Core M.Ed. in Elementary, Secondary, & Special Education
Comprehensive Exam Study Guide*

The Core M.Ed. in Elementary, Secondary, & Special Education exams include information from the following M.Ed. core courses:*

✓ History/Philosophy of American Education (EDFD 500)

✓ Educational Administration/Organization of Ed. Systems in the U.S. (EDFD 505)

✓ Educational Research (EDFD 507/508)

*Please contact the Office of the Graduate School at 513-745-3957 or XUgrads@xavier.edu if you did not complete (or are not currently completing) any of the courses listed above. Check your academic transcript carefully as the M.Ed. core has been revised.
In reviewing for the Comprehensive Exam, you should review your notes, relevant handouts, Canvas selections, and appropriate chapters or sections of your text for the course. You should also review or re-familiarize yourself with the following topics and/or key themes:

1. Origins and development of the Common School Movement, including important figures or groups in its establishment, the modernization of common schools (including the development of the “educational ladder” concept that includes the creation of elements like kindergarten, secondary education, higher education, among others), and the current status of common schools.


3. Contemporary theories of education, i.e., pedagogical progressives and administrative progressives, essentialism, perennialism, social reconstructionism, critical theory, culturally responsive teaching, etc.: major tenets and key proponents.

Be able to answer two of the three questions below. The exam has the same questions and you only have to prepare two answers.

1. What is the constitutional basis for the federal government’s role in education? Support your opinion with facts, references, and examples.

2. What is administration? Leadership? What are the major tasks of administration? Discuss administrative theory.

3. What are the major issues in education relative to curriculum, law, and finance?
EDFD 507/508, Educational Research

Study Guide for Comprehensive Exam

Using the sample research paper found after this page be able to answer each of the following questions carefully and completely.

1. This research study attempts to answer two questions. Briefly state these questions.

2. Briefly state the author’s conclusions regarding each of the two questions.

3. Study the results in Table 2. a.) On which item do the students have the most negative feelings about mathematics? b.) Identify one item on which more people had a positive attitude about mathematics than a negative attitude (there are three possible correct answers).

4. Identify a strength of this study. Briefly explain its value to the study.

5. Identify a weakness of this research. Briefly explain how it affects the validity of the study.
A Look at the Mathematics Attitudes of Prospective Teachers in Four Concentration Areas

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The effectiveness of mathematics instruction is being examined on various levels due to the growing concern that the nation’s children, as well as adults, lack competence in the subject. Educational researchers prodded by this concern have investigated various factors thought to be related to success in mathematics with groups which include students in the elementary, junior high and high schools; parents of these various groups of students; prospective teachers of these groups and present teachers associated with these groups of students.

One of the factors which is receiving much attention in relationship to mathematics instruction is mathematics attitude, and one of the groups which is steadily being investigated is prospective teachers. These prospective teachers are generally assessed for mathematics attitude with a Likert-type scale and are usually grouped as education majors.

The purpose of the following study was twofold. The primary objective was to determine if there was a difference in mathematics attitude among prospective teachers interested in one of four concentration areas: Early Childhood (Preschool), Early Childhood (K-3), Intermediate (4-9), and Special Education. Research in this area has been minimal. Early (1970) conducted a study in which he investigated the attitude and achievement in mathematics of prospective teachers choosing either the Early Childhood (K-2) concentration area or the Intermediate (3-6) concentration areas. The results from the study indicated that the groups were significantly different in attitude toward mathematics but not

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achievement in mathematics. No studies were found that included the Early Childhood (Preschool) group or the Special Education group; therefore, the inclusion of these groups in this study is significant.

The second objective of the study was to determine the validity of a Likert-type scale such as the Revised Math Attitude Scale for the particular groups that were included in the study. The Revised Math Attitude Scale was constructed by Lewis Aiken and Ralph Dreger. The instrument measures attitude toward mathematics with opinions ranging from strongly disagree to strongly agree. The scale consists of 10 items which express negative attitudes and 10 items which express positive attitudes. The test-retest reliability of the test has been found to be 0.94 (Aiken and Dreger, 1961)².

PROCEDURE

There were 64 subjects involved in the study. These students were sophomores enrolled in one section of the course entitled “Philosophy of Creativity,” and two sections of the course “Understanding the Elementary Child.” These courses were used because they were requirements for students interested in all four concentration areas. The data was collected during the regular class periods by the instructors and the researcher.

The concentration areas included 19 students who chose Early Childhood (Preschool); 17 students who chose Early Childhood (K-3); 16 students who chose Intermediate (4-9) and 6 students who chose Special Education. Six of the questionnaires had to be discarded because the students failed to identify a concentration area.

The scale was distributed and collected before class. All the students participated and it was later found that the students responded to all the items.

The statistical package used in the analysis of the data was the Statistical Analysis System (SAS). Analysis of variance was used to test the differences between the means of the groups, with a probability level <0.05. The relationship of the items on the Revised Math Attitude Scale was determined by using the Pearson Product Moment Correlation. The frequency of the responses for each of the items on the scale was also determined by a frequency distribution for each item.

FINDINGS

The results from the analysis of variance technique indicated that there is no difference in mathematics attitudes among the four concentration areas: Early Childhood (Preschool), Early Childhood (K-3), Intermediate (4-9) and Special Education. The analysis yielded an F-value of 1.09 which was not significant at the <0.05 level. The results are shown in Table 1, (page 319).

Table 1
Analysis of Variance Results for Attitude

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>3</td>
<td>1525.01</td>
<td>508.33</td>
<td>1.09</td>
</tr>
<tr>
<td>Error</td>
<td>54</td>
<td>25097.47</td>
<td>464.76</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>26622.48</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It was found that the items on the Revised Math Attitude Scale were highly correlated. All the items were correlated at the <0.0001 level. The scale was found to be univariate measuring one concept, mathematics attitude.

The frequency distribution indicated that the responses to the items were clustered around the choices strongly disagree, disagree, strongly agree and agree. This indicated that the scale had content validity since the groups had definite reactions to the items. An analysis of responses and a list of items is shown in Table 2, (page 320).

DISCUSSION

The prospective teachers in the four concentration areas were not found to differ significantly in attitude toward mathematics when their performance was measured using the Revised Math Attitude Scale. These groups, however, appeared to have definite attitudes toward mathematics as indicated by the responses to the items on the scale.

Moderately high percentages were reported in agreement with items 1, 3, 6, 7, 10 and 16. Agreement with these statements indicate that the prospective teachers experience strain in math classes; do not like mathematics, and experience fear when taking it; cannot think clearly when working math; feel insecure when attempting math; feel confused when working math; and feel nervous about mathematics. A moderately high percentage was reported in disagreement with item 18, which indicates that these groups do not like mathematics better than other subjects.

These results indicate that, for the most part, prospective teachers still have unfavorable attitudes toward mathematics. These groups continue to experience strain, dislike, fear, insecurity and confusion when confronted with mathematics.
Table 2
FREQUENCY DISTRIBUTION OF ATTITUDE RESULTS

<table>
<thead>
<tr>
<th>Item</th>
<th>% Disagree/Strongly Disagree</th>
<th>% Undecided</th>
<th>% Agree/Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am always under a terrible strain in a math class.</td>
<td>24%</td>
<td>14%</td>
<td>62%</td>
</tr>
<tr>
<td>2. Mathematics is very interesting to me, and I enjoy math courses.</td>
<td>45%</td>
<td>15%</td>
<td>40%</td>
</tr>
<tr>
<td>3. I do not like mathematics, and it scares me to have to take it.</td>
<td>31%</td>
<td>3%</td>
<td>66%</td>
</tr>
<tr>
<td>4. Mathematics is fascinating and fun.</td>
<td>31%</td>
<td>28%</td>
<td>41%</td>
</tr>
<tr>
<td>5. Mathematics makes me feel secure, and at the same time it is stimulating.</td>
<td>48%</td>
<td>28%</td>
<td>24%</td>
</tr>
<tr>
<td>6. My mind goes blank, and I am unable to think clearly when working math.</td>
<td>17%</td>
<td>17%</td>
<td>66%</td>
</tr>
<tr>
<td>7. I feel a sense of insecurity when attempting mathematics.</td>
<td>27%</td>
<td>9%</td>
<td>64%</td>
</tr>
<tr>
<td>8. Mathematics makes me feel uncomfortable, restless, irritable, and impatient.</td>
<td>28%</td>
<td>15%</td>
<td>57%</td>
</tr>
<tr>
<td>9. The feeling that I have toward mathematics is a good feeling.</td>
<td>38%</td>
<td>19%</td>
<td>43%</td>
</tr>
<tr>
<td>10. Mathematics makes me feel as though I’m lost in a jungle of numbers and cannot find my way out.</td>
<td>28%</td>
<td>10%</td>
<td>62%</td>
</tr>
<tr>
<td>11. Mathematics is something which I enjoy a great deal.</td>
<td>49%</td>
<td>17%</td>
<td>34%</td>
</tr>
<tr>
<td>12. When I hear the word math, I have a feeling of dislike.</td>
<td>38%</td>
<td>3%</td>
<td>59%</td>
</tr>
<tr>
<td>13. I approach math with a feeling of hesitation, resulting from a fear of not being able to do math.</td>
<td>40%</td>
<td>5%</td>
<td>55%</td>
</tr>
<tr>
<td>14. I really like mathematics.</td>
<td>40%</td>
<td>15%</td>
<td>45%</td>
</tr>
<tr>
<td>15. Mathematics is a course in school that I have always enjoyed studying.</td>
<td>46%</td>
<td>14%</td>
<td>40%</td>
</tr>
<tr>
<td>16. It makes me nervous to even think about having to do a math problem.</td>
<td>28%</td>
<td>7%</td>
<td>65%</td>
</tr>
<tr>
<td>17. I have never liked math, and it is my most dreaded subject.</td>
<td>29%</td>
<td>14%</td>
<td>57%</td>
</tr>
<tr>
<td>18. I am happier in a math class, than any other class.</td>
<td>69%</td>
<td>21%</td>
<td>10%</td>
</tr>
<tr>
<td>19. I feel at ease in mathematics, and I like it very much.</td>
<td>43%</td>
<td>14%</td>
<td>43%</td>
</tr>
<tr>
<td>20. I feel a definite positive reaction to mathematics; it is enjoyable.</td>
<td>45%</td>
<td>14%</td>
<td>41%</td>
</tr>
</tbody>
</table>
References
