

# **The Impact of Audio Podcasting as a Micro Learning Tool on Co-Education**

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## **Abstract**

Almost every area of life is undergoing a technology-driven transformation, and education is one of the big areas where traditional face to face method of instruction has been blended with technology-driven classrooms. Micro learning is a fresh technique to help the process of learning in education, through the delivery of course contents in small parts and small steps. This research has discovered the impact of Audio Podcasting as a Micro learning tool in terms of gender diversity on female and male students, studied a course with in blended learning environment. Students were divided in two Groups of Males (Group 'A') and Females (Group 'B'). Audio Podcasts of less than (4) four minutes were recorded and given to both the groups for listening as an additional support, after face to face instruction. The impacts of the use of the Audio Podcasts as a Micro Learning tool has been compared on gender diversity, on female and male groups, through comparing their exam results. Furthermore, these two groups were studied for two stages 'Before' and 'After' the use of Audio Podcasts, and their feedback was taken for these stages, concerning students attitudes toward Audio Podcasts as a Micro Learning tool within an blended learning mode for seven key areas as dependent variables. Analyses have been done on the data gathered through 'Before' and 'After' stages for the female and male groups.

**Key words:** Blended Learning, Instruction, Micro Learning, Students Attitudes, Audio Podcasts

## **1. INTRODUCTION**

Teaching and learning is the process of delivery and acquisition of knowledge and skills, and this process is called education. It is an act of learning, about the things around the learners, or beyond their environments. Teaching and learning practices play a vital role in the process of learning, and skill development, and good learning practices can increase the learning outcomes.

A teacher teaches a topic, and the learner comprehends the delivered knowledge, develop the concepts and ideas on the basis of supplied knowledge. Teachers and learners meet face to face for a certain period of lecture time, ranging from one, two, or more hours, and sometimes, it's hard to convey the required delivery of knowledge and in-depth course contents during these lengthy lectures, as learners become tired and bored, and capacity of brain stops getting further knowledge. Usually, teachers have to review the concepts, given earlier, and it affects the course timing, that in turn increases the overall course timings, and sometimes the goes out of control.

Micro learning is a practice of learning to deliver the course contents, in small components and small steps. Additionally, the advance practices in education are going beyond the traditional face to face instruction, and utilizing the electronic communication tools, along with face to face learning. Currently, teachers and learners are using electronic communication technologies to support the traditional face to face instruction, and getting the benefits (Auster, 2016). Therefore, the teachers can make use of these electronic communication technologies

to use and get the advantage of technology. Audio podcast is an electronic communication tool, having the recorded digital audio information related to the content, needs to be conveyed.

This research study has used Audio Podcasts as Micro Learning tool for instruction, and has measured the effects of Audio Podcasts in co-education.

## **2. BACKGROUND OF THE STUDY**

Sultan Qaboos University is the government university in Sultanate of Oman and it has nine colleges (SQU, 2016). The development of the campus was carried out with great attention to accommodate the educational, physical, and spiritual requirements of the students, faculty and staff members. The architecture of the University clearly maintains the traditional Islamic division of the genders. There are separate entrances to the buildings through upper and lower walkways for female and male students.

(Alrasheedi, 2009) had stated that overall males have more understanding, information, and progressive attitude than females, toward the use of information and communication technologies, however, when the females get knowledgeable and skilled, this attitude difference becomes similar, or females might perform better. (Mahmood, 2009) had claimed that female students have positive and assertive attitude toward the use information and communication technologies.

Teaching a course may face difficulties of the growing course contents, shortage of timing, or covering the excessive contents during lengthy lectures; as a result, teachers may face the difficulties in creating detailed concepts for the course contents, under talk, or students can't focus, properly. Every instructor tries the best to discuss all the content related information that is supposed to be essential for the topic; consequently, this practice of explaining lots of information may interrupt the focus of learner and the process of concept building, concerning the topic under discussion. Educations providers are still using the chalk and talk methods, teacher-centered schoolrooms, where the main focus is on the provision of best exams results, instead of concepts buildings, though technology-based classrooms are fresh practices, where concept building is more significant (Noor, 2014). Discussing the micro aspects of learning contents can produce better learning outcomes (Hug, 2005). Blended learning is a mixture of learning approaches that improves the knowledge and learning of the learner (Joanna, 2013). (Giarla, 2016) has defined that blended learning as, different learning approaches mixed with face to face learning. Blended learning can increase the informational capabilities and skills of the learners (Nazarenko, 2015). Positive learning outcomes can be produced by combining the face to face instruction and digital contents, as a blended learning mode (Auster, 2016).

Audio podcast is an excellent electronic tool to deliver the information (Rech, 2007). Audio Podcasting is a very good technique that works as catalyst for the conception and creation of knowledge, and the good thing is, portable electronic gadgets can be used to listen the podcasts at any appropriate place and time (Lee, McLoughlin, & Chan 2008).

The performance of electronic communication tool can be measured through factors like Comfortability, Essentiality, Friendly or felling at ease, & Help of e-tool in understanding and learning the course contents (Syed & Manzur 2006; Syed, 2006).

## **3. WHAT IS MICRO LEARNING?**

Learning through small units and short-term-based-activities is called Micro learning (Hug, 2005). These bite-size small units are easily digestible (Fernandez, 2014). Dealing with micro content produces Micro Learning (Mosel, 2005). Learning through micro content is very useful, and can be used to support the knowledge and skill development process (Minimol, & Habil, 2012).

## **4. PURPOSE OF STUDY**

The purpose of this study was to investigate the participants' attitude based on gender differences, through providing the Audio Podcasts as a Micro Learning tool, as an additional learning support, used after face to face

meetings, and to measure its impact on the participants' understanding and learning those had very little IT knowledge at the begging.

## 5. METHODOLOGY

This research study has revealed the impacts of Audio Podcasts as a Micro Learning tool on instruction, based on gender differences, with in a blended-learning mode. The topics of the course "Basic Computing Skills" for its Module 1, "Computer Fundamentals" were planned to be used for this study. The total number of participants was 52, including 26 male and 26 female students. These students were divided in two groups of Males in **Group 'A'** and Females in **Group 'B'**. Audio Podcasts of less than four [4] minutes were recorded, using Audacity (a free and open source computer software application for digital audio recording), and were handed over to the male and female students through the course website. Participants had used their portable devices, computers, laptops and smart phones for accessing, downloading and listening the Micro Learning Podcasts from the website, as an additional support, after attending the face to face instruction. Firstly, the impact of Audio Podcast as a Micro Learning tool had been compared for male and female students through comparing their exam results of the course 'Module 1'. Secondly, male and female participants were studied for two stages, 'Before' and 'After' the use of Audio Podcast, and their feedback was recorded for these two stages, concerning their attitude toward Audio Podcast as a Micro Learning tool for the key areas Friendly, Comfortable, & Essential part of the course Module, Help of Audio Podcast toward Understanding and Learning the course material, its help in the exam preparation, & their their opinions about the mode of Instruction though instructor and supported with Audio Podcasts tool, and on the basis of the participants' feedback, comparisons had been made for 'Before' and 'After' stages.

Data was collected through a Questionnaire based on 5-points Likert Scale, ranging from number '1' to '5', where 1. 'Strongly Disagree', 2. 'Disagree', 3. 'Uncertain', 4. 'Agree', 5. 'Strongly Agree'. Plain statistics were used to compare any noticeable difference, through the statistical means of the responses taken from the participants on stages of "Before" and "After" the use of Audio Podcasts as a Micro Learning tool.

## 6. RESULTS

### 6.1. ASSESSMENT OF EXAM RESULTS

Table 1 is showing the exam results (statistical means) for the groups of male and female students. Data shows that the female students from Group 'B' had performed better than the male students of Group 'A'. These results verify that overall Audio Podcasts as a Micro Learning tool had supported more, to the Group of female students' (with a group Mean=10.57 .) than male students (with a group Mean=9.25), to achieve higher exam results, that is an overall raise of 8.8 percent for the females group. Fig. 1 is the graphical presentation of the exam results.

<b>Table 1: Comparison of Exam Results – Group Means (Group 'A'-Male Vs Group 'B'-Female)</b>	
<i>Exam Results (Total Marks of the Exam Module: 15)</i>	
<b>Group A (Males):</b> students supported with Audio Podcast as a Micro Learning tool	<b>Group B (Females):</b> students supported with Audio Podcast as a Micro Learning tool
Group Mean – Group 'A'	Group Mean - (Group 'B')
<b>9.25</b>	<b>10.57</b>
Mean difference = results of Group 'B' – results of Group 'A' = 10.57 – 9.25 = 1.32 Conversion of Mean difference in Percentage=> 1.32 (out of 15) = 8.8%	

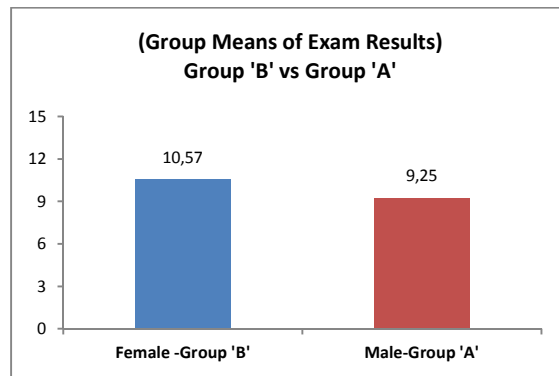


Fig. 1. Group Means of Exam Results – Group 'B' Vs Group 'A'

### 6.2. ATTITUDE TOWARD THE AUDIO PODCASTS AS A MICRO LEARNING TOOL

Table 2 is presenting the group means of male and female students at before and after stages, along with the size of change, toward their attitude regarding the use of Audio Podcasts as a Micro Learning tool. Data reveals that the means of the dependent variables Friendly, Comfortable and Essential got very low rating, at the 'Before' stage, whereas, the rating at 'After' stage was raised up to much higher group Means (with a size of change for **Female: 1.92, 2.19, 2.27 & Male: 0.89, 0.77, 2.2** respectively, for the areas 'Friendly', 'Comfortable' & 'Essential'.

Thus, it has been proved that the both female and male students' had rated the Audio Podcasts as Friendly, Comfortable and an essential tool for the process of learning and had recognized its benefits, and the overall size of change for three dependent variables was higher for females, as compared to male students. Graphically that data can be seen in Fig. 2.

Table2: Attitude toward Moodle

Dependent Variables	Gender	Groups Means		Size of Change
		Before	After	After-Before
Friendly	Female	2.46	4.38	1.92
	Male	2.96	3.85	0.89
Comfortable	Female	2.27	4.46	2.19
	Male	2.92	3.69	0.77
Essential	Female	1.96	4.23	2.27
	Male	1.92	4.12	2.2

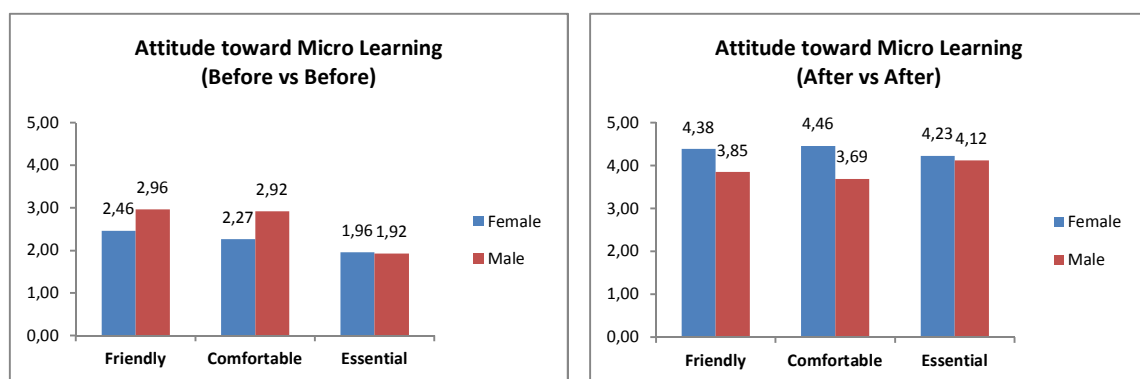


Fig. 2. Attitudes toward the use of Audio Podcasts as a Micro Learning tool

### 6.3. UNDERSTANDING AND LEARNING USING AUDIO PODCASTS AS A MICRO LEARNING TOOL

The outcomes of Table 3 reveal that at the beginning of the course, both female and male students' had ranked the three key areas at very low, however, after using the Audio Podcast as a Micro Learning tool, these ratings

for both groups had been raised with big size of change for **Female: 2.35, 2.08, 1.58 & Male: 1.54, 1.39, 1.54** respectively, for the key areas ‘Understanding’, ‘Learning’ & ‘Helped in Exam Preparations’.

Therefore, it has been verified that both the groups of female and male students’ had valued the Audio Podcasts for Understanding, and Learning the course material and had accepted that Audio Podcast had helped them for the preparations of the exams, and overall, the size of change for three key areas was higher for the students of female group as matched to the group of males. Pictorial appearance of the data can be seen in Fig. 3.

Table3: Help of Micro Learning

Dependent Variables	Gender	Groups Means		Size of Change
		Before	After	After-Before
Understanding	Female	1.92	4.27	2.35
	Male	2.31	3.85	1.54
Learning	Female	1.96	4.04	2.08
	Male	2.46	3.85	1.39
Helped in Exams Preparation	Female	2.27	3.85	1.58
	Male	2.27	3.81	1.54

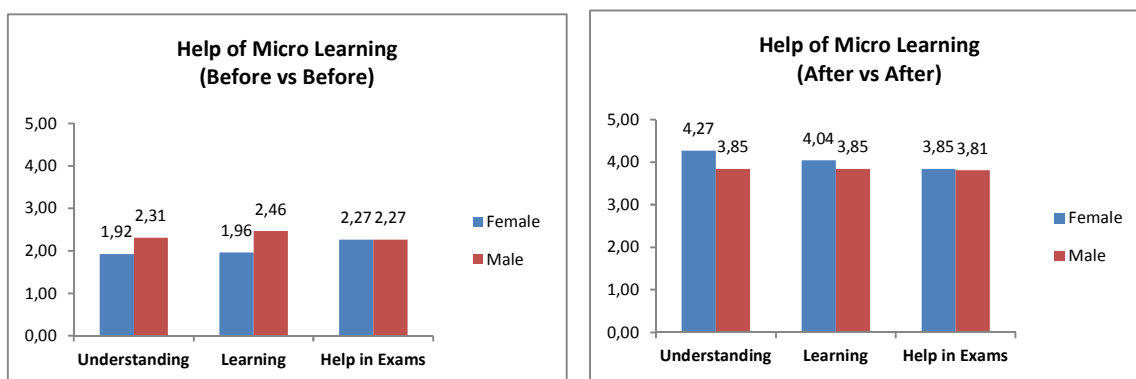


Fig. 3. Understanding and Learning using Audio Podcasts as a Micro Learning tool

#### 6.4. LIKINGS OF STUDENTS (MODE OF INSTRUCTION)

Table 4 shows the liking of students from both groups ‘A’ and ‘B’, at ‘Before and ‘After’ stages, and it can be clearly seen that both the groups of female and male students had liked the blended mode or instruction, a combination of Audio Podcasts along with face to face instruction, and the size of change is big (with 2.35 for female and 2.96 for male students). Fig. 4 is showing the data, graphically.

Table4: Students Likings – Method of Instruction

Dependent Variable	Gender	Group Means		Size of Change
		Before	After	After-Before
Instruction through instructor & supported with Audio Podcast	Female	1.92	4.27	2.35
	Male	1.62	4.58	2.96

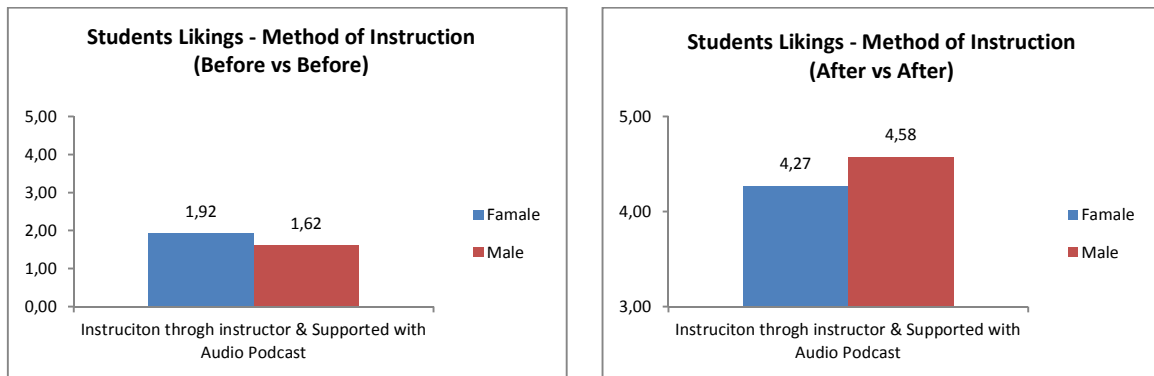


Fig. 4. Students Likings – Method of Instruction using Audio Podcasts as a Micro Learning tool

After the use of Audio Podcasts as a Micro Learning tool with in the blended learning mode, both the groups of female and male students valued the tool for all the seven key area (Friendly, Comfortable, Essential, Understanding, Learning, Helped in Exams) and rate of their likings towards blended learning mode (Instruction through Instructor supported with Audio Podcast) that was increased. The overall exam results (Mean of Exam Results) of the female students were higher, as compared to male students, with an elevated overall 8.8%, for the exam results.

## 7. SUMMARY AND CONCLUSION

Results of the study has revealed that the use of Audio Podcasts as a Micro Learning tool has positively enhanced the outcomes of learning, in the form of improved results for the female students. This electronic communication tool is comfortable and a friendly e-tool that provides a better learning environment, and helps the learner to feel at ease, supports in generating the detailed concepts, understanding and learning the topics of the course, and has been proved as an essential e-tool for the process of instruction. Instructors can blend Audio Podcasts as a Micro Learning tool with traditional face to face instruction, as an additional support for receiving better learning outcomes.

Hence, the addition of Audio Podcasts as a Micro Learning tool in combination with face to face instruction, with in a blended learning environment, can play a vital role for in-depth concept building, and overall better learning outcomes. Dear instructors, don't wait any longer, and start adding the Audio Podcast as a Micro Learning tool, to instruct your courses. This tool can be a value-added solution to solve the issues concerning the creation of in-depth concepts, the enrichment of learners understanding, production of overall better results and to produce better learning outcomes.

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