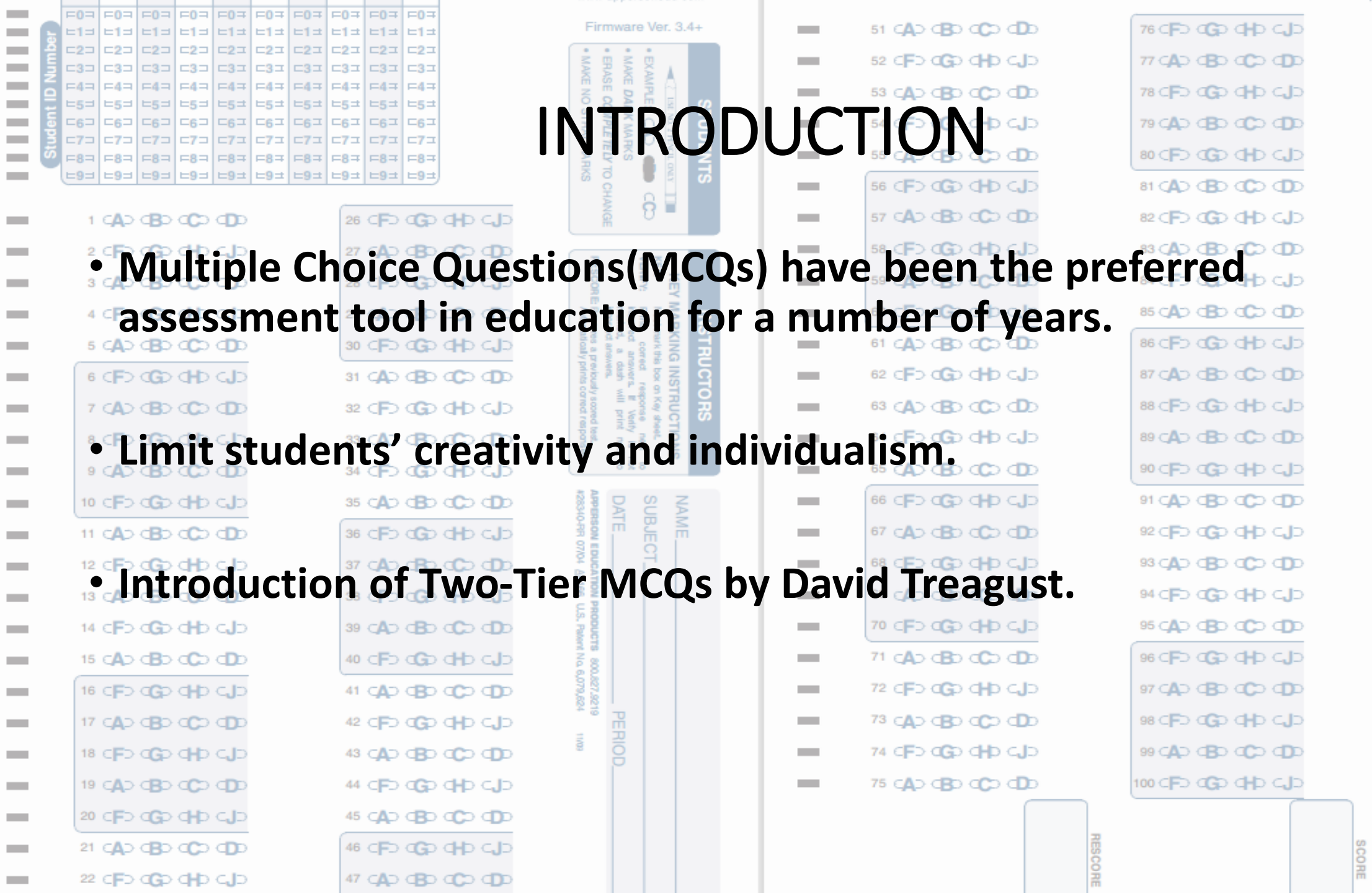


INTRODUCTION

- There is a lack of diagnostic assessment techniques in many science classrooms although several publications have highlighted how they significantly improve student learning (Black & William 1998; Keeley 2008).
- More often than not student's comprehension is grounded on alternative facts “**Misconceptions**”.
- Overcoming misconceptions is crucial for student learning.

INTRODUCTION

- Multiple Choice Questions (MCQs) have been the preferred assessment tool in education for a number of years.
- Limit students' creativity and individualism.
- Introduction of Two-Tier MCQs by David Treagust.



RESEARCH OBJECTIVES

1. The extent the literature explores the effectiveness of traditional MCQs to two-tier MCQs in diagnosing students' understanding of key content areas in biology.

A. The reliability of traditional MCQs versus two-MCQs in diagnosing students' understanding of key content areas in biology.

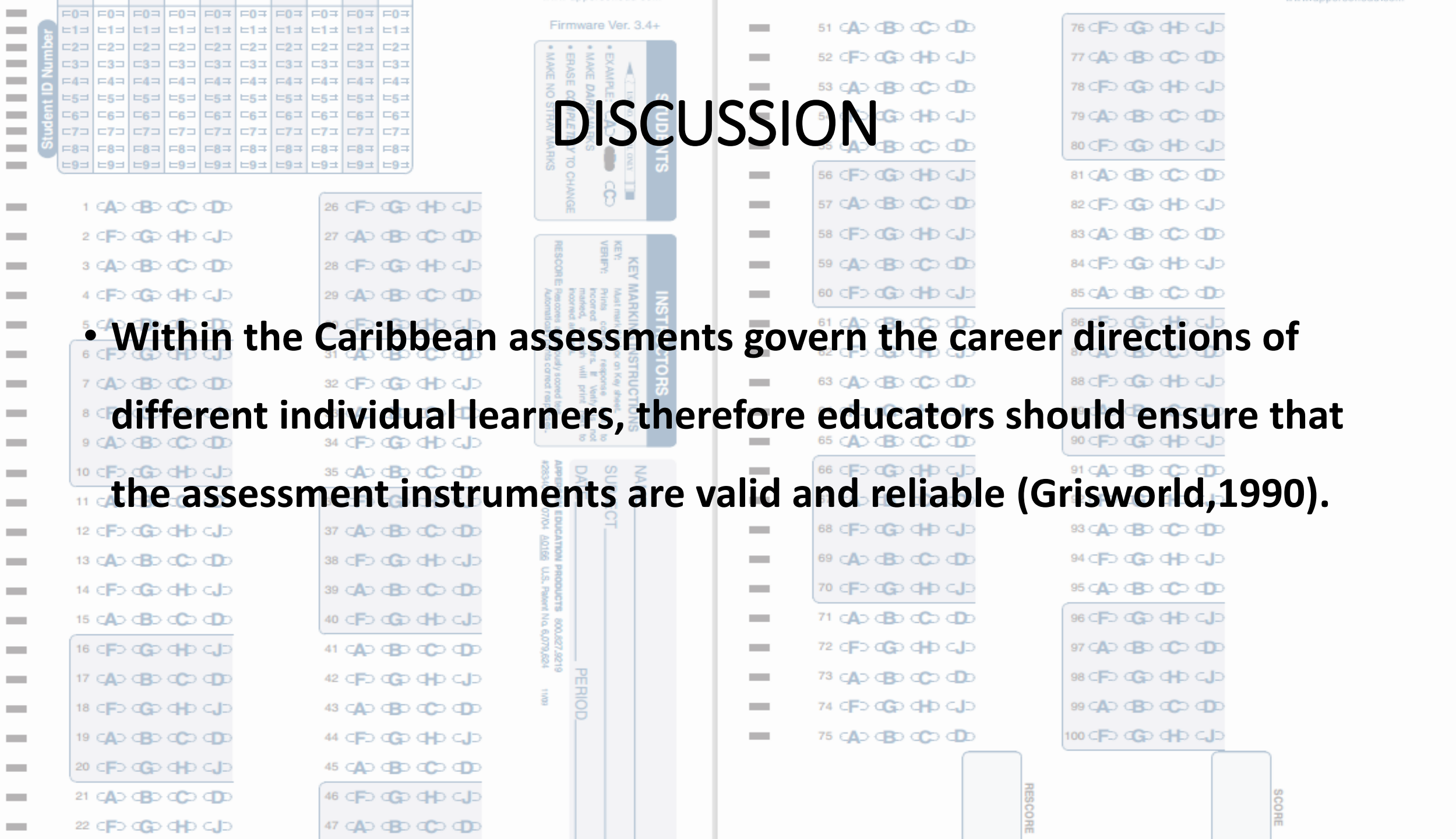
B. Justification for the use of two-tier MCQs within the Caribbean educational landscape.

DISCUSSION

- Two-tier MCQs should be utilized at the beginning, during or after a class (Chuenmanee & Thathong, 2017).
- In higher educational settings students validate their answers in assessment tasks.
- Garnett and Hackling (1995) suggests that the learning of a skill depends upon the learning of the prerequisite concepts or skills.

DISCUSSION

- Within the Caribbean assessments govern the career directions of different individual learners, therefore educators should ensure that the assessment instruments are valid and reliable (Grisworld,1990).

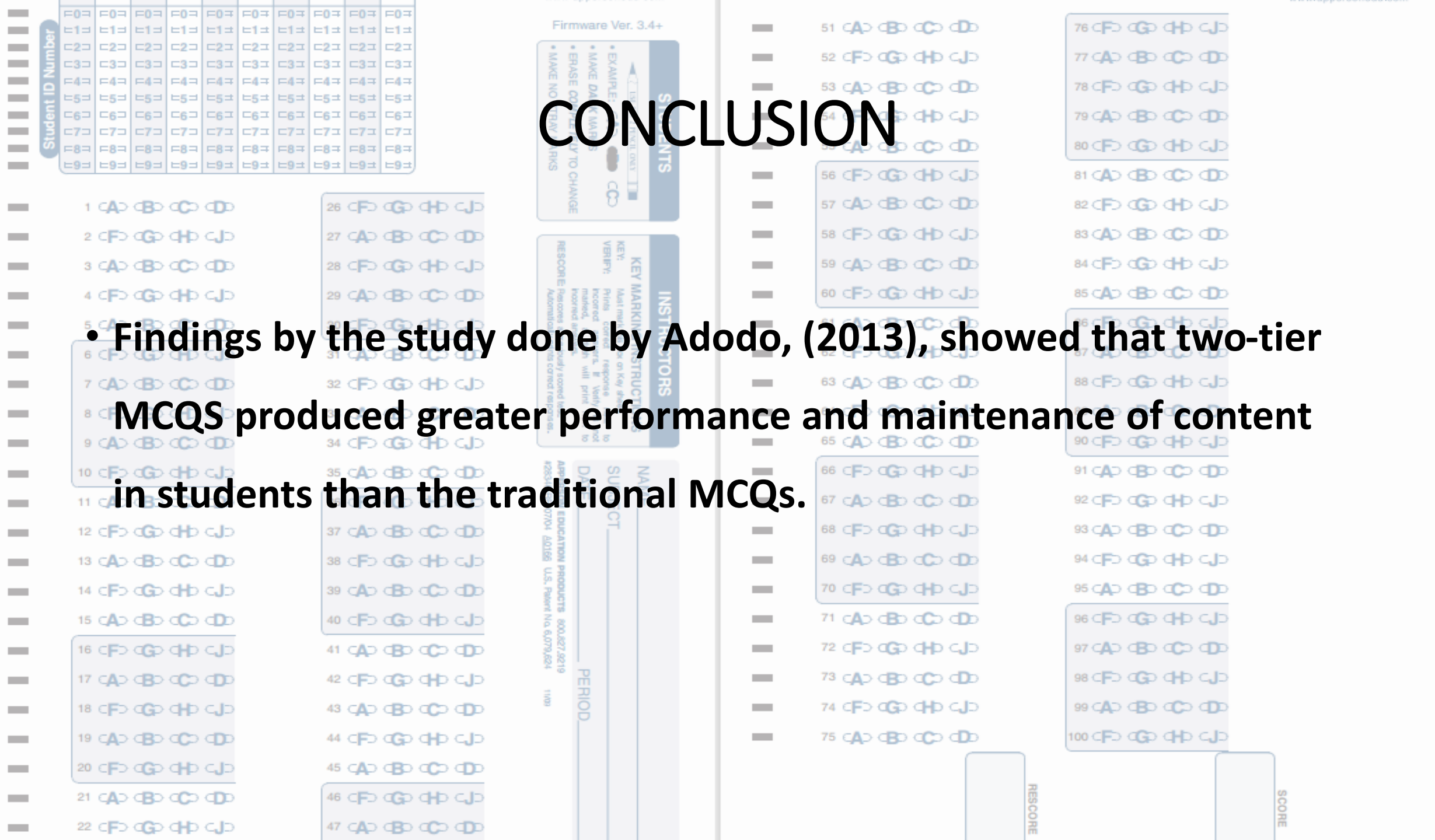


CONCLUSION

- Using two-tier MCQs vs. traditional MCQs at the beginning or on completion of topics in photosynthesis and respiration; students stand to benefit more.
- Two-tier MCQs have proved to be very successful in educational settings (Boo,2002:Boo Hong Kwen, and Kok Cheng,2005).

CONCLUSION

• Findings by the study done by Adodo, (2013), showed that two-tier MCQS produced greater performance and maintenance of content in students than the traditional MCQs.



RECOMMENDATIONS

- 1. The Joint Board of Teacher Education should seek to equip student teachers/ existing teachers with the necessary skill sets to cater to the diverse needs of their student population.**
- 2. Ministries of Education should deploy assessment and educational measurement experts to schools (across all levels) to conduct in-service workshops and seminars.**
- 3. In the curriculum design phase Regional Governments should legislate that Educational Measurement Specialists are empanelled.**

References

- Adodo, S. (2013). Effects of two-tier multiple choice diagnostic assessment items on students' learning outcome in Basic Science Technology (BST). *Academic Journal of Interdisciplinary Studies*, 201-210.
- Chuenamane, C., & Thathong, K. (2017). The development of two-tier diagnostic test for evaluating primary students' understanding of plant life. *International Journal of Advanced Scientific Research and Management*, 79-85.
- Garnett, P., & Hackling, M. (1995). Misconceptions of chemical equilibrium. *European Journal of Science Education* 7, 205-214.

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Firmware Ver. 3.4+

STUDENTS

USE NO. 2 PENCIL ONLY

EXAMPLE: (A) (B) (C) (D)

• MAKE DARK MARKS

• ERASE COMPLETELY TO CHANGE

• MAKE NO STRAY MARKS

INSTRUCTIONS

KEY MARKING INSTRUCTIONS

KEY: Must mark the box on Key Marking Instructions.

VERIFY: Please correct the key to record answers. If a key is not marked, a dash (-) will be recorded instead.

REScore: Displays a fractional score next to your score.

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#26310-991 07/01 ©2016 U.S. Patent No. 6,079,824 11/09

NAME _____

SUBJECT _____

DATE _____ PERIOD _____

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REScore

SCORE