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# Does Class Composition (Single-Sex Vs. Coed) Affect Iranian Technical and Vocational College Students' English Achievement?

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**Abstract:** In the past three decades gender issues have received a wide coverage in the education literature and it seems that controversy surrounding the academic provision regarding the positive or negative effects of single-gender vs. coed classes has increased much more than ever. Because of sampling differences, data analysis differences and contextual differences, studies of single-sex versus coeducational classrooms has not yielded a clear set of conclusions. Having taught English for several years the researcher have clearly noticed that there is a significant difference between males, females and coed classrooms in terms of technical and vocational students' end-of-semester marks. Therefore, the present study endeavors to shed light, as much as it can, on the effect of single-sex/coed class composition on the English learning of Iranian technical and vocational students. Technical and Vocational Students (TVS) are traditionally considered to be 'less academically inclined' among all other Iranian university students. Three homogenous classes of TVS, cautiously selected, took part in the study and they all received treatment in the form of teaching by the researcher for some 14 sessions. Then an achievement test was administered to the all three groups. The statistical analysis of the results shows that single-sex classes appear to be most advantageous for females whereas males performed better in coed classes. Males' class showed the weakest performance.

**Key word:**

## INTRODUCTION

One of the areas in Iranian EFL context which requires a good deal of research is the realm of Technical and Vocational students. Since TVS are considered to be academically the weakest group among all other Iranian University students, there has been much less research done to get acquainted with these students.

Technical and Vocational education aims to train skilled and semi-skilled workers in a variety of vocational fields. Courses are offered at different levels depending upon the student's previous standard of education. Technical and Vocational education and training is overseen by the Technical and Vocational Training Organization (TVTO) under the auspices of the Ministry of Labor and Social Affairs. With the exception of the full High School Diploma in the technical or skills stream (which is overseen by the Ministry of Education), all formal and non-formal vocational training is overseen by this body.

The occupational areas covered by the TVTO's training programs are organized in accordance with the codes of the International Standard Classification of Occupation (ISCO).

Technical and vocational programs are offered by colleges and technical institutes. There are thousands of such centers currently operating in Iran. Non-formal training is also offered by employers.

The first award available at tertiary level in Iran is the Associate Degree (also known as the Kardani). This is a two year post-secondary course offered by universities and higher education institutes. Candidates are required to complete between 67 and 72 credits over the course of 2 years.

Students may complete the Associate Degree as an award on its own, or as a stepping stone to the non-continuous Bachelor degree, which takes a further two years to complete.

As with the Secondary awards, the Associate Degree is graded out of twenty with a minimum pass mark of 10.

The theoretical branch is comprised of general academic disciplines such as mathematics, physics, empirical sciences, human sciences, and economics. Students in this curriculum must take 63 units of general study and an additional 36 units in one field of specialization. After completing this track, they take the national examinations and, if successful, are awarded the Diplom-Motevaseteh making them eligible for the pre-university course—a one year program designed to prepare them for university. Successfully completing pre-university study earns them the Pre-University Certificate and the right to take the Konkur, or National Entrance Examination. The vocational and technical branch (TVE), Kar-Denesh (knowledge-skill branch), and the integrated associate degree in the technical and vocational stream comprise the technical/vocational track of

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Iranian secondary education. The vocational and technical branch students take applied science courses designed to train them in the agricultural trades. Here they can earn a trade certificate. The Kar-Denesh track develops semiskilled and skilled workers, foremen, and supervisors who can earn second-degree skill certificates. The integrated associate degree is a five-year course following lower secondary education designed to develop highly skilled technicians. These students may also opt for the pre-university stream after three years in the program. In 1986, the Ministry of Education listed 30 fields of study in the TVE system and over 400 in the Kar-Denesh. Teaching hours at this level range from 30 to 32 and curriculum varies significantly depending on the individual student's field of study or vocational path.

Students of Kar-Danesh and Technical/Vocational Pathway can only enter Technical and Vocational Colleges (TVC). Students of TVC are traditionally considered to be academically weakest among all other Iranian university and college students. There has been much less research done to identify different characteristics and traits of these students.

### *1.2. Research Questions:*

The study endeavors to find the answer for the following questions:

1. Is there any significant difference regarding end of semester marks of females, males, and coed classrooms?
2. Which of the three classes performed superior than others?
3. What other pedagogical implications can be inferred regarding the class composition of TVC students?

In recent years, issues of gender have gained greater prominence in second language research. However, gender has received little or no attention in the study of classroom discourse, despite the fact that communication in the L2 often is both the means and the goal of language instruction.

### *1. Participants:*

This study was conducted with three groups: the first group was composed of 38 girls, the second class comprised of 37 boys, and the third class contained 43 students (18 girls and 25 boys). Their ages ranged from 18-27. None of the classes received any special kind of treatment. They all were taught by the researcher through the course called pre-requisite English course in the normal instruction of SAMA technical and vocational college lasting for some 14 sessions. They were not told that they are under experiment. As the main focus in Iranian educational system is on developing students reading comprehension, no other skills such as listening, speaking or even writing is emphasized in the system. Therefore, the researcher had no intention whatsoever to teach other modules such as listening, speaking, and writing.

In terms of homogeneity, the three classes had roughly studied English in technical/vocational and knowledge/work streams in high school before entering the university. None of the students attended any private and institutional English courses. In fact the researcher did not have that much difficulty determining the homogeneity of the groups since the subjects were all technical and vocational students with a command of English in an elementary stage. The researcher used Nelson's ABC Test in a pilot study to determine the homogeneity. A t-test was run between the three groups to see if there was any significant difference between the three groups or not. There was no significant difference between the two groups (t-value = 0.184, P> 0.05, df 22).

### *2. Instruments:*

An achievement test made by the researcher was utilized at the end of the term. The test covered all the material taught during the 14 consecutive sessions of instruction. The material was a reading-based textbook in grade 5-6 titled *hi-low passages to build comprehension* by Micheal Pristley (2005). The test comprised 40 multiple choice questions. The reliability of the test was estimated during the previous terms with the parallel target group (r=.79).

### *3. Data Collection and Analysis:*

Based on the topics covered in the class, the students of the study received 14 consecutive sessions by the researcher and the fifteenth session was devoted to the achievement test. Students were asked to make themselves ready before coming to the class. The researcher was the instructor in three classes. There were some limitations to the test administration. First of all due to the testees' low attention span, the length of the test needed to be as much small as it could. Second, since these students are academically weakest among all other Iranian university students, only a few of them can reach the level of language production as far as reading comprehension is concerned. Therefore, the best type of the achievement test could be multiple-choice. Other types such as open-ended questions, even close test were not applicable to these students. Third, since TVC students are so called '*cheating savvy'* students, the proctor of the examination was the researcher himself in order to ensure the reliability and validity of the test scores.

Students end of semester marks were collected and entered into the SPSS (version 18) software in order to be analyzed later. The scores were calculated out of 20 as the normal system of scoring in Iranian Educational System. The independent variable was the type of class composition say here: coed, females, and males classes. The dependent variable, therefore, was the students' end of semester mark in a multiple-choice achievement test designed by the researcher.

An independent sample t-test was run to determine the existence of any difference in our three groups. Then eta-squared was taken into account to display the magnitude of the effect size. Then one way between group analysis of variance (ANOVA) was conducted to show the highest performance of the three under experiment groups. In other words, for ranking the achievement of the groups we were to run one way analysis of variance.

### *4.1. Analysis of Females Vs. Males:*

An independent sample T-test was conducted to compare the final exam scores for the females and males classes. In this section of the research we are only interested to see whether there is any significant difference among the two groups or not. The rationale behind selecting independent sample t-test is that we would like to compare the mean scores of the two different groups of people.

**Table 1:** Independent sample t-test.

| Independent Samples Test | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| TOTAL SCORE | Equal variances assumed | 8.641 | .004 | 4.156 | 74 | .000 | 3.35526 | .80742 | 1.74644 | 4.96408 |
| | Equal variances not assumed | | | 4.156 | 66.717 | .000 | 3.35526 | .80742 | 1.74352 | 4.96701 |

| Group Statistics | | | | | |
|---|---|---|---|---|---|
| | SEX | N | Mean | Std. Deviation | Std. Error Mean |
| TOTAL SCORE | FEMALES | 38 | 13.7763 | 4.05944 | .65853 |
| | MALES | 38 | 10.4211 | 2.87998 | .46719 |

Since the Sig. value is not larger than 0.5, we deduct that equal variances are not assumed hence, we are to use the second line of the table (table 1). What can be inferred from the statistical analysis is that there is a significant difference between females and males' performance (*Sig. 2tailed .000*). (*M = 13.77,*

*SD = 4.059*) *M=2.87, SD = 2.879; t(76) =4.156, p□.05.*

The eta-squared calculated shows that this difference is outstanding. The magnitude of the difference in the means (mean difference = *3.35, 95% Cl: 1.74352 to 4.96701*) was very large ( eta squared = .189). As stated by Tabachnick and Fidell 2007, p.55 the eta squared within the range of .138 and higher is considered to have a large effect on the size of the effect. Table 1 is rewarding for it is clearly indicates that the females' and males' class which we had chosen at the beginning of the study and which were so homogenous that there was not any difference, have outstandingly significant difference.

### *4.2. Analysis of the Three Groups' Performance*

Another analysis was done in order to determine the difference between the coed, males and female classes. One way between groups analysis of variance (ANOVA) was done in order to show the differences between the three groups (Table 4).

**Table 2.** *Descriptives.*

| TOTAL SCORE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
| | | | | | Lower Bound | Upper Bound | | |
| FEMALES | 38 | 13.7763 | 4.05944 | .65853 | 12.4420 | 15.1106 | 7.50 | 20.00 |
| MALES | 38 | 10.4211 | 2.87998 | .46719 | 9.4744 | 11.3677 | 6.50 | 20.00 |
| Coed | 44 | 11.6080 | 4.02369 | .60659 | 10.3846 | 12.8313 | 4.75 | 19.00 |
| Total | 120 | 11.9188 | 3.92513 | .35831 | 11.2093 | 12.6282 | 4.75 | 20.00 |

**Table 3:** Test of Homogeneity of Variances.

| TOTAL SCORE | | | |
|---|---|---|---|
| Levene Statistic | df1 | df2 | Sig. |
| 5.083 | 2 | 117 | .008 |

**Table 4:** ANOVA.

| TOTAL SCORE | | | | | |
|---|---|---|---|---|---|
| | Sum of Squares | df | Mean Square | F | Sig. |
| Between Groups | 220.609 | 2 | 110.304 | 8.002 | .001 |
| Within Groups | 1612.787 | 117 | 13.785 | | |
| Total | 1833.395 | 119 | | | |

**Table 5:** Multiple Comparisons.

| Tukey HSD | | | | | | |
|---|---|---|---|---|---|---|
| (I) SEX | (J) SEX | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
| | | | | | Lower Bound | Upper Bound |
| FEMALES | MALES | 3.35526* | .85176 | .000 | 1.3333 | 5.3773 |
| | Coed | 1.16836* | .82221 | .026 | .2165 | 4.1202 |
| MALES | FEMALES | -3.35526* | .85176 | .000 | -5.3773 | -1.3333 |
| | Coed | -1.18690 | .82221 | .322 | -3.1388 | .7650 |
| Coed | FEMALES | -2.16836* | .82221 | .026 | -4.1202 | -.2165 |
| | MALES | 1.18690 | .82221 | .322 | -.7650 | 3.1388 |
| *. The mean difference is significant at the 0.05 level. | | | | | | |

**Table 6:** Tukey HSD.

| SEX | N | Subset for alpha = 0.05 | |
|---|---|---|---|
| | | 1 | 2 |
| MALES | 38 | 10.4211 | |
| Coed | 44 | 11.6080 | |
| FEMALES | 38 | | 13.7763 |
| Sig. | | .331 | 1.000 |
| Means for groups in homogeneous subsets are displayed. | | | |

As shown in Table 5 a multiple comparison through one way analysis of variance reveals that there are differences among male-female, male-coed, and female-coed class compositions. However the size of the significance is different. The male-female mean difference possesses the highest difference (-2.16). The second difference is for female-coed classes (-1.18). The least difference goes to male-coed classes (1.16). Therefore the results obtained clearly indicate that females did much better in the final exam. There may be lots of reasons to justify this difference! Since in Iranian educational system, students are not composed to coed classes before entering university, the context seems to affect on their learning. They are more sensitive than male and they cannot adapt themselves to the new context. The researcher's own experience is that in a female class students feel free to express themselves, they are more relaxed, and they bring a good attitude toward learning English.

There are much more reasons for indicating this difference which are beyond the scope of this research. What is of paramount importance is that the difference is so significant that we cannot deny the variable of class composition for TVC students.

### *4. Summary of the Study:*

As mentioned before, this study was and action research by nature to confirm whether there is and difference between technical and vocational students' end of semester marks in terms of their class composition. The researcher's own experience and anecdotal accounts triggered the hypothesis that females' single-sex classes outperform males' single-sex classes and the coed ones. In order to test this hypothesis three groups were selected. They all were the students of SAMA technical and vocational training college. Their ages ranged from 18 to 26. The researcher himself was the instructor of the teaching material in the 3 groups. They were all exposed to a reading comprehension textbook grade 5-6. Due to some limitations of the study regarding students' low level of language proficiency, students' short attention span, their demotivation of the learning, the negative feeling and background they bring to the class, the researcher had too much difficulty in pretest as well as the post test. Nelson's ABC test was administered to the three in order to determine the homogeneity of the groups. As it was presupposed by the researcher and researcher's colleagues, there was not difference in the groups' level of English language command. The rationale behind is that these students' level of proficiency was as low as those at pre-beginner level. They all confessed that since their base of learning was weak, they all gained my high school unfortunately through paying some extra money to the school principal. Interestingly enough, there were some students in each group which did not even know, English alphabets.

An independent sample t-test was run two by two between groups in order to see whether there is any significant difference among groups or not. Another Tuckey test was run in order to rank the performance of the three groups. The testing of the hypothesis was conducted through the independent sample t-test.

A discussion based on the results of the study and research question is also offered in this chapter. In conclusion, it could be said that a class composed of females, have much better performance in terms of students end of semester marks. Next, coed class composition were superior to that of the males' one. And the weakest marks were assigned to males' class.

## *5. Discussions:*

### *Question one: is there Any Significant Difference Regarding end of Semester Marks of Females, Males, and Coed Classrooms?*

As proved by the results the answer to this question is definitely YES! Although this research was done in a small scale, the results show that that the difference is so significant. The eta-squared obtained from the differences revealed the fact that this difference cannot be haphazard or arbitrary (eta-squared .189). The difference is much significant among males and females.

If we would like to sort the three groups according to their superiority and performance in the final exam performance, the first rank is for the females' class. The second place goes to the coed classroom which comprised of 18 girls and 25 boys. The last and least performance is for males' classes which obtained the marks even lower than coed students.

- ***Question Two: Which of the three Classes Performed Superior than Others?***

The females' class outperformed all the other classes. Since the mean score in the analysis section clearly indicates that the difference is much higher to be ignored. Moreover the eta-squared calculated for the difference in order to show the effect size reveals that the superiority of the females' classroom is dominant in both class attendance and the quality of this attendance.

### *Question Three: What other Pedagogical Implications can be Made Regarding the Class Composition of TVC Students?*

Based on the assertions of the colleagues it is recommended that for optimization of learning, females' classes should not be mixed. Especially due to the nature of the TVC students (being unruly and untractable to the authority), in a coed classroom, students get disruptive. Exclusively for boys the class completely turns out to be a real mess.

According to the results of the research and anecdotal notes from TVC instructors, it is recommended for the university authorities to keep females' classes segregated as much as possible since the performance of these classes is higher than coed classrooms. On the other hand there should be much research to determine the reasons of weakness of the males' class composition.

## *6. Conclusion:*

Although a number of shortcomings and drawbacks can be assigned to females' classroom, the results of the study seemed to reveal that this particular ELT context reasonably acted well to a detailed and in-depth learning of reading comprehension at grade 5-6. Instructor's anecdotal accounts showed that females' context is in line with the goals set by its curriculum developers. Of course EFL teachers who teach TVC classrooms suggested considering the shortcomings of the males and coed classrooms and attempting to alleviate or compensate for these drawbacks by supplementing, modifying and adapting problematic aspects of the textbook. It should be mentioned here again that the outmost problem which seems to be widespread among TVC students is their lack of motivation. It is highly recommended that some training courses for TVC instructors should be included in the pre-service and in-service training period and make them aware of the discrepancies of the groups.

I would like to end this conclusion by the argument of J. C. Richards. He strongly believes that each and every learner is different. Each teacher is unique and each learning context is unique. Therefore, it is totally up to the teacher to optimize his/her class. Teaching is not a cognitive ability rather it is a skill which can be pioneered by experience and practice.

As Sheldon (1988) states classroom research is not a once-only activity. When a classroom is selected for research, its success or failure can only be meaningfully determined during and after its period of in-depth research. He believes that learners are not taught in a vacuum, but come from somewhere and are proceeding towards specific educational goals and future training. The type of classroom composition ultimately needs to be evaluated in terms of its integration with, and contribution to, these longer-term goals. Different aspects of class composition are open to further evaluation and analysis. Supplementary study is needed to extract psycholinguistic analysis of the students' attitudes and perceptions towards single-sex and coed classrooms. Pragmatic aspects of the class composition of TVC classrooms can also be examined in a study. Also it is

possible to study what teachers and learners actually do with regard to different types and number of students in a TVC classroom through classroom observation and interviewing teachers and learners.

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