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Motivation, Engagement, Learner Regulation: A Critical Glance at the Quantitative Paper by Kim et al.

I have reviewed the article “From Motivation to Engagement: The Role of Effort Regulation of Virtual High School Students in Mathematics Courses” published by Kim, Park, Cozart and Lee (2015). I have critiqued the article and will provide information about areas of strengths and areas of limitations in terms of methodological structure of the study as well as its composition and style, based on the checklist for evaluating the process of a quantitative study by Creswell (2012, p. 286) and the evaluation insight in Tuckman (1999).

A Brief Summary of Kim et al (2015)

Kim, Park, Cozart and Lee (2015) investigate the differences between low-performing and high-performing students' changes in motivation, engagement and regulation in a virtual high school setting specifically in mathematics courses throughout the semester. The authors' research question addresses the issue of how low performers' and high performers' beliefs about success, intrinsic motivation, interest in subject matter, as well as emotions might influence their achievement. Their correlational research question focuses on how low performers and high performers differ in terms of motivation, engagement and regulation some of which depend on variables like self-efficacy, intrinsic value, effort regulation etc. First, an important component of this study is the way they explained that engagement does not entail motivation and vice versa. Even though some students were not interested in the subject matter, for getting a good grade they might try hard. However, even if they get a good grade, this does not necessarily mean that they are motivated, which addresses the researchers' point of departure. In the correlational study the convenience sample is drawn from southeastern United States. Participants were 100 students who were enrolled in a self-paced virtual high school. They were administered Motivated Strategies for Learning Questionnaire (MSLQ) four times throughout the semester. MANOVAs were used to analyze the attitudes of the students and their relationship to achievement. Researchers divide

the students' achievement level into low, middle and high performers depending on the final grades. Researchers found that throughout the courses, high performers maintained higher self-efficacy whereas the level of motivation and effort regulation of both low performers and high performers decreased. Due to the increase of the number of online courses, raising an awareness about the interrelation among student behaviors towards subject matter, engagement, motivation, regulation and performance are essential implications of this study.

Critique of Kim et al (2015)

The title of the study reflects what issue is examined and includes dependent and independent variables. Through the use of the term virtual high school, the title gives us information about the site for the study and the age level of the participants. However, from the title itself, it is not possible to say whether the study focus is a comparison or a relationship among groups, which is an information that is supposed to be present according to the quantitative article evaluation checklist on page 286 in Creswell (2012). As the study is correlational, it would be helpful to use the term relation in the title. The authors express the research question and the problem statements clearly by explaining the limitations of a virtual high school in terms of absenteeism. Two sections follow the introduction and they identify engagement and transformation of engagement into motivation. These elements give the reader the definitions of the key concepts in the study. As an addition to the descriptions of these variables, it would be helpful to see more detailed information for the scale terms such as self-efficacy, intrinsic value, effort regulations and so forth to enrich the construct validity of the study. Although the authors provide a table with the definition of the variables, their operational definitions lack answers for deeper questions of the reader. Specifically, the major term motivation is not defined as comprehensive as is usual for, although it is a multi-layered and complex notion. The literature review includes recent and past research including some seminal studies, which is excellent. However, the length of the literature review is not as usual for a journal article. Considering the space limitations of the journal, I suppose the authors preferred to keep literature review short. However, I would expect to see more harmonized ideas and assumptions in the literature review which could be done by reducing the size of some statistical tables.

In method section, the authors provide a procedure section to describe the recruitment steps, which is written well and detailed enough. They use convenience sample, and the participants were 100 students who were enrolled in self-paced asynchronous mathematic courses in southeastern United States. Although the authors describe some characteristics of their participants such as gender and race, some critical information is missing about the students such as family income and achievement level. Specifically, the family income might have had an effect on the motivation of the students. They could have provided some information about

the external validity for facilitating the work for further studies. The instruments that were chosen for this study seem appropriate. The participants were enrolled in different types of courses each of which had a different difficulty level, which I think is a threat to the construct validity. The difficulty of the mathematics courses would vary. Thus, I suggest that the authors should select their participants from the same courses to increase the validity of the results. MANOVAs were used to analyze their data and The Achievement Emotion Questionnaire in Mathematics (AEQ-M) to measure the emotional engagement. They do a great job in indicating the scale reliability of the AEQ-M as .93 for their current study. The achievement was measured using the students' final grades which are determined by discussions, assignments, quizzes, tests and the final exam. I think, their measurement method fits well for the research problem. They used repeated measurements to investigate differences of motivation, regulation, engagement between high performers and low performers. The authors use three different measurements for different kinds of variables. However, they did not talk about any bias or error that were or were not controlled for, which weakens the study. According to the criteria for evaluating quantitative research, the authors do not mention extraneous effects or whether it is controlled, which would give the reader information about the bias effect on the participants or generalization of the results (Tuckman, 1999).

In results section, the authors use tables to demonstrate the findings of the study, which is convenient and seems to increase the readability. These illustrations they utilize are also helpful in understanding the analysis. The researchers have found a meaningful difference in particular variables (motivation, engagement, effort regulation) between the low performer and high performer students. Therefore, the comparison results of the study meet the expectation of the researchers. Apparently, the statistical models chosen are consistent with the research questions and variables for this study. Also, researchers mention the small effect size, which is appropriate to justify the accuracy of their findings.

The discussion section explains the results in a clear way. Researchers relate their results back to the articles that they reviewed, and the consistency of the results and assumptions makes the study results stronger. Next, they mention the limitations and implications of their study which convey their main idea clearly. Overall, the article is written clearly and well-organized. The authors' message about awareness with regard to variables like motivation, engagement and regulation and importance of support would be beneficial for the consideration of teachers in enhancing the students' achievement. Researchers point out that further research needs to be done, but they do not emphasize the limitations of their study in detail. Besides mentioning the sample size, social factors and individual differences as the constraints to furthering the study, they could have talked about external and internal validity issues. Additionally, though the authors mention the lack of social presence in the virtual high school in the literature review section, they do not have any substantial inference or examination about this problem, which would be very

interesting to see within the article. They do an excellent job in pointing out social presence as a limitation which might be a good start for future studies. It would be interesting to see additional information and studies about social presence as well as the influence of social absenteeism in the virtual high school, since these schools seem to be growing in the United States.

Overall, the article has a good transition between sections, which helps the reader. The length of the sections is appropriate, although there are some areas in which supplementary information would be beneficial. In general, operationalization could be more detailed and deeper since the dependent variables are complicated elements. The separation between the sections facilitates the readability. The authors have a strong results section. In brief, the structure of the study is consistent with the topic. The study cannot be used to generalize to other populations. If the same study were conducted with different populations, results would be different due to the influence of the social factors on the dependent variables. Therefore, the study is not replicable.

References

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