Table 5 (a) International standards for reverberation time

No.	Country	Maximum reverberation time for learning spaces in octave bands with midband frequencies of 500, 1000, and 2000 Hz.	Volume (m^3)
1	USA (ANSI S12.60-2002)	0.6second 0.7second	$V \leq 283m^3$ $283m^3 \leq V \leq 566m^3$
2	UK (Building Bulletin 93, 2015)	0.8second to 1.0second	-
3	Germany(DIN 18041)	0.6second to 1.0second 0.4second to 0.8second	$250m^3 \leq V \leq 750m^3$ $V \leq 250m^3$
4	France	0.6 second to 1.2 second	$V \geq 250\ m^3$
5	Brazil	0.5 second to 0.7 second	$270\ m^3 \leq V \leq 600\ m^3$

Therefore, the suitable reverberation time in classroom should be emphasized to ensure uninterrupted activity between the students and lecturers. Typically, small classrooms have short reverberation time while large spaces have long reverberation time (Smith et al., 1996). Excessive reverberation time is due to the reflection in the room are not sufficiently absorbed by the walls, the floor, the ceiling and the air. Designers and builders can improve hearing conditions in classroom by incorporating the basic principles of acoustics into classroom design (Wetherill, 2002).

There are two ways to reduce the reverberation time of a room, either by decreasing the volume or by increasing the sound absorption (Zannin and Zwirtes, 2009). Sound absorption coefficient (α) describes the property of a material to convert incident sound into other forms of energy such as thermal or kinetic energy and thus to absorb it (Henrique et al., 2012). Sabine theory was the most common formula for calculating the reverberation time. The theory considers the volume of the space and absorption of every material in the space (Acoustic Society of America, 2000). Therefore, the aim of this study is to quantify the acoustic quality of class rooms and ways to improve it for better learning process in the future.