Can Students Value for Formative Assessment Develop their Academic Self-Regulation and Grit?

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Think-Pair-Share

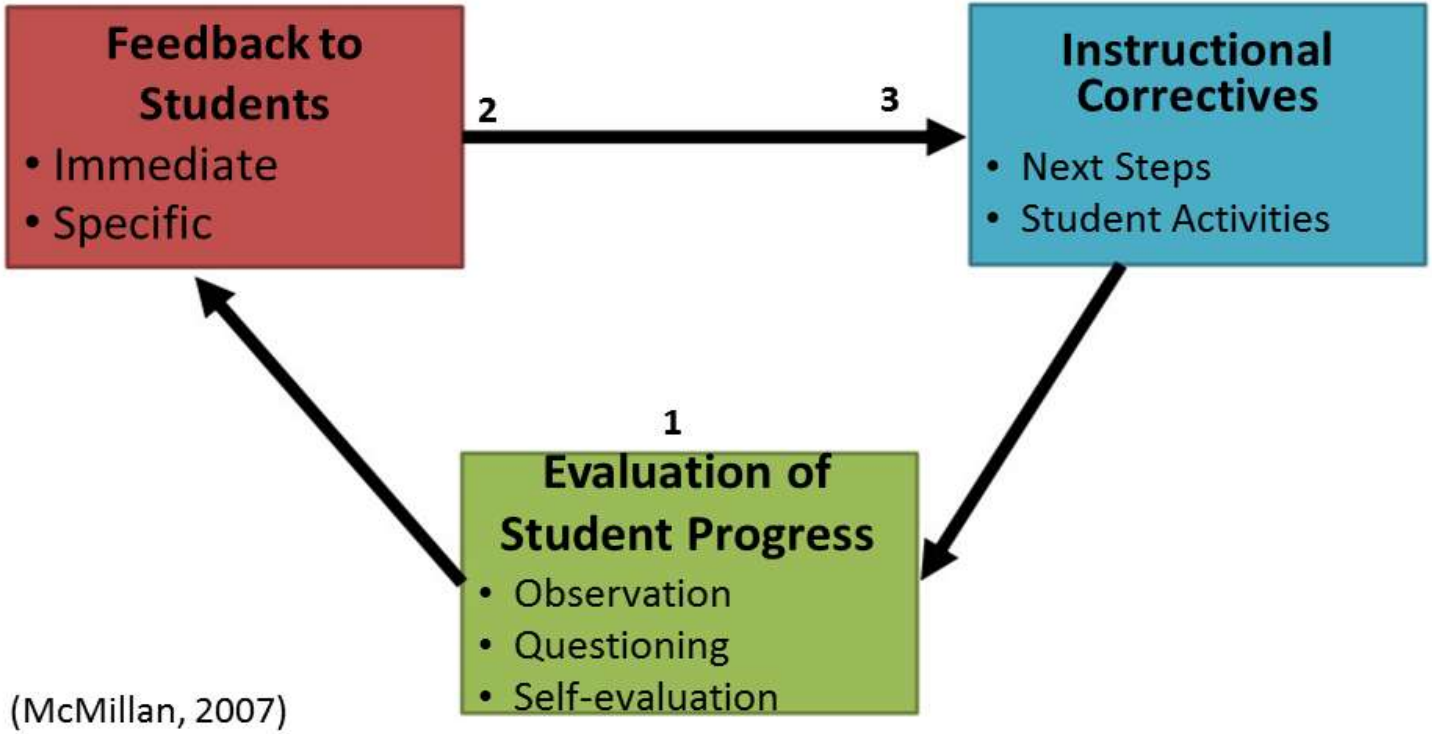
- What is Formative Assessment?
- What is Feedback?
- What is Self-Regulation?
- What is Grit?

Formative Assessment

- Formative Assessment is a **continuous process** that is **integrated within the instruction** intended to close the gap **where the learner currently is at** and **where the learner should be** at the end of the lesson (Stigler, 2010)

- It is an ongoing process where students and teachers focus in the learning goal, determine where the current student work is in relation to the goal, and taking action to move towards the goal (ASCD, 2000).

Three-Way Process of FA



(McMillan, 2007)

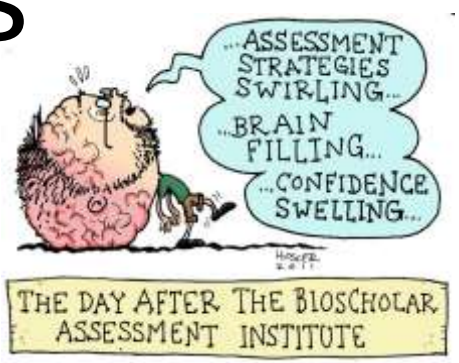
Formative Assessment

Critical Features (Fisher & Frey, 2011; Stigler, 2010):

1. The **understanding** of the students of **the learning goals**, purpose of a task (i.e. tasks or lessons), and how they will be assessed
2. **Check for their understanding** and how instruction can be of help to help them progress to reach the goals
3. Provide **feedback** that is valuable and constructive to help them understand their needs and success
4. The **feed forward** builds on the feedback and uses performance to facilitate achievement.

Value for Formative Assessment

- Purpose of Assessment
- Learning Progress
- Receiving Feedbacks



Value for Formative Assessment

- **Purpose of Assessment –** When learners are **aware of the learning targets**, they have in mind the goal that needs to be accomplished while engaging task.
    - The objective of the lesson given at the start of instruction
    - Conducting diagnostic assessment
    - Sharing the criteria of the for the learners
    - Giving the outline of items to be accomplished
    - Showing classroom timelines and schedules
    - Showing advance organizers
    - Providing techniques and rules in accomplishing the task

Value for Formative Assessment

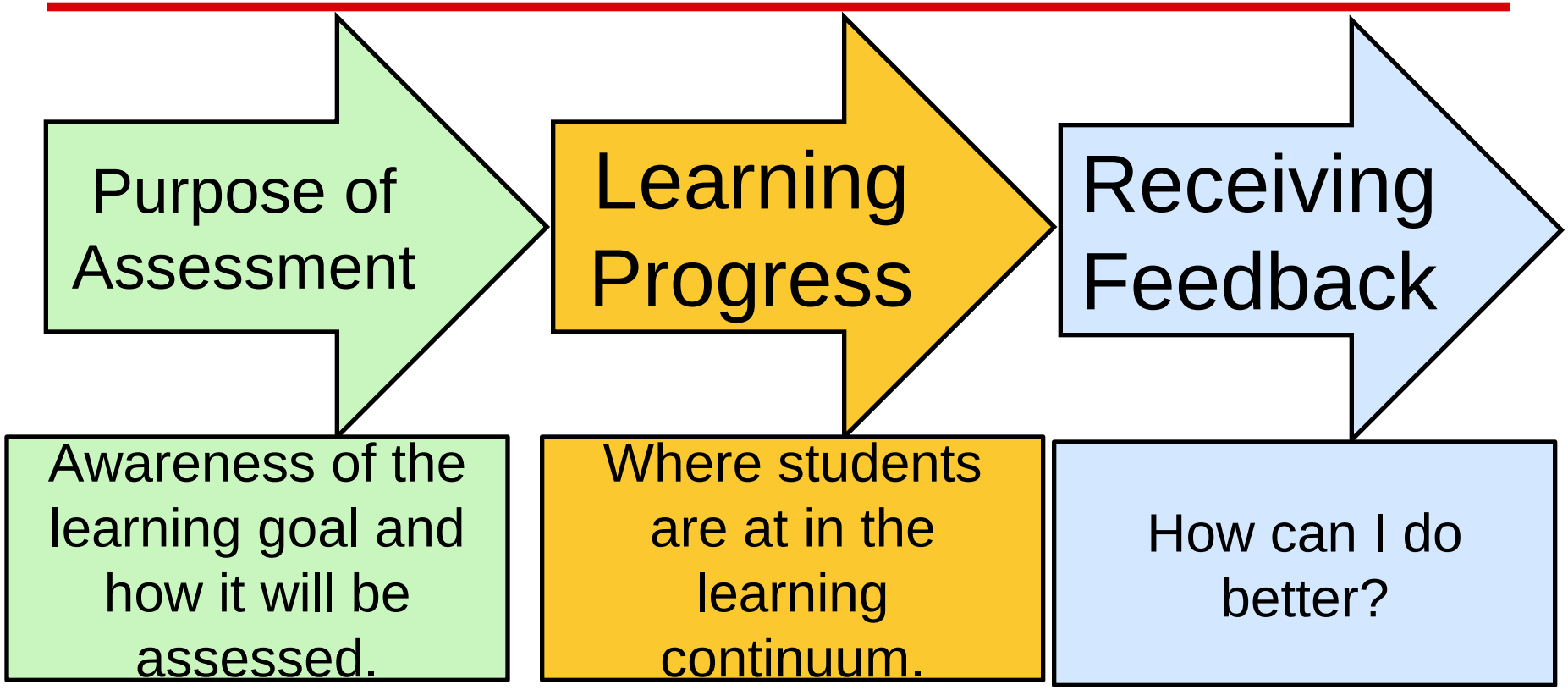
- **Learning Progress-** The students becomes **aware of his or her own progress in learning**, skills, competencies, and other characteristics as a result of assessment.
- Involves monitoring what they can do, what they cannot do and what they need to do, as a result of assessment results.

- Using assessment information to adjust instruction to meet the needs of the learners
- Consolidation of skills through continuous drills and exercises
- Thoughtful questioning to scaffold further inquiry
- Focused revision and resubmission of one's work
- Readjusting one's work
- Breakdown the lesson into smaller units and immediately gather evidence of learning
- Recording evidence of learning across time
- Self-reflection of one's work

Value for Formative Assessment

- **Receiving feedback-** Refers to a set of practices to **provide students specific information about their present performance**. Feedback is immediately used to improve the learner closing the learning gap.
  - Points on how to effectively perform the task
  - Suggestions to improve one's work
  - describing the performance based on the given criteria and standards
  - Proving samples of what the work should look like or models
  - Sharing of learning evidences to students
  - Interacting with the learner while accomplishing the task

Value for Formative Assessment



Findings Regarding FA

- FA was seen to **raise standards in student achievement**.
- Improve academic performance.
- Students become **conscious of quality work**, use **learning strategies to reach their goals**, and they become **in control of their own learning**– self-regulation (Frey & Fisher, 2011).

Academic Self-Regulation

- Self-Regulation is defined as self-generated thoughts, feeling, and actions that are oriented to attaining goals.

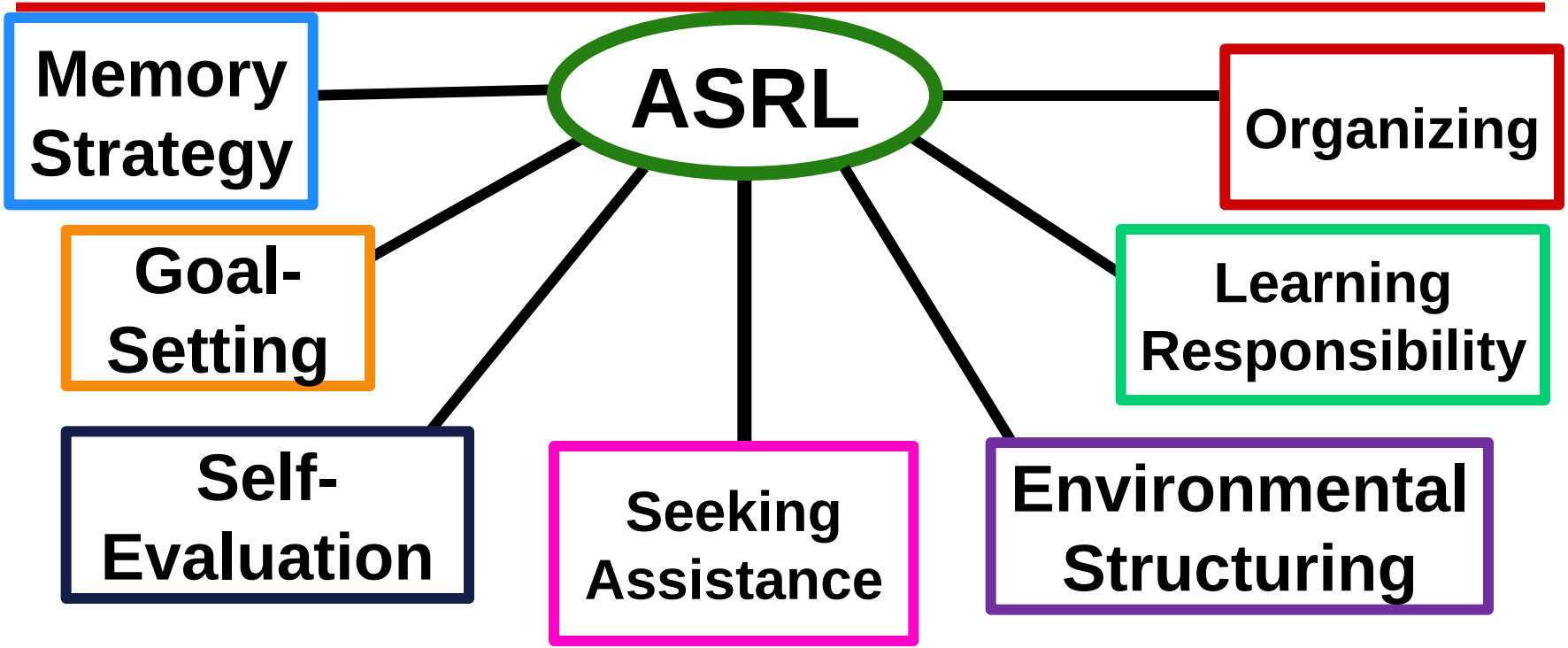
- Learners who are self-regulated are "**proactive in their efforts to learn** because they are **aware of their strengths and limitations** and because they are **guided by personally set goals** and **task-related strategies**" (p. 66).

Academic Self-Regulation

- When learners continuously **receive feedback** and **revise to improve their work**, they gradually **internalize their learning goals** and they see themselves progressing towards the standards.

- When they start to monitor their own progress by **checking their own work**, **planning before revising**, **organize their work during the revision stage**, **structures their environment to meet the goals**, they exhibit self-regulation (Bokaerts & Corno, 2005).

Academic Self-Regulation (Magno, 2009)



Academic Self-Regulation and FA

(Magno, 2009)

Factor	Description
Memory Strategy	Remembering feedbacks from teachers and peers
Goal-Setting	Planning of strategies on how to do tasks
Self-Evaluation	Self-assessment and monitoring of one's progress
Seeking Assistance	Asking for feedbacks from teachers and peers
Environmental Structuring	Efforts to eliminate distractions from the environment
Learning Responsibility	Awareness of what needs to be done
Organizing	Structure on how to study and filter feedbacks

Formative Assessment and Self-Regulation

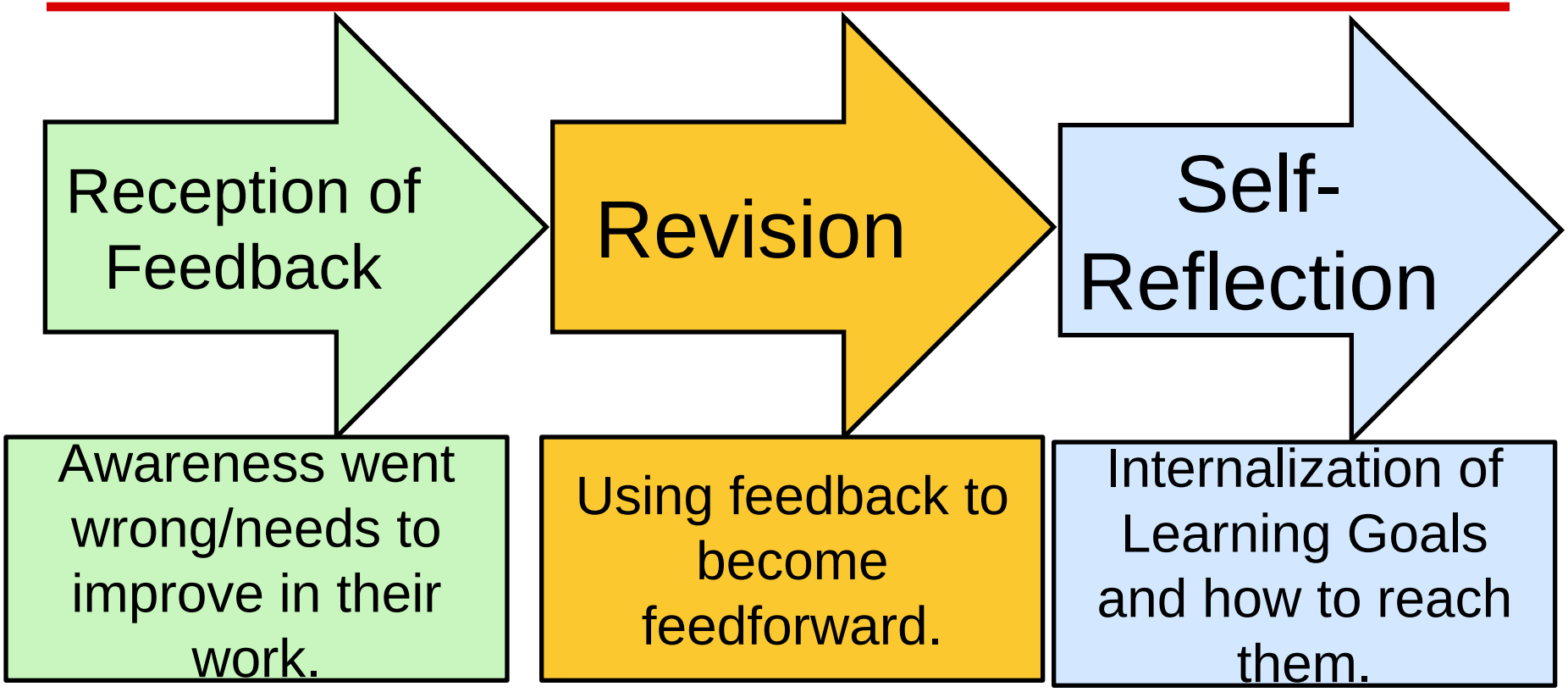
- The **feedback** that the student receives serves as an external regulation to improve their performance and the **learner uses strategies to improve his or her ability** which is an internal regulation process (Deci & Ryan, 2008).

- The **feedback** and the **revision** process students engage in **develops their use of personal and cognitive strategies** in order to achieve their learning goal where learner becomes self-regulated (Deci & Ryan, 2008).

Academic Self-Regulation

- Self-regulation is activated when the feedback that students receives (external feedback) becomes an internalized feedback process after engaging in formative assessment (Clark, 2012).
- The internalized feedbacks ‘awakens’ learning strategies and cognitive techniques, to help them improve their learning (Clark, 2012).
- The ultimate goal of FA is to make students owners of their own learning (Black & William, 2009).

ASRL and FA


Reception of Feedback
Revision
Self-Reflection
Awareness went wrong/needs to improve in their work.
Using feedback to become feedforward.
Internalization of Learning Goals and how to reach them.

Grit

- Grit is **perseverance** and **passion** for **long-term goals** (Duckworth, et al., 2007).
- Gritty individuals **work strenuously toward challenges**, **maintaining effort and interest** over time despite failure, adversity, and plateaus in progress.
- Failures may signal change in path or goal for some, but gritty individuals stays the course and finishes what has been started.

Grit

- Duckworth in their series of studies found that capacity to regulate attention, emotion, and behavior was essential to everyday success is highly related to grit, r > .6 (Duckworth et al., 2007; Duckworth & Seligman, 2005).
- Consistently, gritty students who exhibit self-regulation strategies were seen to achieve more in standardized tests (i.e. SATs) (Duckworth & Tsukayama, 2013).

Grit

- It is argued in the present study that if formative assessment is a powerful means of promoting learning, it should be able to engage students to pursue long term goals despite challenges, setbacks and difficulties.

- The inclusion of grit in the interaction between value for formative assessment and self-regulation addresses the need to map the cognitive architecture of formative assessment (see Benett, 2011).

The Present Study

- A causal model is tested to provide evidence whether Formative Assessment builds on the learners' self-regulation. The interactive process of formative assessment and self-regulation are supported by the self-determination theory (Deci & Ryan, 2008) as well as Clark's (2012) theory of formative assessment putting self-regulation as a prime skill that is developed among learners.

The Present Study

- If the interaction of formative assessment and self-regulation are powerful means to raise learning, they should be able to predict the learners' conviction to pursue long term goals which is grit.
- The addition of grit as an outcome of formative assessment and self-regulation is tested in the present study that will provide further evidence on the benefits of formative assessment.

Methods

Research Design

Exploratory cross-sectional non experimental research design (Johnson, 2001). This method allows to test the relationships of value for formative assessment, self-regulation, and grit and how they operate underlying the formative assessment theory.

Methods

Participants

Convenience sampling scheme was used to draw 300 (statistical power of 1.00, α= .05) undergraduate students from three major universities in Manila.

- 148 Male students
- 152 Female students
- Age range: 16-19 years
- Mean Age: 17.8 years

Instruments

Value for Formative Assessment Scale (VFAS; α.90)

Derived from the critical characteristics of formative assessment based on the formative assessment theory by Stigler (2010) and Frey and Fisher (2011)

-Purpose of Assessment (10 items; α=.82) (i.e. *I am tested by my teacher on the important skills I need to learn in the lesson*)

-Learning Progress (10 items; α=.77) (i.e. *The test given by my teacher helps me know my proficiency level in the lesson*)

-Receiving Feedback (10 items; α=86) (i.e. *I listen well to my teacher's feedback so that I can improve my performance)*

Methods

Value for Formative Assessment Scale (VFAS; α.=90)

-Participants answered the questionnaire using a 4-point Likert scale from 4=Strongly Agree to 1=Strongly Disagree.

-Factorial Validity was tested using CFA

-The three-factor model of value for formative assessment attained a good fit with $\chi 2/df=2.22$, RMSEA=.06, PGI=.88, GFI=.92, NFI=.91.

Methods

Academic Self-Regulation of Learning (ASRLS; α= .83)

- Memory Strategy (14-items)
- Goal Setting (5-items)
- Self-Evaluation (12-items
- Seeking Assistant (8-items)
- Environmental Structuring (5-items)
- Learning Responsibility (5-items)
- Organizing (6-Items)
- 4 point Likert scale from 4= Strongly Agree to 1= Strongly Disagree)

52 Items (Magno, 2010)

Methods

Short Grit Scale (SGS; α= .85)

-Consistency of Interests (6-items) (i.e. I have achieved a goal that took years of work) α=.84

-Perseverance of Effort (6-items) (i.e. I have overcome setbacks to conquer an important challenge) α=.78

-1=Not like me at All to 5 Very Much like me

-The two factors showed convergence with a correlation of r=.46. This two factor structure was confirmed with adequate fit (Comparative Fit Index=.83 and Root-Mean SquareError of Approximation =.11)

(Duckworth, et al. 2007)

Data Analysis

- Means
- Standard Deviations
- Cronbach’s Alpha
- Pearson’s r
- SEM

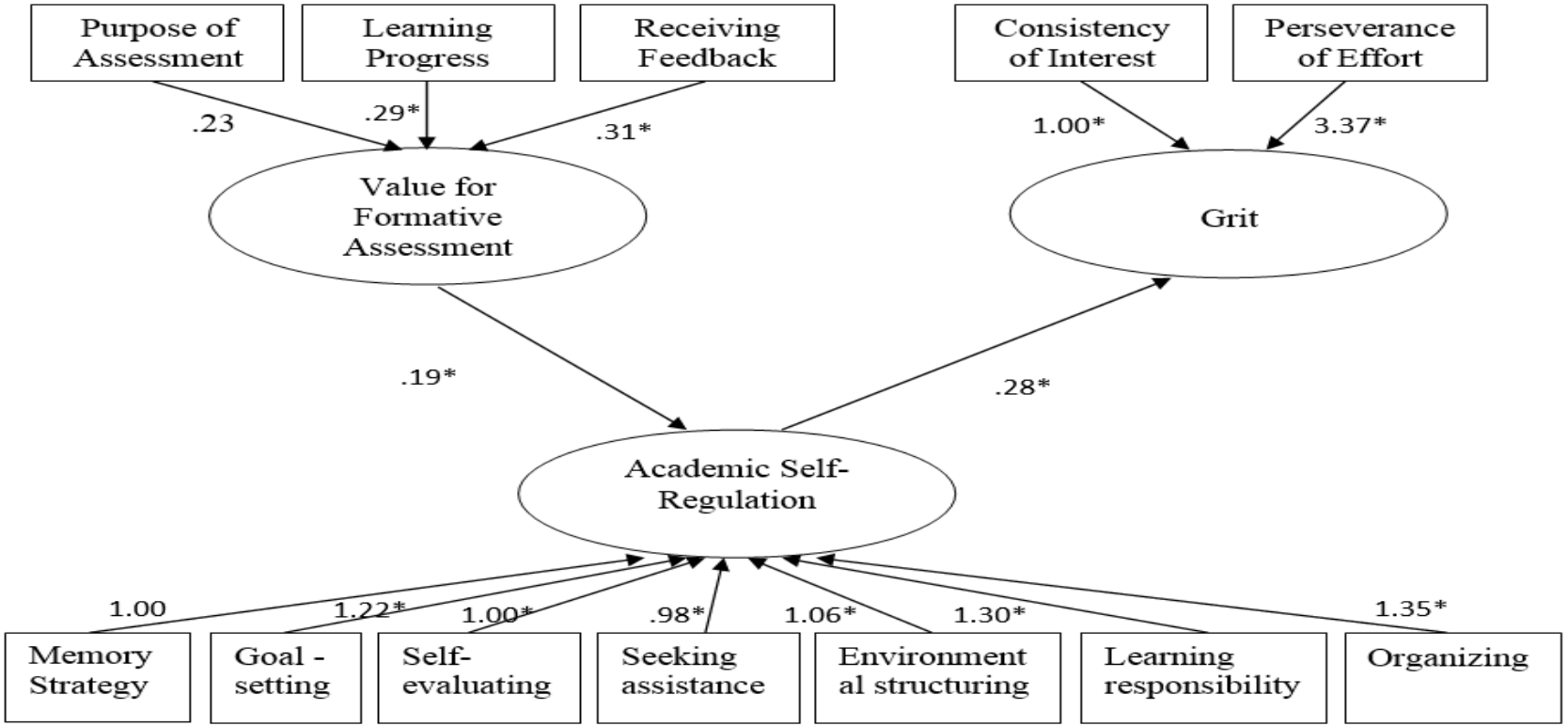
Results

Zero Order Correlations for Value for Formative Assessment, Self-regulation, and Grit

	PA	LP	RF	MS	GS	SE	SA	ES	LR	OR	CI	PE
PA	---											
LP	.48	---										
RF	.47	.55	---									
MS	.27	.36	.31	---								
GS	.17	.32	.33	.43	---							
SE	.36	.45	.43	.47	.58	---						
SA	.25	.43	.37	.46	.41	.55	---					
ES	.27	.29	.23	.43	.27	.40	.39	---				
LR	.27	.38	.30	.50	.43	.45	.46	.59	---			
OR	.33	.41	.36	.55	.49	.54	.51	.55	.62	--		
CI	.12	.11	.18	.14	.15	.14	.19	.12	.11	.11	---	
PE	.18	.33	.25	.34	.43	.39	.41	.38	.49	.47	.14	1.00

Note. All *r*'s at significant at .05, PA=Purpose of Assessment, LP=Learning Progress, RF=Receiving Feedback, MS=Memory Strategy, GS=Goal-Setting, SE=Self-Evaluating, SA=Seeking Assistance, ES=Environmental Structuring, LR=Learning Responsibility, OR=Organizing, CI=Consistency of Interest, PE=Perseverance of Effort

Results


Purpose of Assessment
Learning Progress
Receiving Feedback
Consistency of Interest
Perseverance of Effort
.23
.29*
.31*
1.00*
3.37*
Value for Formative Assessment
Grit
.19*
.28*
Academic Self-Regulation
1.00
1.22*
1.00*
.98*
1.06*
1.30*
1.35*
Memory Strategy
Goal - setting
Self-evaluating
Seeking assistance
Environmental structuring
Learning responsibility
Organizing

Results

- The model tested attained an adequate fit with values **χ2/df=2.39**, **RMSEA=.07**, **PGI=.96**, **GFI=.93**, **CFI=.94**, and **NFI=.93**. The discrepancy function between χ2 and df of 2.39 is below 5.00 supporting fit of the model. The PGI, GFI, CFI, and NFI values are close to 1.00 indicating acceptable fit of the model. The RMSEA of .07 is small enough that represents error in the model.

Discussion

- The current findings support previous researches regarding the relationship between formative assessment and self-regulation (Hattie & Timperley, 2007; Hudesman, et al., 2013).

- The feedback that students get from their teachers regarding their work indeed helps them to use self-regulation strategies that will help them in their learning.

Discussion

- The self-regulation built through formative assessment significantly predicted grit. This prediction is also supported by previous studies (Arslan, Akin, & Citemel, 2013; Duckworth & Seligman, 2005; Moffitt et al., 2011).

- When students receive a formative feedback embedded in formative assessment, they endorse in self-regulation strategies that will help them strive and persevere despite experiencing failures along the way.

Discussion

- The framework of formative assessment is expanded in the present study by including grit as an outcome. The present frameworks on formative assessment emphasize outcomes for raising students' achievement, self-regulation, and other motivational variables (see Clark, 2012).

Discussion

- What is available in literature is the construct “value for education” (Magno, 2010; Voelkl, 1997). The nature of value for formative assessment is derived from the idea that formative assessment is part of education.

Discussion

- If learners can value education, value for formative assessment is also possible as one part of education. The construction of this concept addresses the issue on posed by Benett (2011) asserting that if formative assessment is studied as a variable its composition and structure needs to be defined and within a set of parameters

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