

**Title:**

**The Use of Quality Formative Assessment and Students' Perception on Self-Regulating Learning in University Classrooms\***

A Research Paper Presented at the Tuning Africa Symposium on Research and Good Practice in Competences-Based Student Centered Approach in Higher Education.

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# Outline of the presentation

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# 1. Prologue

The significance of formative assessment in education and training provision.



- **No one can fatten a cow by weighing (“assessment”) but by feeding. (learning experiences: feedback, self/peer assessments) learning skills, self-regulation and autonomy are important.**

# 2. Background of the Study



This study examined the contribution of formative assessment that was used in instruction to improve students' self-regulated learning skills in a "General Psychology" course at three west Ethiopian universities.

In this paper,

Quality formative assessment =

- formative feedback by educators,
- peer-assessment and self-assessment,
- contributes to the improvement and the self-regulation on learning.

Self-regulation of learning

- the students' involvement and experience in self-regulating learning before and after an instructional intervention.

## 2. Background...



- **Education and training in Ethiopia: Instrument of development and poverty alleviation.**
- **Set educational objectives which reflect the needs of the society (MOE, 1994, pp. 7-8).**
- **Higher education expansion and student enrollment is at increase. (HERQA, 2008).**
- **Improve quality and relevance of university education.**
- **However, as a report by HERQA (2008) indicates students at universities have not been fully engaged in assessment practices, which can enhance self-regulation in learning.**
- **Thus, this study used formative assessment on lessons of a course and found out the ways by which the students' involvement and experience in self-regulating learning improves.**

# 3. Conceptual Model



- Constructivist learning paradigm informs this study.
- Assumption = **active involvement of students** in learning and assessment.
- Instruction not as the transmission of knowledge
- Opportunity for students to actively involve as self-and peer-assessors.
- Provision of formative feedback.
- Self-regulation, autonomy and meta-cognition in learning
- Educators consider **formative assessment as an essential curriculum component that contributes to self-regulation in learning.**
- Hence, the following statement explains the logic for the conceptual alignment of this study with the constructivist learning paradigm.

**A quality formative assessment used in instruction, involving the students as self-assessors, peer assessors, when accompanied with feedback improves the involvement of students to self-regulating learning.**

## 4. Objectives, Research Question(s) and Hypotheses



- The objective of this study was to examine the extent of which the use of quality formative assessment on lessons of a course involves the students as self-regulated learners.

### *Research Question*

- “What is the extent of students’ self-regulation in learning resulting from the use of quality formative assessment?”

### *Null hypothesis 1:*

There is no statistically significant difference in perceiving self-regulating learning between the students taught by the use of summative and formative assessment methods.

### *Alternative hypothesis 1:*

There is a statistically significant difference in perceiving self-regulating learning between the students taught by the use of summative and formative assessment methods.

# 5. Literature Review



## Self-regulated learning

- Is one outcome of using quality formative assessment.
- Self-regulation in learning = “student-centered learning”
- The need to expand the understanding on the role of students’ in learning, as well as the practicable tactics of scaffolding self-regulated learning skills and assessment is well recognised.
- Self-regulation is a set of **metacognitive**, **motivational** and **behavioural** tactics which benefit the student to control and manage learning outcomes actively.

# 5. Literature...



## Self-regulated learning

- student active participation in setting learning objectives
- self-directed activity by which a student transforms his/her mental abilities into academic skills
- interplay between **commitment, control, and confidence.**
- regulate actions toward the learning objectives
- involves “self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals” and can lead to seeking, accepting, and accommodating feedback information.
- implies autonomy, self-control, self-direction, and self-discipline.

# 5.Literature...



## Formative assessment

- Plays a key role to increase self-regulation skills.
- Guides the student's judgment about what is important to learn.
- Self-regulation is particularly salient in the higher education context because of the (often-implicit) expectations on student independence in learning.
- The proactive role of the student in generating and using feedback is also well-acknowledged.
- Educators at higher education can empower students as self-regulated learners by the continuous use of formative assessment and feedback.
- Educators also tend to attribute many of the individual differences in learning to the level of students' self-regulation skills.

# 5.Literature...



**Self-regulated learning requires different skills.  
These are**

- *setting specific proximal goals,*
- *adopting powerful strategies,*
- *monitoring one's performance,*
- *restructuring one's physical and social context,*
- *managing one's time use efficiently,*
- *self-evaluating one's methods,*
- *attributing causation to results, and*
- *adapting future methods.*

# 5.Literature...



## Thus,

- use of quality formative assessment “helps students to develop the mentioned self-regulated learning skills.”
- self-regulated learning and effective feedback lead to improved learning gains. Students who self-regulate their learning are more effective in learning their subjects.
- show persistence, resourcefulness, confidence and achieve high.
- set superior goals proactively, monitor learning intentionally, use strategies effectively, and respond to feedback adaptively.
- not only attain mastery but also sustain their motivation and efforts in learning.
- **Formative assessment involving formative feedback, self and peer assessment enhances self-regulation skills. However, existing research demonstrates that self- and peer assessment are not common assessment practices in higher education classrooms.**

## 6. Research Design and Methods

- This study situated itself within the pragmatic paradigm of studying a phenomenon.
- Pragmatic paradigm = **QUAN and qual**
- **Method:** Partially mixed sequential dominant status in which a main quantitative study was sequentially followed by a qualitative study (Leech & Onwuegbuzie, 2007, p. 470).
- In the present study, to supplement the quantitative data, qualitative data were collected based on a sequential explanatory strategy.

### **Data collection procedure**

- Instrument: self-regulating learning perception questionnaire (13 items)
  - first step was base-line data collection.
  - Second step (after instructional intervention using formative assessment) the same questionnaire and FGD with the students.

# 6. Research Design and Methods



- Parallel to the base line data collection, procedures of design based instruction research (ADDIE) were followed to produce instructional intervention plan for the quasi-experimentation that the educators would implement on lessons.

## Design-based research

- combines empirical research with a theory-driven design of learning environments.
- an emerging methodology to understand how, when, and why innovative instructional techniques work in practice (Baumgartner, *et al* ,2003: 5).
- a way of explicitly exploiting design processes as opportunities to advance educational researchers' understanding of teaching, learning and educational processes (Edelson, 2002: 107).
- Descriptive statistics were used to present the students' scores of self-regulation perception from the pretest and posttest.
- The inferential statistics such as t-test, biserial correlation, and effect size estimate were used to determine the presence of statistically significant and valid variation between the intervention and the comparison groups on learning achievement.

## 6. Research Design and Methods

- On the other hand, **Qualitative method of constant comparison method was used for its relevance and simplicity.**

### **Variables**

**IV-** instructions using formative assessment **(6 weeks/18hrs for intervention group)**

**DV-** students involvement and experience in self-regulating learning.

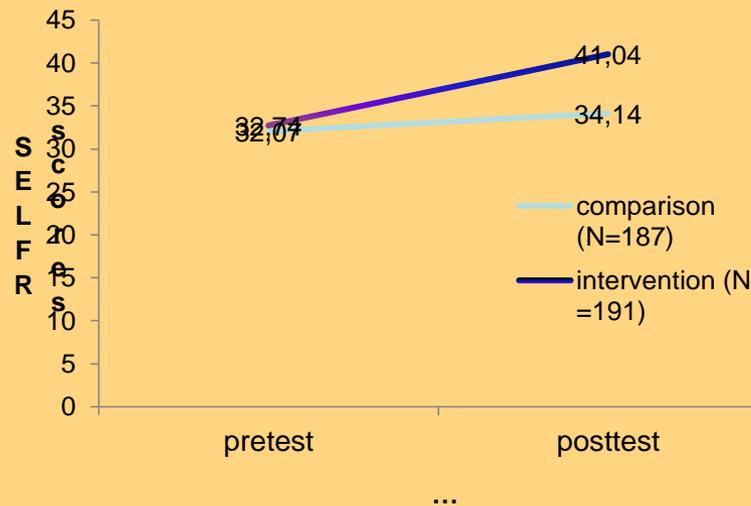
**Sample = 378**

- **intervention = 191**
- **comparison=187**

# 7. Result and Discussion

## Results

- The self-regulation perception scores before and after the instructional intervention were compared. Increments in the mean scores were observed for both groups (see Figure 1 below).



## 7. Result and Discussion...



- The independent samples mean difference test (t- test) that assumed unequal variances between the two score distributions, resulted in a statistically significant difference ( $t = 14.72$ ,  $df = 376$ ,  $sig. < 0.00$ ).
- In addition, the biserial correlation coefficient was found to be considerably higher ( $r_b = 0.61$  with degrees of freedom = 376), where the expected coefficient at  $\alpha = 0.05$  is less than 0.19. This correlation was computed to check out whether there was a statistically significant relationship between placement in the intervention group in which the students were taught by the use of quality formative assessment and the corresponding test score results.
- Furthermore, effect size estimate is a more robust statistic to determine the extent of difference between the two groups as a result of the instructional intervention.
  - Effect size helps to measure how much something, for example, (students' perception scores) changes after a specific instructional intervention.

# 7. Result and Discussion...



- In terms of raw score the estimated effect size resulted from the intervention was 6.90 score points.
- On standardised mean difference effect size was 0.77, which means according to Cohen (1988) and the convention on estimates of effect size, this value is judged as a moderate effect.
- The effect size for most quasi-experiment studies ranges from -0.4 to + 1.6 (Norman, 2003: 184).

## effect size, between

- 0 and 0.20 shows a weak effect,
- 0.21 – 0.50 shows a medium effect,
- the range from 0.51 to 1 shows a moderate effect,
- and an effect size estimate > 1 shows a strong effect (Cohen, Manison, & Morrison, 2007: 124).
- **In this study, therefore, the instructional intervention that used formative assessment on lessons improved students involvement and experience in self-regulating learning.**

## 7. Result and Discussion...



The analysis of data from the FGDs confirmed the **usefulness of quality formative assessment** to the improvement of self-regulating learning.

According to the Focus Group Discussants, the use of formative assessment resulted in

- positive effects on the self-regulation of learning as well as changing the students' attitudes to be more positive and active towards learning and assessing.
- self and peer assessment were advantageous because they were motivating to promote the active attention and involvement of the students.
- self-assessment facilitated for autonomy & independent learning.
- peer assessment stimulated student motivation and competition.

**In this study, therefore, the instructional intervention that used formative assessment produced a positive effect on the students' involvement and experience of self-regulating learning.**

## 7. Result and Discussion...



### Self-regulation is:

- central to student-centered learning
- predictive of improved academic outcomes and motivation, enhanced involvement in the learning process and subsequent successful performance (Clark, 2011).
- Students who have the skills to self-regulate learning focus on how they activate, alter and sustain specific learning activities. In a situation where such essential qualities of learning are absent, coaching students to develop self-regulated learning skills is especially relevant (Zimmerman, 2002).

## 7. Result and Discussion...



- Educators at higher education should use formative assessment and feedback to enhance student self-regulation and independence in learning and assessing.
- A self-regulated student displays superior achievement gains and personal efficacy (Zimmerman, 2002).
- Students who self-regulate their learning are characterised by personal initiation, perseverance and adaptive skills (Zimmerman, 1998).
- They are also capable of monitoring, directing and regulating actions towards the learning objectives (Hattie & Temperley, 2007).
- It is understood that the effective use of quality formative assessment paves the way for motivation and self-regulation.

## 7. Result and Discussion...



- In the present study, the students who were taught by the use of quality formative assessment reported a better involvement in self-regulating their learning.
- Thus, effective use of quality formative assessment improves the involvement of students in learning.
- In an attempt to self-regulate learning and assessment, students direct their thoughts and behaviours towards achieving the set learning goals.
- As a result of self-regulated learning, the students' motivation and effort to achieve high scores in tests increases. This was clearly seen in the present study.

## 7. Conclusion & Recommendations



- the use of quality formative assessment contributes to the enhancement on the students' level of involvement and experience in self-regulating learning.
- Effect size magnitude is found to be moderate(0.77).

**each form of quality formative assessment promoted self-regulated learning skills.**

- formative feedback encouraged active learning to occur.
- self-assessment facilitated relative independence and autonomy for the students, and
- peer assessment enhanced the students' motivation, responsibility and competition in learning.

# 7. Conclusion & Recommendations



- **Department heads, course team leaders, quality assurance officers, educators and students at universities should collaborate and work towards the promotion and use of formative assessment on lessons of university courses** because formative assessment can have salient contributions to improve the student self-regulation on learning and the students' learning and assessment skills.
- continuous professional development (CPD) trainings to be organized for university educators shall focus in supporting teachers develop the skills on how to design and implement instructions by using formative assessment.
- Pre-service training & preparation of university educators should incorporate skills on how to use quality formative assessment in teaching.

## university educators:

- use quality formative assessment on lessons and prepare students with self-regulated learning skills so that the students' active involvement in learning and assessing can be improved.
- Train students to develop the skills of learning and assessing

THANK YOU



Questions and comments are welcome