Perception on Multiple Choice Questions: Its Challenges and Implication
Among Grade 12 Senior High Students of Mindanao State University-Sulu
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ABSTRACT
This study investigated the perception on Multiple Choice Questions: Its challenges and implications among Grade 12 Senior High Students of Mindanao State University-Sulu. Descriptive survey method was used in this study. Random sampling was used to select 100 students, 50 from GAS strand and 50 from STEM strand Grade 12 Senior high school students. The researcher prepared a survey questionnaire to obtain the necessary data. Mean was used to analyze the perceived challenges and implication while an independent T-test sample was used to test the hypotheses at alpha level of 0.05. The following were the highlight of the study: Multiple Choice Questions is a test format only used as an assessment tool during their Quarterly Examinations and it was revealed that MCQ is challenging foremost due to the need to answer critically under time pressure. Consequently, they need to manage their time in order to answer every subject. The challenge of MCQ also lies in the difficulty of the subject. Also, the result revealed the implications of MCQ tends to urge students to answer each subject at limited time pressure students that they experience test anxiety. Meanwhile, there is a need to look into the level of difficulty of the subject matter which requires student rigorous preparation before exam. More so, MCQ develop student's analysis on problem solving which provides them a real time experience of taking major exams and develop time management in studying and strategies in answering as it encourages them to answer with persistence and resilience. The study recommended that the school administration should encourage the applicability of this test format to other colleges in the institution that require licensure examination, setting programs and intervention for the improvements of this endeavour and Creating more research studies.

1. Introduction
In the Philippines, Multiple Choice Questions (MCQs) are used as an assessment tool in conducting and administering national examinations from measuring student’s competency in grade school, admission examinations from high schools to colleges and to licensure examinations to aspiring professionals. Baghaei & Amrahi, (2011) stated that Multiple-choice tests are of considerably widespread use as a means of objective measurement. The main reason behind such popularity is the many dominant advantages associated with multiple-choice tests. They can be used for diagnostic as well as formative purposes and can assess a broad range of knowledge. In addition, they are scored easily, quickly, and objectively either by human-beings or by scoring machines. These and many similar advantages make multiple-choice tests suitable for a wide range of purposes ranging from classroom achievement testing to large-scale standardized tests.

Klufa (2018) points out that regarding entrance examination, multiple choice questions are preferred so that the results of tests can be obtained quickly and there is clearly no impact of any subjective factor in
evaluation. Seeing its relevance to major examinations in the academe like College Entrance Exam and to some extent the exam to be taken by future professional in the Philippines like the civil service exam and other licensure exams, the Mindanao State University Sulu Senior High School took the initiative and used this test format in their quarterly assessment in all subjects for two years. Moreover, the two main strands offered in the said school were Science, Technology, Engineering and Mathematics (STEM) and General Academic Strand (GAS). This couple of year in Senior High school have introduced and exposed students to Multiple Choice Questions Exams and with this, the researcher determine student’s perception as to challenges and implications of this test format to College Entrance Examination.

Furthermore, there have been a wide variety of international research studies by foreign writers on the Multiple Choice Questions (MCQs) on different aspects but few research studies about it conducted in the Philippines. In fact, this kind of test format is used by the Professional Regulation Commission or PRC which serves fortythree (43) various regulated professions of aspiring professionals who take the licensure examinations annually. With this, the researcher found this opportunity to conduct this study.

2. Literature Review

Akyol, Key and Krishna (2014) highlights that the multiple choice test structure is commonly used to evaluate the knowledge of candidates in a wide variety of situations. Its main advantages are to allow more broad evaluation of candidate’s knowledge in a short time, it is easy to grade, and there is no subjective effect of the grader in the evaluation. Because of these properties, it is preferred in both high and low stake exams in many countries. Examples include the University Entrance exam in India, Turkey, Japan, China, and the SAT exam in the US. A disadvantage of such exams is that candidates may attempt to guess the answer without having any knowledge on it. In other exam types, such as short answer based exams, such uneducated responses are unlikely to reap any benefit. As a response to this problem, test administrators may apply negative marking for wrong answers.

In the research of Hohensinn and Baghaei (2017) it was cited that Multiple-choice (MC) test format is the most commonly used test format in large scale educational testing. The ease of administration and scoring and high reliability of MC items are amongst the reasons why MC items are so popular (Baghaei & Amrahi, 2011). However, MC format has also been criticized for being sensitive to several construct-irrelevant factors including testwiseness, number of response options, susceptibility to cheating and guessing, and pattern guessing (Baghaei & Amrahi, 2011). The multiple choice test results are used to allocate students to colleges, to measure effectiveness of schools, teachers, or to allocate an open position. Baker et al. (2010) criticize the use of test results of students to evaluate the value-added of teachers and schools, among other reasons, because of the measurement error that will be generated by random guessing.

According to Jindøich Klufa, Multiple Question Tests are widely used in testing knowledge of students. One of the advantages of such type of test is that the results can be evaluated quite easily even for large number of students. On the other hand, a student can obtain certain number of points in the test purely by guessing the right answers and this fact affects reliability of the test and should be considered in interpretation of test scores. This problem is addressed in education research – see Premadasa (1993), Klufa (2012).

Challenging multiple-choice questions to engage critical thinking

A study conducted by Kerkman and Johnson (2014) posed a question, asserting that multiple-choice questions tend to focus on rote memory rather than comprehension of the subject matter.
or thinking critically about it. The answer was brought into light by the same researchers, Kerkman and Johnson (2014), as they said when students answer multiple-choice questions they do evaluate multiple response options in order to decide how well each solves the problem. Thus, multiple-choice questions would appear to satisfy at least that part of the definition of critical thinking. If multiple-choice questions also posed the opportunity for open-ended responding, such as arguing that the question itself is inherently flawed, or that none of the options is superior to the others, then multiple-choice questions might provide clearer evidence of critical thinking.  

The said study developed the “Question Challenge” policy as a way to deal with students’ complaints about the difficulty of our multiple-choice exam questions. In an effort to avoid “sour grapes” complaints after the students had received their test scores, they informed students that if they thought a question was unfair, they could write a challenge to the question before they knew whether or not they got it right. If their challenge convinced the instructor that the question was unfair, then everyone in the class would receive an extra point, and this extra point would be named in honor of the successful challenger, as a form of social reinforcement for thinking critically about questions. The challenge policy has been well-received by students. Furthermore, students who wrote challenges, even challenges that were not accepted, seemed to be getting better scores on the exams. In addition, the unsuccessful challenges provided the instructor with useful insights into the student’s thought processes. It appeared that the challenge policy induced a critical thinking mental set that encouraged students to analyze the question, rather than just reacting to it on the basis of rote association. If this is true, then students who write challenges should score higher on the exam than those who do not. Further, those whose critical thinking is more accurate, as indicated by writing challenges that were valid, should score even higher than those whose challenges were judged to be invalid.  

Kerkman and Johnson (2014) posit there are several strategies that shift test takers to a critical thinking mindset, we propose that there is an additional one involving challenging the actual questions. We argue that there is a deeper processing of questions and responses. The first process is question comprehension and selection of the correct response. The second process involves evaluating the questions for quality. This secondary process is one of the highest levels of Bloom’s Taxonomy and demands critical thinking processing. Furthermore, there is a third process of creating the challenge – creation is the highest level of the Revised Bloom’s Taxonomy (Krathwohl, 2002). It was then concluded in the article that encouraging students to challenge exam questions engages their critical thinking processes and opens a window for the instructor to view what is going on in students’ minds when they take multiple-choice exams.  

**Position of response options in multiple-choice questions**  

Hohensinn and Baghaei (2017) point out that it is commonly believed that the position of the correct response in multiple choice items has no effect on item difficulty as long as the correct options are randomly or evenly assigned to different positions. However, empirical research on the effect of the response positions in MC items is scarce. If the correct response position affects item difficulty a common metric cannot be maintained across alternate forms of the test which are only different in the location of the response options.  

Steven J. Burton, Richard R. Sudweeks, Paul F. Merrill and Bud Wood explain the versatility of the multiple choice examination as follows: Since the student selects a response from a list of alternatives rather than supplying or constructing a response, multiple-choice test items are not
adaptable to measuring certain learning outcomes, such as the student’s ability to: Articulate explanations, Display thought processes, Furnish information, Organize personal thoughts, Perform a specific task, Produce original ideas and Provide examples. Such learning outcomes are better measured by short answer or essay questions, or by performance tests.

**Multiple-choice item-writing guidelines for classroom assessment**

A research review was made by Thomas M. Haladyna, Steven M. Downing and Michael C. Rodriguez stated the implications of MCQs for classroom and large-scale assessment programs, “Educational reform continues to emphasize the use of content standards both for classroom assessment and high-stakes test score uses. Test items need to be linked to content standards both in our classroom assessments and in our high-stakes tests. Instruction should link to these assessments so that students learn and perform according to expectations. The use of a toolbox full of validated item-writing guidelines and MC item formats serve items writers well, particularly teachers who traditionally have had difficulty writing items measuring complex student learning. Large-scale assessment programs tend to have high standards for item development and employ guidelines consistently. These programs will probably continue to depend on conventional MC and context-dependent item sets as they have in the past.”

**3. Rationale and Purpose**

The following are the objectives of the study.

1. To determine the challenges of Multiple Choice Questions as perceived Grade 12 Senior High Students.
2. To identify the implications of Multiple Choice Questions as perceived Grade 12 Senior High Students.
3. To determine the significant difference on the implication and on the challenges of Multiple Choice Questions as perceived Grade 12 students when they are group according to Strand.

**4. Research Questions**

The alignment of such testing format was adopted on the notion of preparing students as early as senior high school for at this stage they start facing a number of examinations that uses the same test format. As its implication to future exams like that of college entrance exam, this would mean that it would determine their chances of being able to get the score for their chosen career. Consequently, in their two years of stay as Senior High School students, they experience the Multiple Choice Questions in their exams. The research believed that there is a need to look into student's perception as to challenges they encounter and examines the implication of it. Thus, this study sought to find out the answers to the following research questions:

1. What are the challenges of Multiple Choice Questions as perceived Grade 12 Senior High Students?
2. What are the implications the challenges of Multiple Choice Questions as perceived Grade 12 Senior High Students?
3. Is there significant difference on the implication and on the challenges of Multiple Choice Questions as perceived Grade 12 students when they are group according to Strand?

**5. Methodology**

**Research design**

This study used Descriptive Survey Method. It is used to describe a phenomenon or subject without influencing or manipulating the variables in any way. It involves ascertain certain opinions and behavior of people. (J-gate 2018).
Locale of the study

The premise of this study is located at the Mindanao State University-Sulu Senior High School Department, Capitol Site Jolo, Sulu Philippines.

Respondents of the study

This study utilized 100 students as the respondents. They were selected randomly wherein fifty (50) students from STEM and other 50 fifty (50) students from GAS.

Research instruments

Checklist Questionnaire was used as the research instrument. It was guided by the objectives of the study. It is composed two parts; the former is demographic profile that solicits which strand the respondent from, and the latter is close-ended statements which the respondents must check their level of agreement (e.g. strongly agree, agree, disagree, and strongly disagree. The ratio scale were classified as (4) strongly agree, (3) agree, (2) disagree, and (1) strongly disagree as verbal description.

Sampling procedure

The study utilized random sampling in choosing samples. Random Sampling is a method of selecting participants such that all members of the accessible or target population have an equal and independent chance of being selected. It is used because the study wanted only to find out the perception of the students Multiple Choice Questions to College Entrance Examination.

Data gathering procedure

In gathering the data, the researcher submitted the first draft of questionnaire to her adviser for correction and suggestion. The revised questionnaire was validated. In addition, a letter was sent to Senior High School Coordinator in order to conduct the study. The researcher administered the questionnaire to 100 students and they were expected to answer with all honesty. The retrieval of questionnaire was done the same day.

Statistical treatment of the data

The collected data was tabulated and computed using the computer programming called the SPSS or the Statistical Package for Social Science. The researcher sought the assistance of the statistician and her thesis adviser in the process of computation, analysis and interpretation.

Weighted Mean was used to determine the perceived challenges and implications of Multiple Choice Questions to College Entrance Examination and independent t-test was utilized to determine the significant difference on the implication and on the challenges of Multiple Choice Questions to College Entrance Examination as perceived Grade 12 students when they are group according to Strand.

6. Results

This section presents the tabular and textual analysis of the study. The answers to the three research questions are portrayed. The research questions were interpreted using the suggested statistical tools. These studies mainly focus on the challenges and implication of Multiple Choice Questions as perceived Grade 12 Senior High Students.

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Mean</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. answer under time pressure</td>
<td>3.58</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>2. time management in order to answer every subject.</td>
<td>3.14</td>
<td>Agree</td>
</tr>
<tr>
<td>3. little to no preparation tends to guess answering</td>
<td>3.12</td>
<td>Agree</td>
</tr>
<tr>
<td>4. A need to exert more effort in studying</td>
<td>3.33</td>
<td>Agree</td>
</tr>
<tr>
<td>5. improves rote memory</td>
<td>3.30</td>
<td>Agree</td>
</tr>
<tr>
<td>6. develops critical thinking ability</td>
<td>3.52</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>7. develop reading comprehension under time pressure</td>
<td>3.32</td>
<td>Agree</td>
</tr>
<tr>
<td>8. develop techniques in shading</td>
<td>2.81</td>
<td>Agree</td>
</tr>
<tr>
<td>9. difficulty on the subject matter</td>
<td>3.05</td>
<td>Agree</td>
</tr>
</tbody>
</table>
Table 6.1 shows the respondents strongly agree that Multiple Choice Questions (MCQ) is quite challenging because of the time pressure while they must think critically in order to answer.

On the other hand, they agreed on the following responses: they find the need to exert more effort in studying because of MCQ. Consequently, it develops their reading comprehension, rote memory, familiarization skills as well as techniques in shading under time pressure. Students see to it to manage their time in order to answer every subject and admittedly students who little to no preparation tends to guess answering. In addition, MCQ has difficulty of the subject matter.

The total mean is 3.24 with description Agree. The respondents agreed on all the perceived Challenges of Multiple Choice Questions.

Table 6.2 Perceived Implication of Multiple Choice Questions

<table>
<thead>
<tr>
<th>Implication</th>
<th>Mean</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MCQ urges student to answer each subject at limited time.</td>
<td>3.53</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>2. MCQ develops strategies in answering</td>
<td>3.15</td>
<td>Agree</td>
</tr>
<tr>
<td>3. MCQ encourages student to answer with persistence and resilience</td>
<td>3.10</td>
<td>Agree</td>
</tr>
<tr>
<td>4. MCQ provides real time experience of taking major exams</td>
<td>3.43</td>
<td>Agree</td>
</tr>
<tr>
<td>5. it involve student rigorous preparation before exam</td>
<td>3.33</td>
<td>Agree</td>
</tr>
<tr>
<td>6. it develops time management in studying</td>
<td>3.23</td>
<td>Agree</td>
</tr>
<tr>
<td>7. students focus on the level of difficulty of subjects matter</td>
<td>3.38</td>
<td>Agree</td>
</tr>
<tr>
<td>8. it develop student’s analysis on problem solving</td>
<td>3.48</td>
<td>Agree</td>
</tr>
<tr>
<td>9. lack of preparation results to difficulty of exam</td>
<td>3.56</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td>10. student tend to experience test anxiety</td>
<td>3.54</td>
<td>Strongly Agree</td>
</tr>
<tr>
<td><strong>Grand Mean</strong></td>
<td><strong>3.37</strong></td>
<td><strong>Agree</strong></td>
</tr>
</tbody>
</table>

Table 6.2 shows Perceived implication of Multiple Choice Questions. The respondents strongly agreed that MCQ urges student to answer each subject at limited time of which lack of preparation results to difficulty of exam correspondingly student tend to experience test anxiety.

Meanwhile, the respondents agreed that MCQ develop student’s analysis on problem solving which provides them a real time experience of taking major exams. Students tend focus on the level of difficulty of subject matter of MCQ that requires student rigorous preparation before exam. Eventually, students develop time management in studying and strategies in answering as it encourages them to answer with persistence and resilience.

The over-all mean is 3.37 with corresponding weighed arithmetic mean “agree”. This stated that the respondents agree on the implication of Multiple Choice Questions.

Table 6.3 Independent t-test on Perceived Challenges of Multiple Choice Questions grouped according to Strand

<table>
<thead>
<tr>
<th>Statements</th>
<th>t</th>
<th>df</th>
<th>Sig value</th>
<th>Decision Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. answer under time pressure</td>
<td>.774</td>
<td>98</td>
<td>.441</td>
<td>Accept Ho</td>
</tr>
</tbody>
</table>
2. time management in order to answer every subject. 1.621 98 .108 Accept Ho
3. little to no preparation tends to guess answering .196 98 .845 Accept Ho
4. A need to exert more effort in studying -.869 98 .387 Accept Ho
5. improves rote memory 2.419 98 .017 Reject Ho
6. develops critical thinking ability .289 98 .773 Accept Ho
7. develop reading comprehension under time pressure 1.102 98 .273 Accept Ho
8. develop techniques in shading -.770 98 .443 Accept Ho
9. difficulty on the subject matter 4.014 98 .000 Reject Ho
10. develop familiarization skill. 2.837 98 .006 Reject Ho

Sig.-value of .05 and below are significant and above .05 are not significant

Table 6.3 show the Independent t-test on Perceived Challenges of Multiple Choice Examination grouped according to Strand. The data revealed that the null hypothesis is accepted in the following: implies the need to answer under time pressure, a need to exert more effort in studying, and a need of time management in order to answer every subject. Additionally, it develops critical thinking ability, reading comprehension under time pressure as well as techniques in shading and indeed little to no preparation tends to guess answering.

However, the null hypothesis is rejected along all these statements: MCE improves rote memory and enhances familiarization skill yet it there have been difficulty on the subject matter.

<table>
<thead>
<tr>
<th>Statements</th>
<th>t</th>
<th>df</th>
<th>Sig value</th>
<th>Ho decision</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCE urges student to answer each subject at limited time.</td>
<td>1.312</td>
<td>98</td>
<td>.193</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>MCE develops strategies in answering</td>
<td>2.961</td>
<td>98</td>
<td>.004</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>MCE encourages student to answer with persistence and resilience</td>
<td>4.543</td>
<td>98</td>
<td>.000</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>MCE provides real time experience of taking future exams</td>
<td>1.980</td>
<td>98</td>
<td>.051</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>it involve student rigorous preparation before exam</td>
<td>2.596</td>
<td>98</td>
<td>.011</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>it develops time management in studying</td>
<td>6.730</td>
<td>98</td>
<td>.000</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>students focus on the level of difficulty of subjects matter</td>
<td>2.483</td>
<td>98</td>
<td>.015</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>it develop student's analysis on problem solving</td>
<td>1.655</td>
<td>98</td>
<td>.101</td>
<td>Accept Ho</td>
</tr>
<tr>
<td>lack of preparation results to difficulty of exam</td>
<td>2.173</td>
<td>98</td>
<td>.032</td>
<td>Reject Ho</td>
</tr>
<tr>
<td>student tend to experience test anxiety</td>
<td>3.074</td>
<td>98</td>
<td>.003</td>
<td>Reject Ho</td>
</tr>
</tbody>
</table>

Sig.-value of .05 and below are significant and above .05 are not significant

Table 6.3 show Independent t-test on Perceived Implication of Multiple Choice Questions grouped according to Strand. The data revealed that the null hypothesis is accepted in the following: MCE urges student to answer each subject at limited time which provides real time experience of taking future exams. Moreover, it develop student’s analysis on problem solving.

Furthermore, the null hypothesis is rejected along all these statements: MCE encourages student to answer with persistence and resilience. It involve student rigorous preparation before exam that it develops time management in studying, focus on the level of difficulty of subjects matter, and develops strategies in answering, furthermore, Lack of preparation results to difficulty of exam and student tend to experience test anxiety.

7. Discussion
This study investigated the perception on Multiple Choice Questions: Its challenges and implications. Descriptive survey research design was utilized in this study. This study utilized 100 students as the respondents. They were selected using random sampling wherein fifty (50) students from STEM and
other 50 fifty (50) students from GAS. Checklist Questionnaire was used as the research instrument to gather data. Weighted mean was used to examine and identify the challenges and implication of Multiple Choice Questions as perceived Grade 12 Senior High Students and independent T-test to determine the significant difference on the implication and challenges of Multiple Choice Questions when they are group according to Strand. The findings of this study were as follows: 1) Multiple Choice Questions is a test format only used as an assessment tool during their Quarterly Examinations and it was revealed that Multiple Choice Questions (MCQ) is challenging foremost due to the need to answer critically under time pressure. Consequently, they need to manage their time in order to answer every subject at the same time they need to develop their reading comprehension, rote memory, and familiarization skills all under time pressure, thus, there is a need to exert more effort in studying. The challenge of MCQ also lies in the difficulty of the subject matter yet they develop techniques in shading and respondents agreed that students who have little to no preparation tend to guess answering. Also, the result revealed the following are the implications of Multiple Choice Questions: the urge to answer each subject at limited time pressure students that they experience test anxiety and lack of preparation is equivalent to difficulty of exam. Meanwhile, there is a need to look into the level of difficulty of the subject matter which requires student rigorous preparation before exam. More so, MCQ develop student’s analysis on problem solving which provides them a real time experience of taking major exams and develop time management in studying and strategies in answering as it encourages them to answer with persistence and resilience.

Furthermore, the result on the perceived Challenges of Multiple Choice Examination when grouped according to strand revealed that the there is significant difference in the following: focus on the level of difficulty of subjects matter which entails student must have rigorous preparation before exam to control test anxiety in order to develop time management in studying and strategies in answering as it encourages them to answer with persistence and resilience and indeed, lack of preparation results to difficulty of exam.

8. Recommendation

Based on the results of the study, the following recommendations are hereby advanced:

1. Adapting MCQ require evaluation on the level of difficulty per subject matter.
2. Provide reviewing lessons before the MCQ Exam will help the students in their preparation.
3. Providing mock exam whenever possible in order to avoid test anxiety.
4. Teacher’s involvement is vital as they guide and facilitate students as they develop necessary skills to adapt to tensions during exams.

In light of the findings and conclusion of the study, the following are the recommended research agenda

1. School administration should encourage the applicability of this test format to other colleges in the institution that require licensure examination.
2. Setting programs and intervention for the improvements of this endeavour
3. Creating more research studies on this endeavour
4. Planning and implementing it on the account of promoting top students within the institution; and
5. Motivate all academic personnel to support this endeavour.

Given the fact of the findings, the following are the recommended Policies:
1. Integration of all the subject areas using this kind of assessment in colleges.
2. Encouraging more research study on the development of this endeavour
3. Providing programs and interventions to be flexible enough to each college’s mission, vision and goals by adjusting the learning to ensure the desirable outcome.
5. Recording student’s achievement as they progress in the academy in order to keep track of its impact.

9. Conclusion

This study on MCQ is based upon the idea of universal test format used in major examinations in the Philippines, like that of licensure examinations and college entrance exams for it is the determinant in their chances of being a license professional or even getting the career they wanted as they partake their journey in higher education. The Mindanao State University Sulu Senior High School saw its relevance and provides the experience of using this test format. In light of the aforesaid findings, it is concluded that it is plausible to use MCQ at all discipline but it has to be flexible enough as to take into account the level of difficulty of the subject matter. Practicing MCQ as test format provides the students the experience and they would be able to develop skills and adapt to it in the long run. Students would be able to condition their mind and cope with its stress and tension. Nonetheless, MCQ inculcates memory retention and student may condition themselves to avoid test anxiety.

10. References