A CHANGE LABORATORY INTERVENTION TO CURB SCHOOL DROPOUT

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Abstract— This paper presents a Change Laboratory (Change Lab) intervention that was carried out in a primary school that was plagued by high students' dropout rates. The study identified contradictions in the school Activity System which were regarded as underlying causes of dropouts. Participants collaboratively identified solutions that were experimented with to address the identified problems. Results indicated positive changes in students' learning, however, they also revealed structural constraints within the school Activity System which made it difficult to effect the required changes. A new learning model was developed from the Change Lab process.

Index Terms—Activity System, Change Lab, Learning model, School dropout.

I. INTRODUCTION

School dropout is a problem that is believed to be a result of many factors which are mostly contextual (Hunt, 2008), therefore, it requires intervention strategies that can address the specific causal issues in a particular context. Activity Theory is one such framework that has potential to induce transformation of collective practices in organizations, institutions and other Activity Systems (Karasavvidis, 2009). Analysis of an Activity System assists to understand the system as whole not as separate components. One central principle of Activity Theory is that it acknowledges contradictions as inevitable in the functioning of an Activity System Foot (2001) and the theory identifies these as useful tools of analysis. To carry out this analysis of an Activity System, an Activity Theory based methodology called Change Lab is used. Change Lab is a developmental intervention method for transforming work practices by practitioners. This paper presents a Change Lab intervention that was carried out carried out in one school in a remote area in Botswana as an effort to curb dropouts. The objectives of the study were to identify contradictions in the school Activity System that could be leading to students' dropout and develop a new model of learning that could address the problem.

II. METHODOLOGY

The methodology used in carrying out this study was Change Lab. This process basically implements the Expansive Learning Cycle as defined by Engenstrom (1987). As such, the Change Lab process in this study was carried out through a series of workshops, each session addressing a specific level of the cycle. A total of eight sessions were held, all videotaped and each session lasted for about two hours.
The school under study was a boarding primary school and had classes ranging from standard one to seven, each level having two groups and an average class size

of 35 students. One teacher from each level was selected to participate in the study and this included the classes that the participants were teaching. The teachers used their classes to experiment with the ideas that came out of the Change Lab sessions.
Analysis of data in the Change Lab is a collaborative activity between the interventionist and the participants. In this study, the majority of the analysis took place during the Change Lab workshops as the participants interrogated their operations. Individual participants' observations became themes of joint discussions when other participants indicated interest in the same and elaborated further on the issues (Virkunen & Newham, 2013). The analysis also involved verbatim transcription of the video-taped raw data from the Change Lab sessions. At each stage, the sessions yielded different forms of data, which needed to be analyzed to feed into the next phase of the project. The study also further employed an analytical protocol called "D-analysis" developed by Middleton, Brown, Daniels, Edwards, Leadbetter and Warmington (2008), to further assist participants to identify the central development challenges of their Activity System. This analysis helped to identify themes that needed to be dropped and those that were worth pursuing which subsequently led to the emergence of new ways of doing things.

III. PROJECT PROCEDURE AND RESULTS

A. Ethnographic Data
Prior to the Change Lab sessions, ethnographic data was collected from various stakeholders to get their views on why students dropped out of school in the area under study. This data was to be used as mirror data in the Change Lab process.

B. Session 1: Questioning the Current Practice
The first stage of the Change Lab process involved leading participants to questioning their current practice in relation to the issue of school dropout. This was done through description of the current set up, how

things worked and identification of issues of concern. Participants identified the things they liked and disliked about their work. From these discourses, the analysis revealed that the participants' central concern was the students' attitudes towards school and learning, which was reported to be mostly negative. Another major theme that developed from the discussions was the role of the parents in their children's learning. The parents were reported to be not supportive of their children's learning.

C.   Session 2: Charting the Situation

In the second session, the ethnographic was shared with the participants and excerpts from it were used as "mirror data" or "first stimulus" to trigger participants to engage in a collaborative analysis of their activity. Also in this session, a historical analysis of the problem of school dropout was carried out, so as to trace the roots of the problem and identify significant changes in the running of the school that may have contributed to its progression.

The second stimulus (the conceptual framework) which was the School Activity System was presented and participants were asked to map out the activities of their school system and describe how they interrelated with each other. Fig 1 below shows a representation of the Activity System of the school in this study as outlined   by participants.
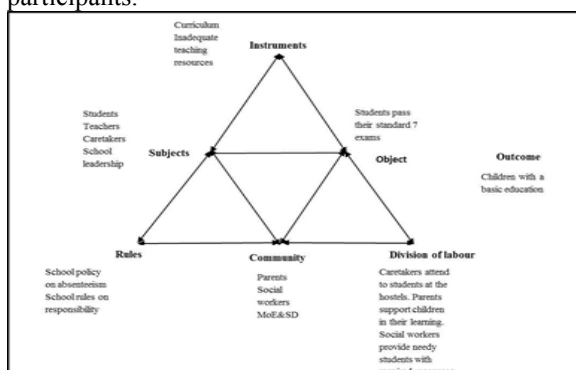

Fig 1: The school Activity System

D.   Session 3: Identification of Contradictions

After mapping the elements of the Activity System, the participants were then asked to examine the components of their system, their interrelations and identify contradictions, tensions in the system, which may be leading to the problem at hand. The contradictions were identified as below:
• Contradictions between the subject and the rules - Students in the school were reported to have difficulties in following school rules and taking up responsibilities. Students left school during the hunting season.
• Contradictions between the tool and the subject - The education provided did not equip learners with the right tools needed to succeed in their environment.

• Contradictions between the community and the rules - Parents were reported to be not playing their part in supporting their children's learning.
• Contradictions between subject and the community - The Ministry of Education was reported to be constantly demanding various kinds of information from the teachers which took time away from their teaching.

From the discussions on the ethnographic data and the identified contradictions in the system, participants were asked to identify what they felt were the main challenges that led to students' drop out in their school and two main themes were identified; The first one was students' lack of interest in school due to failure to grasp what was being taught and its benefit to their lives. This was branded as a cognitive problem. The second was the incompatibility between the children's lives at home and the one they had to live at school which was referred to as a behavioral issue.

E.   Session 4: Identifying Solutions and Designing of Experiments

In this session, the contradictions identified in the previous meeting were analyzed and used as a basis for reflection and plan of action as per the third phase of the Expansive Learning Cycle. Participants were required to collaboratively come up with suggestions for solutions to address the problems. They brainstormed on what could be done to make school more interesting and beneficial to the students. The participants were also required to identify the new tools (resources) that would be needed to accomplish the new tasks. The participants suggested various ideas as possible solutions to the contradictions in their school Activity System. These solutions were then categorized according to whether they could be implemented at the classroom level, school level or beyond the school (by parents, social workers, various ministries and other stakeholders). Tables 1and 2 below show the suggested solutions addressing the cognitive and behavioral aspects of students' schooling respectively.

Table 1: Solutions to cognitive contradictions in the school Activity System

Classroom level	School level	Beyond the school
Appropriate teaching strategies and resources to make learning more interesting for students	Provision of materials that address learners' needs. Include more practical activities in lessons	Provision of relevant resources to teaching, such models to help understand concepts. Revise the curriculum to match it with the needs of the community in the area

Table 2: Solutions to behavioral contradictions in the school Activity System

Classroom level	School level	Beyond the school
Rules should be set by both teachers and students for the sake of ownership. Reward learners who follow the rules. Teach age-appropriate responsibility	Conduct orientation for learners entering the school for the first time. Reward learners who follow the rules	Provision of guidance and counseling services. Teaching age-appropriate responsibility. Special classes for special needs students. Workshop parents on termly basis

From the suggested solutions, Change Lab experiments were designed around those solutions that pertained to classroom level implementation and this was because these were regarded to be within the powers of the participating teachers. Most research says that the most effective way to deal with the problem of school dropout is in the classroom, in the way students are taught (Furger, 2008; Christenson & Thurlow, 2004; Ruben, 1989). Literature indicates that the fundamental cure to drop out is effective teaching which address all the domains of learning. If students do not grasp what is being taught, if it does not make any sense to them, if they cannot see its implications in real life and if they do not get actively engaged in the learning process, they will lose interest and eventually drop out of school (Duckenfield & Reynolds, 2013). So the focus of the Change Lab experiments in this study was to design effective teaching practices that could address the identified learning problems in the system. The experiments were also geared towards creating learning environments that could model what was expected from students in terms of responsible behavior. Participants then proposed various strategies that they could use to make their teaching more effective. The ideas from these discussions were consolidated and aligned to contemporary teaching strategies that are believed to be effective in meeting various students' needs in learning situations. These were identified as; differentiated instruction, service learning, technology integration and cooperative learning. There were also issues that were referred to as "cut across issues" because they were regarded as applicable to all the learning environments. These were; collaborative setting of rules, transparent instruction and active engagement. After the discussions on the teaching strategies, each participating teacher then selected a strategy that they believed would best address the specific needs of their classes to experiment with to see if those will not make a difference in their classes.

F. Session 5: Developing the Experiments
In this session, detailed discussions were held on how to prepare and carry out these different kinds of instruction so that the teachers were clear on how they would carry out the experiments. The teachers were given eight weeks to experiment with their chosen teaching techniques. After six weeks, a follow up exercise was conducted by the researchers to find out how the teachers were getting on with the experiments. This involved sitting in the classrooms to observe teachers delivering their lessons using the identified teaching strategies. These observations were videotaped to be used as a basis for discussion in the next Change Lab session.

G. Session 6: Analyzing the New Activity
The main purpose of sixth Change Lab session was to obtain feedback from the teachers on the experiments and identify new tools, object or rules there were needed to enhance the new practices. The feedback from the teachers indicated positive improvements in the students' learning when using the new strategies, especially in terms of class participation and performance. However, participants also reported a number of challenges that they encountered as they tried to implement the new teaching methodologies and the problems were mainly centered around curriculum overload and lack of resources to help explain concepts better. The participants also identified new tools and rules that were needed in the system to enhance the new teaching practices. They pointed out that some of the rules in the school needed to change because they were a hindrance to assisting shape the attitudes of students. For example, they reported that they were not allowed to have close relationships with students outside class and they believed this was a stumbling block in encouraging students to be free with them in class. From the identified challenges and experiences, recommendations were made to further re-modify the new model so that it could yield the desired results.

H. Session 7: Review of the model after incorporation of the suggested solutions
The purpose of this session was to check on the implementation of the new model after incorporating the suggested solutions. Participants discussed their progress in this new way of doing things. The main theme coming from the participants' reflections of implementing the new activities was the issue of time. Participants indicated that there was too much material to cover in the curriculum and the new model also required a lot of time to prepare for and implement, so this was a problem for them. The teachers also had to engage in a lot of extra-curricular activities in the school, which took away a lot of time from their classes. However participants continued to report significant improvements in their students' achievements which they attributed to the use of the new teaching strategies.

I. Session 8: Consolidating the New Practice
As the final activity of the project, participants had to consolidate the new model by identifying additional elements that would assist this new practice to succeed.

Participants mapped a new Activity System that demonstrated the new model that evolved from the project, see fig 2.
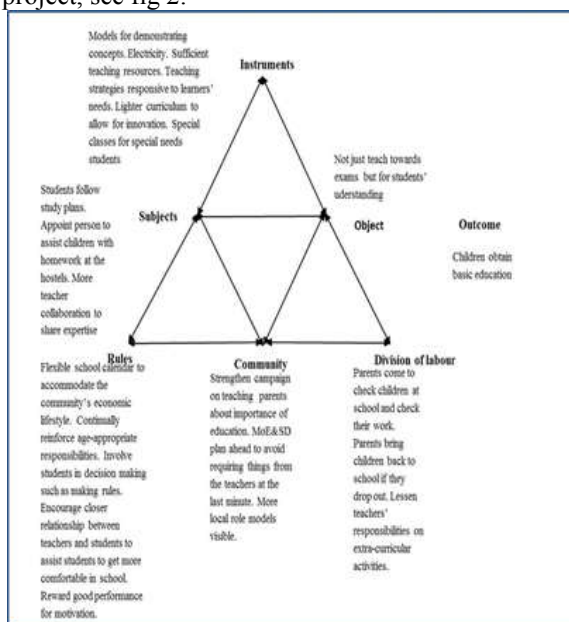

Figure 2: The new Activity System of the school under the study

CONCLUSION

The Change Lab process in this study demonstrated the dynamics in the interaction between the different elements of the school Activity System. Feedback from the Change Lab experiments indicated improvements in children's learning and behavior when using the suggested teaching strategies. This pointed to a potential to reduce school dropouts as students became better engaged in the school activities. However, the experiments also indicated more constraints in the school system which made it difficult for participants to improve their work, thus highlighting the limitations that teachers had in making changes in their practices. However, the Change Lab process in this study acted as an enabler that assisted teachers to recognize those capabilities that they had in their position and leverage them to effect some changes in their activity as an effort to improve students' learning. It was clear from the study that for the new learning model to work, it needs a more autonomous environment which can accommodate unique needs of learners in the context under study so as to reduce the rate of students' dropout from school.

REFERENCES

[1] S.L. Christenson, and M.L. Thurlow, "School dropouts: Prevention, considerations, interventions, and challenges.," Current Directions in Psychological Science, *vol.* 13, no. 1, pp. 36-39, Feb. 2004.

[2] M. Duckenfield, and B. Reynolds, "School climate and dropout prevention. National school climate center (nscc) Educating minds and hearts, because the Three Rs are not enough," Feb. (2013). Retrieved from https://www.schoolclimate.org/publications/documents/sc-brief-dropout-prevention.pdf

[3] Y. Engestrom, "Learning by expanding: An activity-theoretical approach to developmental research," Helsinki: Orienta-Konsultit, 1987.

[4] K.A. Foot, "Cultural-historical Activity Theory as practice theory: Illuminating the development of a conflict-monitoring network," Communication Theory, vol. 11, no 1, pp. 56-83, Feb. 2001.

[5] R. Furger," How to End the Dropout Crisis: Ten Strategies for Student Retention: Proven tactics for keeping kids engaged and in school, all the way through high school graduation," Dec. 2008. Retrieved from http://www.edutopia.org/student-dropout-retention-strategies

[6] F. Hunt, "Dropping out from school: A cross-country review of literature," Brighton: University of Sussex. CREATE Pathways to Access Research Monograph No. 20. Dec. 2008.

[7] I. Karasavvidis, "Activity Theory as a Conceptual Framework for Understanding Teacher Approaches to Information and Communication Technologies," Computers and Education: An International Journal, vol. 53, pp. 436–444, Sep. 2009.

[8] D. Middleton, S. Brown, H. Daniels, A. Edwards, J. Leadbetter, and P. Warmington. "Making the difference in interagency working: Analytic challenges in studying professional learning in communicating what matters". In C. Candlin, S. Sarangi (Eds), Handbook of applied linguistics communication in professions and organizations. Berlin: Mouton de Gruyter. 2008.

[9] A.M. Ruben, "Preventing school dropouts through classroom guidance," Elementary School Guidance & Counseling, vol. 24, no. 1, pp. 21-29, Oct. 1989.

[10] J. Virkkunen, and D.S. Newman, "The Change Laboratory: A tool for collaborative development of work and education," Sense Publishers. ISBN E-BOOK: 9789462093263. (2013)

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