

COLLEGE Student Course Engagement in Physical Education in Region XII: A Structural Equation MODEL

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ABSTRACT

Numerous dimensions affect course engagement in Physical Education among college students in state universities and colleges in Region XII. Hence, this study was conducted to find the best fit model for college student course engagement. Descriptive correlational research design using a purposive sampling stratified technique was used in determining the schools and cluster sampling in choosing the study respondents. Adapted survey questionnaires were used, which underwent reliability testing in the local context. Mean, standard deviation, and multiple linear regression were used in statistical analysis. Likewise, to generate the best fit model for college student course engagement, structural equation modeling (SEM) was used. The results revealed that the level of need for support of teachers, student's motivation and self-regulated learning strategies were high. Furthermore, the need for teachers, motivation of college students and self-regulated learning strategies were directly significant in predicting college student course engagement in physical education classes. The best fit model yielded good results as indicated by the indices of goodness fit. As, need for a teacher has a direct influence on college students' course engagement in PE. Also, Self-regulated Learning Strategies has a direct influence on college students' course engagement in PE. On the other hand, motivation did not have a direct effect on college student engagement in PE.

KEYWORDS: *Physical education, motivation, self-regulated learning strategies, course engagement, structural equation model, Philippines*

INTRODUCTION

College student course engagement is crucial when examining students' discipline and academic performance (Abdullah & Chik, 2018; Bernstein, 2022). As Dörnyei (2018) emphasized, student course engagement is participation in school activities and academic tasks. However, Ennis (2015) discovered a significant decline in students' course engagement in PE at school. Williams et al. (2021) surveyed students' course engagement in physical education class-related activities in the United States. According to the survey results, 47 percent of students are highly engaged, 29 percent are not engaged, and 24 percent are actively disengaged. The survey found a gradual and steady decline in student course engagement due to poor student participation. Likewise, Yoo (2015) reported a significant reduction in students' academic performance in Korea due to a lack of course engagement in PE activities.

The deterioration of students' course engagement in PEPE is also a significant concern in the Philippines. According to Bailon et al. (2018), actively inspiring students to engage in PE classes is generally challenging for physical education teachers. Meanwhile, Bendejo and Gempes (2019) discovered that student course engagement in any PE-related activity is quite low in Region XII. Hence, many Filipino students opt to leave school early because they do not want to attend PEPE classes.

Research in school settings has found that course engagement in PEPE classes predicts students' task and activity choices, persistence in performance conditions, and attitude toward the topic (Meiji, 2019). It also influences students' academic achievement and physical activity patterns in PEPE classes (Charkhabi et al., 2019).

Further, student motivation plays a significant role in one's course engagement (León et al., 2015). Furthermore, motivation is a process that accounts for a student's interest and its impact on their learning engagement. Similarly, Steinmayr (2019) discovered that motivated college students tend to demonstrate initiative, engage in work tasks voluntarily to practice their skills, and strive to attain learning goals.

Likewise, self-regulated learning is critical to an individual's course engagement. It encompasses the learner's behavior to assess their development by employing strategies to improve their course engagement and achieve self-defined goals (Durán-Sánchez et al., 2018; Zimmerman, 2018). Moreover, Susaki and Sugiyama (2017) found that self-regulated learning interventions enhance students' course engagement in physical education classes. Similarly, Aristovnik et al. (2020) and Carter et al. (2020) concurred that self-regulated learning strategies are more frequently employed by highly engaged students in PEPE classes than by less engaged students.

Meanwhile, despite the many studies conducted showing the relationships between the need for support from teachers and students' course engagement in PEPE classes (Bonk, 2016; Luo et al., 2017), teacher support and self-regulated learning strategies (Gonida et al., 2019; Laxdal et al., 2019), and self-regulated learning strategies and students' motivation in PEPE classes (Sasaki & Sugiyama, 2017; Tay, 2015), most of these investigations are limited to two-variable or bivariate relationships only. Unfortunately, little is known about research investigating numerous components or variables that may predict students' course engagement using structural equation modeling (SEM): the need for teacher support, students' motivation, and self-regulated learning strategies. Furthermore, studies that give a structural or best-fit model of course engagement are scarce, particularly in the Philippine context. This scenario necessitates this study to clarify and explain this gap. As a result, this paper may significantly contribute to the existing body of literature on the topic. Also, this study's possible outcomes and findings could assist educational institutions in developing educational policies, plans, programs, and activities designed to uphold college students' course engagement in PEPE classes.

In addition, the anticipated findings of this study have the potential to provide a valuable framework for shaping college students' course engagement toward Physical Education, providing language educators and curriculum designers with practical insights. Also, the findings of this Structural Equation Model (SEM) study may be disseminated to the PEPE students in Region XII, educators, academic institutions, the faculty-research committee, technical panel members, the research ethics committee, editors, scholars, and other educational organizations. Finally, the results of this study can also be presented at local, regional, national, and international conferences and translated into publishable articles so that more people may benefit from the study.

Theoretical Lens

Self-Determination Theory (SDT) by Deci and Ryan (1985) is a prominent framework that could be applied to explain the influence of need support from teachers, student motivation, and self-regulated learning strategies on college students' course engagement. SDT posits that individuals have an inherent inclination towards personal development and satisfaction of their basic psychological needs, including autonomy, competence, and relatedness. Teachers who offer support for these requirements are more inclined to cultivate inherent drive in their students. Autonomy support refers to the act of giving students choices and recognizing their viewpoints, whereas competence support involves presenting them with difficulties that are accompanied by suitable

assistance and feedback. Relatedness support entails establishing a nurturing and all-encompassing educational setting in which students experience a sense of connection with both their classmates and teachers. When these demands are fulfilled, students are more inclined to feel elevated levels of motivation and involvement in their studies.

Moreover, within the framework of SDT, intrinsic motivation is seen as the most self-directed type of motivation, in which individuals participate in activities for their innate pleasure and fulfillment rather than external incentives or influences. Students that possess intrinsic motivation are more inclined to embrace self-regulated learning practices. Self-regulated learning encompasses the active monitoring, control, and regulation of students' cognition, motivation, and behavior with the aim of achieving academic objectives. These strategies encompass goal setting, devising plans, assessing progress, obtaining assistance when necessary, and adjusting strategies depending on feedback. Students that possess intrinsic motivation and utilize self-regulated learning strategies are more inclined to be fully engaged in their schoolwork, as they possess a true desire to learn and actively participate in the learning process.

Furthermore, the interplay between need support, motivation, and self-regulated learning strategies can provide a positive feedback loop that amplifies course engagement. When teachers provide need-supportive environments, students are more likely to feel motivated to engage in their coursework. This motivation, in turn, facilitates the adoption of self-regulated learning strategies, leading to increased academic success and further reinforcing students' motivation and engagement. Thus, according to SDT, the combination of need support from teachers, intrinsic motivation, and self-regulated learning strategies plays a crucial role in fostering college students' course engagement and ultimately, their academic achievement.

METHODS

This study employed a quantitative-descriptive correlational research design to achieve its objectives. This approach measures two or more relevant variables and assess a relationship between or among them. (Schmitz, 2012). Descriptive correlative was fit to use because the researcher wanted to describe and examine the relationship between the need support of teachers, learning styles, motivation and course engagement in physical education classes.

In addition, the investigation used Structural Equation Modeling (SEM) to come up with a best fit model college students course engagement in PE (endogenous variables) and need support of teachers, self-regulated learning strategies, and motivation (exogenous variables). More so, SEM analyzes the

complex relationships among variables of the study as it allowed the researcher to diagnose which observed variables were good indicators of the latent variables (Brown & Cudeck, 2019; Loehlin, 2017).

This study was conducted in SOCCSKSARGEN an area in Central Mindanao specifically the universities and colleges in Region XII that serve as centers of development or have the potential to become future centers of excellence labeled as SUC A, SUC B, SUC C, SUC D, SUC E and SUC F.

This study included a total of 500 college students in the six selected state universities and colleges in Region XII who served as respondents. Further, stratified random sampling with equal allocation was employed to identify the number of respondents for each identified state universities and colleges. The respondent must be a bonafide college student enrolled during the first semester of school year 2023-2024 he or she must be from the selected SUCs, which represent the north and south portions of Region XII he or she must have PE subject and he or she must be willing to participate in the study. The study was reviewed and approved by the institutional ethics board under protocol code GS-0009-09-23.

In addition appropriate statistical tools like the mean was used to measure the level of need support of teachers, motivation, self-regulated learning strategies and college students course engagement. Likewise, standard deviation (SD) was used to measure the dispersion of a set of data from the mean. The higher the distribution of variability, the greater the SD, and the more significant the magnitude of the deviation of the mean's value. Further, Pearson product moment correlation was utilized to determine the significant relationships among the exogenous variables, need support of teachers, motivation and self-regulated learning strategies to the endogenous variable, course engagement. Furthermore, multiple regression analysis was used to ascertain the predictive power of need support of teachers, motivation, and self-regulated learning strategies on college students' course engagement in PE classes. Also, Structural Equation Model (SEM). The Structural Equation Modeling (SEM) was used to establish the best fit model towards college students' course engagement in PE classes.

RESULTS

Level of Need Support of Teachers

Table 1

Level of Need Support of Teachers

| Indicators | Mean | SD | Descriptive Level |
|---------------------|-------------|--------------|--------------------------|
| Autonomy Support | 3.98 | 0.830 | High |
| Competence Support | 4.04 | 0.880 | High |
| Relatedness Support | 3.96 | 0.866 | High |
| Overall Mean | 4.00 | 0.827 | High |

Table 1 presents the results of the study on the level of need support of teachers in terms of autonomy support, competence support and relatedness support. The overall mean for need support of teachers is 4.00 which is described as high. Meanwhile, the overall standard deviation is .827 less than 1.00 which represented uniformity of responses from the participants near the mean value and implies that the responses are not so disperse from each other. Moreover, the indicators autonomy support, competence support, and relatedness support are at a high level, with a mean of 3.98, 4.04, and 3.96, respectively. The overall high-level need support of teachers denotes that this is oftentimes evident. Also this denotes that need support that teachers provide plays a crucial role in the student's overall well-being as well as their learning engagement, motivation, and academic achievement. The finding is congruent with the findings of Vansteenkiste et al. (2020), who similarly discovered that college students become more motivated to overcome obstacles and endure challenging activities when high-need support from teachers is provided. Tze et al. (2021) also agreed that students generate a sense of belonging and inclusion when the teacher provides high-level of need support.

Level of Motivation of College Students in PE Classes

Table 2 reveals the level of motivation of college students in physical education classes in terms of amotivation, external regulation, introjected regulation, identified regulation, and intrinsic motivation. The table shows that the overall mean of motivation of college students in PE classes is 3.29, described as moderate or sometimes manifested, while the standard deviation is .661 which means that the mean rating given by the respondents is most likely close to one another. This suggests that motivation is an important factor in making students enjoy PE-related activities. This also increases student's

excitement for learning new skills. This result conforms with the findings of Hagger et al. (2021), which found that highly motivated students are more likely to demonstrate positive behaviors which are important not just for physical education success but also for achievement and personal development. Similarly, this supports the study of Carson et al. (2021) which discovered that students who are highly motivated in PE are more likely to develop a long-term habit of physical activity.

Table 2

Level of the Students Motivation

| Indicators | Mean | SD | Descriptive Level |
|------------------------|-------------|--------------|--------------------------|
| Amotivation | 2.39 | 0.948 | Low |
| External Regulation | 3.06 | 1.016 | Moderate |
| Introjected Regulation | 2.83 | 1.010 | Moderate |
| Identified Regulation | 3.94 | 0.949 | High |
| Intrinsic Motivation | 4.45 | 0.994 | High |
| Overall Mean | 3.29 | 0.661 | Moderate |

Moreover, among the indicators, intrinsic motivation got the highest mean of 4.25, described as very high. With this result, it can be noted that intrinsic motivation is always manifested by the college students. This shows that college students take part in PE because it is engaging, exciting, and a great way to master new skills. This is consistent with Deci and Ryan's (2020) finding that when students have high intrinsic motivation, they are more likely to exhibit sustained interest, effort, and excitement for physical activities. Also, it affirms the findings of Martin (2020) which revealed that students who are intrinsically driven are more likely to regard physical education as pleasurable and personally meaningful rather than a burden or obligation. Meanwhile, the indicator Amotivation. has a category mean of 2.39, described as low. The findings align with those of Smith et al. (2023), who found that students who thought PE was a waste of time had a mean rating of 1.91, suggesting a low degree of agreement with the importance or usefulness of PE. This remark reflects a lack of motivation or interest in the activities included in the PE curriculum. Also, the findings are similar to those of Jonhson and Brown (2022), who discovered that students who indicated doubt or ambivalence regarding their motives for participating in PE also exhibited a moderate level of agreement.

Level of Self-Regulated Learning Strategies

Table 3 reveals the level of self-regulated learning strategies among

colleges students in Region XII. This variable has six indicators, namely: goal setting, strategic planning, task strategies, elaboration, self-evaluation and help seeking. Moreover, the table shows that the overall mean of the self-regulated learning strategies is 3.39, described as high or oftentimes demonstrated, while the standard deviation is .728 which means that the mean rating given by the respondents is most likely close to one another. Furthermore, it can be gleaned in the table that all indicators of self-regulated learning strategies are at high level, with a mean of 3.39, 3.92, 3.92, 3.97 and 3.91, respectively. This means that the self-regulated learning strategies of college students in PE classes is oftentimes demonstrated. This demonstrates that self-regulated learning strategies help college students organize study-targeted learning to achieve desired PE goals. This finding aligns with the study of Kim et al. (2021), which revealed that self-regulated learning strategies in PE are very important interventions in targeting specific activities and individual needs of students. This is also in consonance with the statement of Smit et al. (2020) stating that employing various self-regulated learning strategies enhances college students learning in PE. Similarly, it affirms the avowal of Zimmerman (2019) emphasizing the role of SRL in promoting continual learning and skill improvement. SRL promotes continuing personal and professional development by teaching students how to create goals, track progress, and control their learning process.

Table 3*Level of Self-Regulated Learning Strategies*

| Indicators | Mean | SD | Descriptive Level |
|---------------------|-------------|--------------|--------------------------|
| Goal Setting | 3.39 | 0.653 | High |
| Strategic Planning | 3.92 | 0.820 | High |
| Task Strategies | 3.92 | 0.774 | High |
| Elaboration | 3.97 | 0.838 | High |
| Help-Seeking | 3.91 | 0.728 | High |
| Overall Mean | 3.84 | 0.728 | High |

Level of College Student Course Engagement

Table 4 presents the results of the study on the level of college student course engagement in terms of skill engagement, emotional engagement, participation engagement and performance engagement. The overall mean for college student course engagement is 3.88 which is describes as high. On the other hand, the overall standard deviation is .711 less than 1.00 which

represented uniformity of responses from the participants near the mean value and implies that the responses are not so disperse from each other. The overall high-level college student course engagement denotes that this is oftentimes demonstrated. This also indicates that college students enjoy engaging in PE classes because they desire to learn. The findings of this study are comparable to those of Charkhabi et al. (2019), who similarly discovered a high level of course engagement in physical education classes among college students.

Table 4*Level of College Student Course Engagement*

| Indicators | Mean | SD | Descriptive Level |
|--------------------------|-------------|--------------|--------------------------|
| Skills Engagement | 3.94 | 0.769 | High |
| Emotional Engagement | 3.97 | 0.810 | High |
| Participation Engagement | 3.77 | 0.757 | High |
| Performance Engagement | 3.86 | 0.783 | High |
| Overall Mean | 3.88 | 0.711 | High |

Moreover, out of the indicators, emotional engagement got the highest mean of 3.97 described as high. This means that the college student course engagement in terms of emotional engagement is oftentimes demonstrated. This signifies that college students use the concepts they have learned in real life. This further implies that students find all course materials engaging. The foregoing result is in consonance with the statement of Marttinen et al. (2020), stating that promoting positive emotional experiences in physical education can help students promote lifelong physical activity participation and overall well-being. Similarly, it supports the finding of Li et al. (2018), which revealed that emotional experiences during physical education classes can help improve college students' overall engagement and learning outcomes in PE. These positive emotional experiences not only contribute to immediate engagement but also foster long-term interest and commitment to physical activity and healthy lifestyles. Meanwhile, participation engagement got the lowest mean of 3.77, described as high. This means that the college student course engagement in terms of participation engagement is oftentimes demonstrated. This implies that students enjoy participating in class discussions by asking questions for clarification. This substantiates the findings of the study by Ennis (2017), which discovered that participation is frequently a major aspect of establishing a sense of belonging and community in the classroom, which leads to students' overall

engagement and enjoyment with their PE experiences. This also confirms the study of van Brenda and Cho (2018), which exposed that participation acts as a type of assessment and feedback for both educators and students, providing insights into students' comprehension, skill development, and progress toward learning goals.

Significance of the Relationships of the Need Support of Teachers, Motivation and Self-Regulated Learning Strategies to College Student Course Engagement

The significance of the relationship between the four variables of the study is reflected in Table 5. The analysis of the research results reveals compelling evidence supporting the presence of a significant relationship between the need for teacher support and college student course engagement in physical education, as indicated by the p-value that is less than 0.05 for its correlation coefficient, $r = 0.683$. Thus, increasing teacher support correlates with increased engagement among college students in physical education activities. The respondents' recognition of the significant relationship between the need for support from teachers aligns with the findings of Blömeke et al. (2021), who discovered that the need for support can significantly improve college students' involvement in physical education activities. Also, it affirms the study of Han (2017), which found that teacher's support is widely recognized as an effective way to improve college student's engagement in physical education.

Moreover, motivation is observed to have a significant relationship with college students course engagement in physical education ($r=.520, p<.05$).

Table 5

Significance of the Relationship of the Need Support of Teachers, Motivation and Self-Regulated Learning Strategies to College Student Course Engagement

| Variables | R | p-value | Remarks |
|--|-------|---------|-------------|
| Need Support of Teachers and College Student Course Engagement in Physical Education | 0.683 | 0.000 | Significant |
| Motivation and College Student Course Engagement | 0.520 | 0.000 | Significant |

The significant relationship between the motivation and college student course engagement in physical education implies that motivated students actively engage in PE activities. This aligns with the study of Jones and Amorose (2021) which discovered a high association between students' motivation and willingness to engage in physical education classes. Also, it is in parallel with the notion of Hagger and Chatzisarantis (2016) emphasizing the positive correlation between motivation and engagement in physical activities, stressing its influence on prolonged interest and commitment to coursework.

Furthermore, the investigation uncovers a noteworthy connection between self-regulated learning strategies and college student course engagement in physical education, with a correlation coefficient of $r=0.832$ ($p < 0.05$). This implies that the use of self-regulated learning strategies significantly predicts college students' engagement in physical education. As a result, students' engagement in physical education classes increases as they use more self-regulated learning practices. This affirms the findings of Setiani and Wijaya (2020) revealing a favorable and significant relationship between self-regulated learning and student learning engagement. According to them, to maintain student learning engagement and achieve academic achievement, college students must use self-regulated learning when executing their multi-roles. Likewise, it substantiates the findings of Chen and Usher (2016) which discovered a favorable relationship between self-regulated learning and student engagement. Their findings suggested that children who use successful SRL methods, such as goal-setting and time management, have higher levels of engagement in physical education classes. Similarly, it patterns with the proposition of Wang and Castelli (2020) stressing the significance of self-regulation in building autonomous motivation, which in turn favorably improved college students' engagement in physical education activities.

Significance of the Influence of Need Support of Teachers, Motivation, Self-Regulated Learning Strategies to College Student Course Engagement in Physical Education

Reflected in Table 6 is the regression analysis of the significance of the influence of need support of teachers, motivation, self-regulated learning

strategies to college student course engagement in physical education. The regression analysis is used to discover the inter-relationships of the variables and helped in verifying the beta coefficients. Beta coefficient compares the strength of the effect of each individual independent variable to the dependent variable.

Table 6

Significance of the Influence of Need Support of Teachers, Motivation, Self-Regulated Learning Strategies to College Student Course Engagement in Physical Education

| Individual Predictors | Standard Coefficient Beta | T | p-value | Remarks |
|--|-------------------------------------|----------|----------------|-----------------|
| Need Support of Teachers | 0.216 | 6.490 | 0.000 | Significant |
| Motivation of College Students | - 0.008 | - 0.270 | 0.787 | Not Significant |
| Self-Regulated Learning Strategies of College Students | 0.689 | 19.468 | 0.000 | Significant |
| Predictors Combined | Holistic Model R² | F | p-value | Remarks |
| | 0.717 | 421.185 | 0.000 | Significant |

**Significant at 0.05*

Specifically, the standard coefficient of need support of teacher has the beta value of 0.216. This implies that need support of teacher influences college student course engagement in PE. As reflected by p-value of 0.000, the regression model is significant. Thus, need support of teacher has a significant positive influence on the college student course engagement in PE, hence a change in the need support of teacher could mean a change also in the college student course engagement in PE or when the need support of teacher goes up the college student course engagement also goes up. The significant influence of the need support of teachers on college student course engagement in physical education is aligned with the findings of Li et al. (2020), who discovered that the

need support of teachers can significantly influence student participation in the PE classroom. Similarly, it confirms the notion of Otundo and Garn (2019) stating that student-perceived need support, such as autonomy, competence, and related support, can influence students' course participation in PE classes.

Moreover, the standard coefficient of self-regulated learning strategies has the highest beta value of 0.689. This implies that self-regulated learning strategies has the highest degree of influence on college student course engagement in PE. As reflected by p-value of 0.000, the regression model is significant. It means that for every unit increase in the status of self-regulated learning strategies, it corresponds to .689 increase in the status level of college students course engagement. The considerable influence of self-regulated learning strategies on college student course engagement in physical education is consistent with Martin and Liem's (2021) study finding, which stressed the need to include SRL treatments in the physical education curriculum. Their findings showed that tailored interventions to improve self-regulation abilities had a significant influence on academic performance and engagement in physical education courses among college students. Moreover, this supports the findings of recent research (Reeve, 2016; Deci et al., 2017) which discovered that utilizing self-regulated learning practices enhances students' sense of autonomy, leading to heightened engagement and a stronger connection with the subject matter.

Meanwhile, the standard beta coefficient of motivation is -0.008. This implies that motivation did not influence college student course engagement in PE. As reflected by the p-value of 0.787, the regression model is not significant. This implies that other variables had a greater influence on student engagement. This result contradicts the study of Jones and Amorose (2021) discovered a high association between students' motivation and willingness to engage in physical education classes. Similarly, it also negates the idea of Williams et al. (2021) which stressed that motivation is an antidote to encouraging college students to engage in learning. Also, it nullifies the proposition of Langford et al. (2015) stating that motivated college students take initiative to work on activities to practice their talents and strive to engage in learning to accomplish educational goals. However, the strong association between students' motivation and course engagement in physical education contradicted the results of this study, which revealed that motivation had no direct effect on college students' engagement in physical education.

Furthermore, it can be seen in table 6 that the combined influence of need support of teacher, motivation of college student and self-regulated learning

strategies positively contribute to the variations in the level of college students course engagement in PE classes and are significant. Hence, increase in the need support of teacher, motivation of college student and self-regulated learning strategies could mean an increase in the college students course engagement in PE classes or when these independent variables go up, the college students course engagement in PE classes also goes up. These are manifested in the results of the regression analysis where 71.70 percent of the variance of the college students course engagement in PE classes are explained by the three predictor variables combined as indicated by the R Square = 0.717. This also signifies that 28.30 percent of the variation of the display of the college students course engagement in PE classes is attributed to other factors.

Test of Hypothesized Models

Figure 3 shows the test of hypothesized model that is not good fit. It can be gleaned in the model that 18% of the variance of course engagement in physical education can be attributed to the combined influence of need support of teachers, motivation and self-regulated learning strategies.

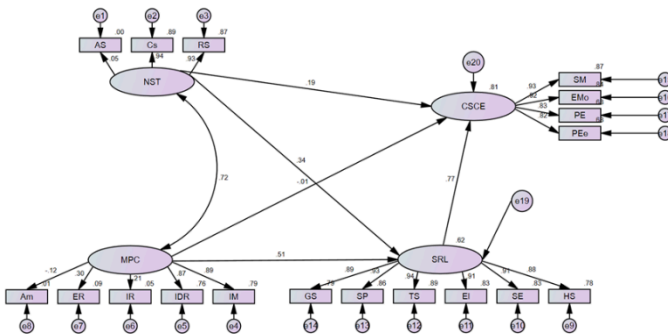


Figure 3. Hypothesized Model

Table 7 displays the goodness of fit values for the hypothesized model: CMN/DF = 7.451, TLI = .888, CFI = .818, RMSEA = 0.113, and p-close = 0.000. The table shows that the CMIN/DF, TLI, CFI, RMSEA, and p-close did not meet the criteria set by each index (CMIN/DF < 3.0), (TLI, CFI > .95), and RMSEA < 0.05, with a PCLOSE > 0.05, indicating that this model is not a good-fit model for college students' course engagement in physical education. The findings contradicted the statement of Arbuckle and Wothke (1999) that CMIN/DF should be less than 3.0, and Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) should be close to 0.95. Moreover, the RMSEA and PCLOSE values

are not supported by MacCallum, Browne and Sugawara (1996) indicating 0.01, 0.05, and 0.08 as excellent, good, and mediocre fit respectively, with P of close fit (PCLOSE) that is greater than 0.05.

Table 7
Goodness of Fit Indices of the Hypothesized Model

| Index | Criteria | Model Fit Value |
|---------|----------|-----------------|
| CMIN/DF | < 3.0 | 7.451 |
| TLI | > 0.95 | .888 |
| CFI | > 0.95 | .818 |
| RMSEA | < 0.05 | 0.113 |
| p-close | > 0.05 | 0.000 |

Best Fit Model of College Student Course Engagement in Physical Education

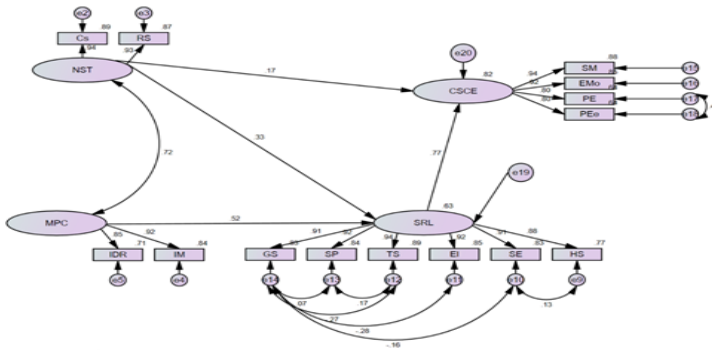


Figure 5. The Best Fit Model of College Student Course Engagement in Physical Education

The model in Figure 5 has satisfied all these criteria, showing that the NFI is 0.982 more than 0.95, and the CFI is 0.990 greater than 0.95. Also, the CMIN/DF, is 2.297 which is less than 3, the GFI is 0.960 greater than 0.95, the TLI is 0.986 greater than 0.95, and the p-Close is 0.429 greater than 0.05. Furthermore, as shown in the Figure 5, the amount of variance explained by the combined influence of need support of teachers, motivation and self-regulated learning strategies on the college student course engagement is 82%. Hence, it can be gleaned that 82% of the variance of the college student course

engagement can be attributed to the combined need support of teachers, motivation, and self-regulated learning strategies.

Table 8 shows the results of the goodness of fit measures of the hypothesized model. All model fit values have successfully met the criteria set by each index (CMIN/DF < 3.0), (TLI, CFI > .90), and RMSEA < 0.08 with a PCLOSE > 0.05. This means that the model fits well with the data and therefore assert as the best fit model of college student course engagement. This is supported by Arbuckle and Wothke (1999) denoting that CMIN/DF should be less than 3.0, and Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI) should be close to 0.90. Moreover, the RMSEA and PCLOSE values are supported by MacCallum, Browne and Sugawara (1996) indicating 0.01, 0.05, and 0.08 as excellent, good, and mediocre it respectively, with P of close fit (PCLOSE) that is greater than 0.05.

Table 8

Summary of Goodness of Fit of the Structural Equation Model

| Index | Criterion | Model Fit Value | Interpretation |
|---------|-----------|-----------------|----------------|
| CMIN/DF | < 3 | 2.297 | Acceptable Fit |
| GFI | > .95 | 0.960 | Good Fit |
| NFI | > .95 | 0.982 | Good Fit |
| TLI | > .95 | 0.986 | Good Fit |
| CFI | > .95 | 0.990 | Good Fit |
| RMSEA | < 0.05 | 0.051 | Good Fit |
| p-CLOSE | > 0.05 | 0.429 | Good Fit |

Legend:

CMIN/DF - Conformity to Masculine Norms Inventory/Degrees of Freedom

GFI – Goodness Fit Index

NFI – Normed Fit Index

TLI – Tucker Lewis Index

CFI – Comparative Fit Index

RMSEA – Root Mean Square of Error Approximation

p-CLOSE – p of Close Fit

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