and improve their lesson plans according to the suggestions received. Lesson plans are continually evaluated using the lesson plan evaluation rubric to ensure that all the necessary aspects are being considered by the teachers.

Micro-teaching: Once the lesson plan is sufficiently reviewed, teachers are invited to carry out micro-teaching to determine if the desired knowledge, skills, and values that were planned are actually developed in the lesson. Micro-teaching employs a real teaching situation for developing skills and enables a deeper understanding of the process of teaching. Each session is recorded

for future reference and teacher's self-evaluation in addition to immediate feedback provided by the facilitators and fellow teachers.

Reflection and action: The practice lesson is then discussed and where the expected outcome was not achieved, the lesson plan is revised and taught again. There are two micro-teaching iterations for every lesson plan developed to ensure that the final version of the plan is suitable for implementation in the classroom with learners.

Classroom observations: After the process of lesson plan development and micro-teaching, the facilitator conducts classroom observations to determine the outcome of the trainings and give feedback to the teachers.

Reflection and action: Teachers are asked to note down areas that need improvement for appropriate modification of the lesson plan.

THE FINDINGS OF THE STUDY

Effectiveness of the action research process

Reflection on teacher practice: The teachers in this study showed improved ability to reflect on their teaching strategies to verify the effectiveness of their work in relation to the learners' competencies and outcomes. The iterative nature of the process created a community of teachers who collaborate in reflecting on their own teaching practices and that openly and freely offer clear suggestions for improvement to their colleagues. The results of this participatory teacher professional development process through lesson planning, showed a high degree of ownership that teachers feel they have acquired through their own work and their own learning. Concurrently, it demonstrated improvement on subject knowledge, teaching pedagogical approaches, teachers' cognitive skilling, and students' learning.

Impact of the instruction design: According to the teachers, the instructional design prior to the intervention was considered ineffective due to time constraints, lack of resources, and purpose. The end line focus group discussions indicated that, though designing for teaching had always been a school requirement, prior to the intervention, the scheming of work and lesson planning activities were superficially done and repetitively re-proposed year after year. The critical thinking activation process helped the teachers to re-think the way they were planning for instruction; the coaching sessions helped them in making deliberate decisions in their lesson planning. They also realized how important it is for the learners to be aware of the objectives of the lesson; this helped them reflect, in the lesson design, on what exactly the teacher wants to achieve at every step of the learning process.

Lesson plan template: The lesson plan template, co-constructed with the teachers, allowed them to have a focused objective and purpose to their instructional planning. This template, together with consistent instructional coaching support, helped the teacher-participants to be consistent in their planning and coherent in the development of the activities. It elaborately linked the teacher's and student's activities to the knowledge, skills, values and assessment strategies.

Impact of micro-teaching: The micro-teaching processes offered an opportunity for the teachers to pay greater attention to instructional methods chosen and activities conducted by the teachers during the micro-teaching. Analysis of findings revealed perceived improvement in the areas of teaching competencies, teaching knowledge and skills, lesson planning, communication skills, and time management. From this, teachers were able to project students' reaction in real classroom scenarios.

Impact on teachers

Teacher's self-reflection on all the research activities: In the attempt to improve the teachers' awareness of their progress, motives, task demands and their own cognitive resources, teachers were asked to self-reflect on how they learnt at every step of the coaching activity. Most of the reflection occurred during the focus group discussions, through which the teachers engaged in planning and revising their lessons plans. Following the discussions, the teachers revised the plans and compared and contrasted the version presented to the colleagues with the feedbacks received in the sessions. The self-reflection enabled the teachers to identify their strengths and weaknesses and devised strategies for improvement in the weak areas. The teachers recognised the importance of sharing with the researchers, but more significantly, realized the value of the learning from their colleagues.

Coaching system: The coaching approach fostered teachers' active participation through meaningful discussions among the teaching faculty, with the researchers, and positive teaching-learning experiences with the students in the classroom. The teachers also iteratively reflected on the work done, compared this work with that of their colleagues, reflected on the suggestions and re-strategized for modifications and further elaboration of the lesson plans developed.

Community of teachers learning together: The teachers recognized that it was not always easy to accept the non-positive feedback from the colleagues and it required a degree of openness that grew during the course of the process. The more they realised that the lesson planning was a co-construction process, the more they felt encouraged to overcome the natural defences towards the comments received.

Use of a broader range of knowledge sources and participatory teaching practices: The new curriculum necessitated the teachers to research and improve on the personal knowledge of the subject they teach in order to ably facilitate the learning at classroom level. The study motivated the teachers to search for new resources and create new instructional materials that could help them to effectively improve their teaching practice.

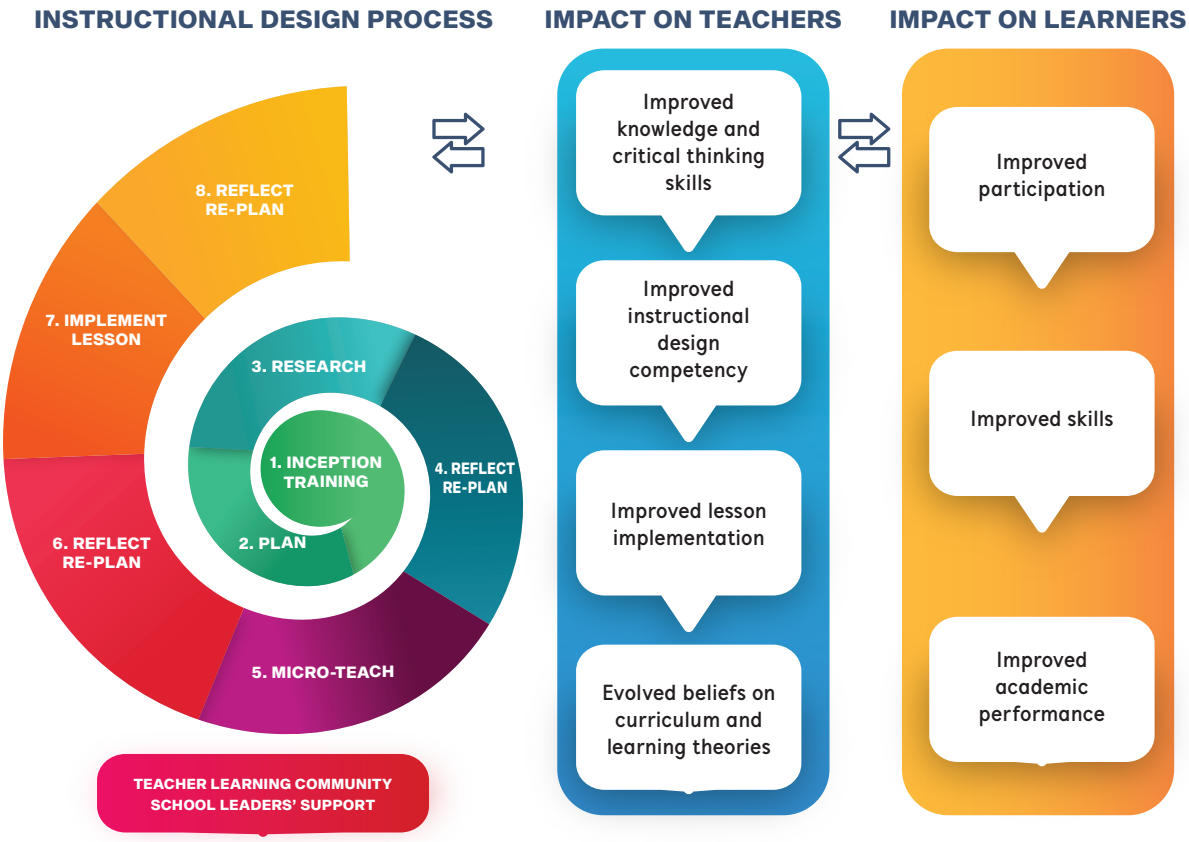
Focus on student thinking: The study provided the teachers with an environment that transformed their understanding of what education is supposed to be and changed their awareness of the meaning of their work as professional teachers. The intervention promoted a shift in the teachers' beliefs and approaches to education, and changed their perspective of what should be taught in class and how. They manifested the need to promote the use of pedagogical approaches that allow learners to face the study of an object or a situation with the approach that is most commonly used by the subject specialists or researchers in that specific field. The teachers also became aware that the planning should include formative assessment strategies for monitoring the progress of each student in the classroom and informing the next steps of the educational journey.

Impact on learners

Improved participation in class and the perceived acquisition of skills and knowledge: Several students participating in the lessons highlighted that the way teachers implemented the classroom activities kept them engaged throughout the lesson and that teachers' instructional strategies pushed them to remain constantly alert and execute activities that required real effort.

Improved thinking skills: Students who participated in the focus group discussions pointed out that their reasoning skills had improved and they were also capable of differentiating the approaches their teacher had employed in the lesson from the approaches their teachers in primary schools implemented in the classroom.

TEACHER PROFESSIONAL DEVELOPMENT MODEL



IMPLICATIONS OF THE FINDINGS

Practice: This study provides evidence that research-based professional development that is sustained, vigorous, student-centered, participatory, and supported by adequate resources can have a significant impact on fostering critical thinking in the classroom. The teachers' induction, coaching and training workshops expose the variations in teachers' pedagogical practices and consequently pave a way for collaborative learning and improvement. The study methodology can be successfully implemented in other countries.

Policy: The study findings suggest systematic coaching and mentoring programmes for beginning teachers improve teachers' performance and critical thinking skills that can be transferred to the classroom. Therefore, this informs the future decisions of education stakeholders more especially, the Ministry of Education and Sports that could expedite the implementation of continuous professional development strategies such as these for all teachers.

Assessment: Within this context, new strategies and methods of assessment should be created as a result of these new contextualized studies and concepts. Authentic knowledge on the nature of a skill as used in a particular culture could inspire these new ways of assessment. These results are also key for the development and validation of contextualized tools for the assessment of critical thinking in learners.

Research: A longitudinal design would be particularly useful for clarifying the influence of various institutional factors on the improvement of critical thinking ability. Although mostly non-contextualized studies suggest that effective educational practices can have a positive influence on critical thinking skills, it would be extremely relevant to investigate how particular practices in the Ugandan context influence the development of critical thinking.

ISBN 978-9970-763-13-9

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