
Assessment Climate and Mastery Goal Orientation Nexus: The Mediating Role of Academic Self-efficacy

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Abstract: It is often said that the quickest way to change students learning is to change the assessment system, suggesting that classroom assessment practices might be potent in their effects on students. The principal aim of the study was to investigate the indirect effect of assessment climate on mastery goal orientation through students' self-efficacy. Descriptive cross-sectional survey design was adopted for the study where six College of Education institution's students within the Central, Eastern and Western regions of Ghana were targeted. Utilizing disproportionate quota sampling technique, a total of 254 students were sampled to serve as respondents. Data were collected using classroom assessment environment questionnaire, achievement goal questionnaire and self-efficacy scale. The instruments were all adapted from the literature and validated using data from the Ghanaian context. The two hypotheses in the study were tested using Hayes (2013) mediation analysis. Findings revealed that assessment climate was a significant predictor of mastery goal orientation among College of Education students, however, the study found no supporting evidence for an indirect effect of assessment climate on mastery goal orientation through self-efficacy. The study recommends that management of academic environment should as a matter of policy institute measures that would expose and updates tutors on the state of the art assessment regime that builds motivational believes among students.

Keywords: Assessment Climate, Achievement, Mastery Goal Orientation, Self-efficacy, Learning

1. Introduction

Students are exposed to a variety of evaluation activities on a daily basis in the specific context of the school and classroom. Instructors have long recognized that the activities presented in the classroom provide important information to learners about what is highlighted there, which in turn can lead to different patterns of results related to achievement [12, 22]. Ames [4] suggests that if a teacher structure the task(s) of classroom evaluation to include difficulty, diversity, novelty, and active participation, these tasks are likely to evoke positive motivation trends in students. In the same way, he believes that it is often helpful to give students opportunities to make choices and decisions in the evaluation process, as well as to allow time for the evaluation task to differ with the nature of the task and student needs. The overall perception or interpretation that students make of the different evaluation of the classroom in this situation constitutes the classroom assessment climate (i.e.,

environment) [10]. In simple words, Brookhart and her colleagues would suggest that each classroom has its own "character or assessment environment" experienced by the students and springs from the assessment practice of the teacher's classroom [7, 11]. From the original conceptualization of classroom assessment climate by Stiggins and Conklin [29], the focus of the concept captures eight key elements; assessment purposes, assessment methods, criteria for selecting the assessment methods, quality of assessment, feedback on assessment results, teacher's assessment background and preparation, teacher's perception of students, and assessment policy [29]. At it this point, it suffices to say that Stiggins and Conklin's [29] conceptualization of the classroom assessment environment centered more on teachers' practices than on students' perceptions of these practices [11]. In this study, the term assessment environment and assessment climate are used interchangeably.

An instructor together with the classroom environment that he/she creates tend to influence the learners' behavior and

achievement. Environment and individuals are in direct relation with each other and it is not possible to consider them separately. Extant studies have shown that classroom climate affects many different aspects of the learner such as self-image, confidence, learning, and attitude towards a subject or course [15, 31]. Again, classroom climate has been found to have a relationship with student learning [28]. Moreover, students' perceptions of the classroom assessment climate have been thought to influence students' motivational beliefs and achievement-related outcomes. This conclusion has been drawn after empirical studies that examined elementary, middle, and high school students as well as for college-level students e.g., [9, 13, 27] reported so. Aside the numerous reported impacts of classroom assessment climate on learners, one other issue about assessment in the classroom that needs to be investigated is how student goal orientation and engagement may have changed. When students' goal orientation is mastery, they are likely to persist on completion of a task in the face of difficult events, they also seek challenging activities and have high intrinsic motivation. Further, individuals with mastery goal orientation tend to employ deep learning strategy, have long term retention of information, and display appropriate help seeking behaviors as well as adaptive attributional patterns of success and failure [4, 32]. It is therefore more convincing and reasonable to be curious about the connection that this educational outcome (i.e., mastery goal orientation) would have with classroom assessment climate.

2. Literature Review

As a concept relative to learners' academic motivation, self-efficacy has gained increased acceptance in classroom assessment research as a valuable student outcome to be concerned and worked on [8]. It relates to a learner's judgments of his or her performance capability on a particular type of assessment task. Studies have shown that self-efficacy has an influence on students' choices of assessment tasks, their effort, and persistence [2, 25]. Those students who have high self-efficacy go through demanding tasks regularly and have tendency to gain higher than students with low self-efficacy [15]. On the other hand, those students who have low self-efficacy stop continuing their attempts in the case of failure which reduces their success and sense of self-efficacy. If self-efficacy can indicate the direction of a person's behavior, then one can think of the fact that if there is a connection between assessment climate and students' intrinsic motivation to face challenging tasks (mastery goal orientation), then the curious mind would want to know whether that was made possible by self-efficacy? This study is set out to uncover the mediating role of self-efficacy in the relationship between assessment climate and mastery goal orientation. In developed jurisdictions like USA, Canada and China, several studies have been done on the issue of assessment climate relationship with students' self-efficacy and not on mastery goal orientation. For example, in the USA and Hong Kong, Hanke [19] conducted

a study where he explored that relationship between assessment climate and students' self-efficacy. After taking both data from about 1309 students, the results showed significant and positive associations between assessment learning climate and students' self-efficacy. In a similar study conducted in Singapore, Joo, Lim and Kim [21] discovered a significant relationship between assessment learning climate and students' self-efficacy. The foregoing study finding aligned with that of Ferguson and Dorman [17] whose study revealed that various critical classroom environment dimensions were related essentially with academic self-efficacy. Clearly, based on evidence around that world, classroom assessment climate seems to have some connection with self-esteem scores. However, there is a paucity of knowledge regarding clear connection of assessment climate and mastery goal orientation and the role of self-efficacy. The only extant study on the direct and indirect effect of assessment climate on mastery goal orientation was Alkharusi [1]. Even though Alkharusi made use of sound statistical procedures in the analysis of the data, his inability to take study samples from varied students population context (i.e., several campuses) but from a single university clouds the true picture of the role of self-efficacy and also limits the generalizability of his study findings. In this study classroom assessment climate was hypothesized to influence mastery goals both directly and indirectly through self-efficacy using data from ten Colleges of Education, institutions in Ghana.

In Ghana, a prime vision that has been shared by various successive governments on education has been the desire to raise quality of teaching and learning for effective outcomes. Assessment is often considered as the driving force of classroom learning [14]. Hence, it becomes even more crucial the kind of assessment climate that teachers create for their students. Assessment climate studies in western world have reported that good assessment climate fosters positive learning outcomes among students [19, 15]. Determining if there is a relationship between classroom assessment climate and students' goal orientation may lead to changes that foster an improved cognitive and emotional engagement among students in higher education institutions. Further, the results of such a correlation study may furnish practitioners with the requisite information on how classroom assessment climates have behaved and the need to strictly adhere to standard practice of classroom assessment. In the wake of the up listed benefits, it appears over the years, Ghanaian researchers' attention had not been on assessment climate and mastery goal orientation nexus but on general assessment practices of teachers [3, 20, 6, 26], assessment strategies used by teachers [24, 5], and impacts of regular classroom assessment on students' achievement [30]. Even though these studies make inputs in terms of how teachers (i.e., at all levels) have dealt with the issue of assessment in contemporary times, the knowledge vacuum still exists in terms of assessment climate being created by daily practice of assessment and its connection with students' mastery goal orientation. This current study therefore sought to investigate the two variables (i.e.,

assessment environment and mastery goal orientation) nexus. Further, the desire of this study was to investigate whether the

hypothesized connection between the two variables are direct or indirect through academic self-efficacy.

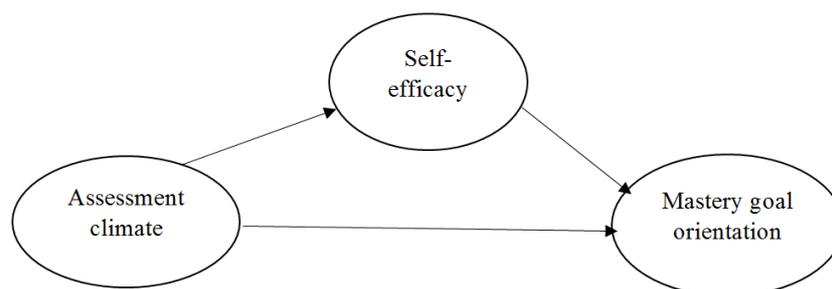


Figure 1. Conceptual model of the mediating role of self-efficacy in the relationship between assessment climate and mastery goal orientation.

2.1. Conceptual Framework and Hypotheses

Figure 1, depicts the hypothesized model of assessment climate impact on mastery goal orientation through a third variable, that is, students' academic self-efficacy. The conceptual model acknowledges the possibility of assessment climate having a direct effect on students' intrinsic motivation to succeed in the face of academic difficulties (i.e. mastery goal orientation). Again, the study model upheld the there is a possibility of classroom assessment climate having an indirect effect on the mastery goal orientation of students through their academic self-efficacy. What is predominantly known is the statistical connection between assessment climate and self-efficacy [19, 15], and the indirect effect of assessment environment on mastery goal orientation in Oman [1]. This current study further explores the utility of the hypothesized model by using data from Ghana. To address the aim of the study, the following hypotheses were posed to guide the study.

2.2. Hypotheses

1. H_0 : Assessment climate will not significantly predict mastery goal orientation of respondents.
 H_1 : Assessment climate will significantly predict mastery goal orientation of respondents.
2. H_0 : Assessment climate will not have an indirect effect on goal orientation through self-efficacy.
 H_1 : Assessment climate will have an indirect effect on goal orientation through self-efficacy.

3. Method

The hypothetical nature of the variables involved in this study with particular reference to how they will be measured and analysed makes quantitative line of inquiry necessary for this study. Ontologically, objective measurement of the variables involved in this study are assumed.

3.1. Design

The study sought to investigate the effect (that is, both direct and indirect) of assessment climate on the mastery goal orientation of samples from Colleges of Education

institutions in Ghana. In order to secure appreciable numbers to be able to get a better view of the current trend of the issue under investigation, descriptive cross-sectional survey design was deemed appropriate.

3.2. Participants

Students at Colleges of Education institutions within the Central, Eastern and Western regions of Ghana were targeted due to the fact that quite substantial number of colleges are located within the selected regions. In these three regions, simple random sampling approach (specifically, random numbers) was used to select two colleges each. In all, six colleges (name withheld) were selected from the southern part of Ghana. Utilizing disproportionate quota sampling method, a total of 254 students were selected to serve as the study participants. The number of participants who were males were 154 and their counterpart females numbered 100. Quota sampling method was used because the study assumed that appreciable number of participants from each institution taking part of the study was worthwhile to aid 'statistical representativeness' of the numbers from each institution. This is to say that the phenomenon of interest under investigation was nowhere going to be affected by the numbers coming from each institution since respondents had equal characteristics relevant for the study.

3.3. Measures

The study made use of three instruments for data collection exercise. Classroom Assessment Environment Questionnaire (CAEQ) developed by Alkharusi [1] was adapted and used for the purpose of measuring classroom assessment climate. The questionnaire had 18-items with responses on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores reflecting greater agreement with the statement. The internal consistency reliability (i.e., Cronbach Alpha) of the CAEQ was .78. Achievement Goal Questionnaire-Revised (AGQ-R) by Elliot and Murayama [16] was also adapted and used. The AGQ-R questionnaire had 3-items with responses on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). This questionnaire measured students'

mastery goal orientation. Internal consistency coefficient was .68 as assessed by Cronbach's alpha. The third instrument was a 6-item Self-Efficacy Scale developed based on suggestions in the literature [18; 23]. The SES was used to measure students' perceptions of their competence to carry out successfully all academic tasks that were assigned them. The instruments were pilot tested using fifty (50) College of Education students in Brong East. The pilot test data was used to refine the items for clarity, face and content validity sake.

3.4. Procedures

Formal permissions were sought from gatekeepers within the selected Colleges of Education campuses. Participants were made to sign consent form and they were as well assured of confidentiality and anonymity. After exhausting all ethical protocols, the researcher together with three other research assistants used four weeks to administer the questionnaires to the respondents. Hypotheses one and two were tested using Andrews Hayes Process mediation analysis.

Table 1. Predictions of assessment climate, self-efficacy and mastery goal orientation.

Model		b-value	SE	t-value	p-value	R ²	F	Model df1	Summary df2	p
1	Constant	6.07	1.35	4.503	.000*	.361	143.298	1.000	254.000	.001
	A. climate	.57	.048	11.970	.001*					
2	Constant	13.20	1.31	10.045	.000*	.233	76.958	1.000	254.000	.000
	A. climate	.154	.011	13.808	.000*					
3	Constant	13.84	1.36	10.175	.000*	.242	40.28	2.000	253.000	.000
	A. climate	.47	.06	8.08	.000*					
	Selfefficacy	-.11	.06	-1.73	.08					

Criterion: Model 1-MG orientation; Model 2- Self-efficacy; Model 3- Assessment climate.

*Significant @.05 Alpha level.

Table 2. Total Effect, Direct Effect and Indirect Effect.

	Effect	SE	t-value	p-value	Confidence Lower Limit	interval Upper Limit
Total effect of X on Y	.410	.047	8.773	.000	.318	.508
Direct effect of X on Y	.471	.058	8.082	.000	.356	.585
Indirect effect of X on Y	Effect	Boot SE	BootLLCI	BootULCI		
Self-efficacy (M)	-.061	.039	-.138	.017		

X-Assessment climate; Y- Mastery goal orientation. Sig. @.05 level.

4. Results

H₀: Assessment climate will not significantly predict mastery goal orientation of respondents.

The hypothesis sought to examine whether classroom assessment climate will explain students' mastery goal orientation. Conceptually, this hypothesis investigated the direct effect of classroom climate on mastery goal orientation of students. The investigation was aided by Hayes mediation analysis and summary of results are shown in Table 1. Results indicated that assessment climate is a significant predictor of mastery goal orientation $b = .57$, $t(254) = 11.970$, $p = .001$. In effect, this is to say that, the perception that the respondents (students) have about their assessment environment do affect students purpose of engaging in academic behaviour and to persist in it even in the face of difficult events (mastery goal orientation).

H₀: Academic self-efficacy will significantly mediate the relationship between assessment climate and mastery goal orientation.

The hypothesis investigated the possibility of assessment climate affecting mastery orientation through students' academic self-efficacy. The analysis was done using Hayes mediation analysis. Results of the study found a statistically

significant total effect of assessment climate on students' mastery goal orientation CI (.318, .508), $b = .410$, $p = .000$. Again, there was a significant direct effect of assessment climate on students' mastery goal orientation CI (.356, .586), $b = .471$, $p = .000$. Further, it was evident from the results that "self-efficacy of the students" did not significantly mediated the relationship between assessment climate and mastery goal orientation of students, BootCI (-.138, .017), $b = -.061$. The results imply that self-efficacy of the students does not in any way explain the relationship between assessment climate and students' mastery goal orientation.

5. Discussion

In a school context, assessment permeate every aspect of school activities. For example, teachers access to previous assessment information about learners inform him/her content to teach, where to emphasize and activities or skills that are relevant for students to master. The study had a hypothesis that sought to explore whether assessment climate (environment) can statistically predict students' mastery goal orientation in the Ghanaian context. Findings of the study revealed that assessment climate was a significant predictor of mastery goal orientation. Classroom assessments environment created by the evaluation activities of the teacher affect their students'

mastery goal orientation. Further, this implies that, the purpose, the kind of activities as well as the feedback of assessment do explain students' ability to persist in the face of difficult events, seek challenging activities, have high intrinsic motivation, employ deep study strategies, have long term retention of information. The findings of this study corroborates with that of Alkharusi's [1] study which also discovered that university students in Oman's perception of assessment environment had a predictive relationship with mastery goal orientation of the same students. Other studies also support the fact that assessment environment within a particular classroom context tend to promote important learning outcomes [19, 15]. The assessment climate and mastery goal nexus is not surprising because when teachers make use of assessment procedures that tend to stimulate innovative learning among students, the student would in effect gain the skill of self-motivated learning. Students with high mastery goal orientation have high intrinsic motivation toward academic work.

The second hypothesis also sought to examine whether self-efficacy mediate the relationship between assessment climate and mastery goal orientation of the respondents. Findings showed that self-efficacy of the students did not significantly mediate the relationship between assessment climate and mastery goal orientation of students. In other words, the study did not discover an indirect effect of assessment climate on mastery goal orientation through self-efficacy. This implies that students' perception to deal well with academic task(s) does not in any way explain the connection between the assessment environment created within the classroom context and the students' mastery goal orientation. Contrary to the fact that in the academic literature there is an evidence of self-efficacy mediating effect [1], this present study did not discover such an influence of self-efficacy probably because of variations in the study context. In the Ghanaian context, most student have the mindset of 'study to pass', especially, because of the stakes attached to tests forms in Ghana and so there is less attention paid to mastery of content which bring high sense of efficacy on the part of the students. The attention therefore is on strategies that help learners to pass their examinations and not so much of learners' judgments of their performance capability. Further, unlike Alkharusi's study that made use of students from a single university which predisposed the study to measuring assessment climate from a single pool of students, this current study took data from several colleges which in an extension represent heterogeneous views of students from different academic context. The foregoing dynamics definitely may have implications for the outcome of the study which is novel from what is known in the literature. However, the current study still discusses and acknowledge the impact of students' self-efficacy believes on learning outcomes [2, 25].

6. Conclusions

Based on the findings of the study, the study can conclude

that assessment practices of college tutors that involves having a purpose for assessing your students, choosing appropriate method and giving of prompt assessment feedback create an atmosphere that stimulate mastery goal orientation among college students. Further, the study can conclude that learners' judgments of their performance capabilities play little to no role in explaining how classroom assessment milieu affect mastery goal orientation. These conclusions have implications for classroom instructional practices.

7. Recommendations

The study provides the following recommendations for policy and practice:

- 1) Higher education institution's instructors (i.e. tutors and faculty) should as a matter of priority pay attention to their assessment practices. Conscious effort should be tailored toward the use of assessment methods that stimulate innovative learning among students.
- 2) For the purpose of promoting and sustaining an assessment environment that affect classroom behavior (such as mastery goal orientation), management of academic environment should as a matter of policy institute measures that would expose and updates tutors on state of the art assessment regime that builds motivational believes among students.
- 3) Difficult and less meaningful assessment tasks with unattainable assessment standards and criteria which merely emphasizes the importance of grades rather than learning should be avoided by tutors since it has the potency to discourage students from pursuing mastery goals.

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