

CLASSROOM COMICS: AN ALTERNATIVE MATH INSTRUCTION FOR ENHANCING INDIVIDUAL ADAPTABILITY SKILLS OF COLLEGE STUDENTS

Ramer Verdejo¹, Marife V. Ubalde,²

^{1,2}University of Science and Technology of Southern Philippines, Lapasan, Cagayan de Oro City, Philippines

Correspondence Tel.: ²+63 905 136 4531, E-mail: ¹rverdejo58@gmail.com ²marife_ubalde@ustp.edu.ph

ABSTRACT: *This study reports on the effect of using classroom comics on the individual adaptability skills of college students. It utilized the posttest only control group design to gather the data.. The respondents of the study were the first-year college students of Northern Bukidnon State College, Manolo Fortich, Bukidnon. Two groups were utilized in the study which comprised of the experimental group and control group. The experimental group was exposed to classroom comics while the control group was exposed to the usual instructions such as PowerPoint presentations or handouts. An adapted Individual Adaptability Skills Test was used as the instrument in this study. To determine the effectiveness of the two methods of instruction for enhancing individual adaptability skills, the T-test was used. Results revealed that there is no significant difference in the individual adaptability skills among the two groups. The researchers inferred that although no significant effect was determined in the adaptability skills of students in both groups, the group exposed to classroom comics got the higher individual adaptability skills scores. It is recommended that classroom comics may be used aside from the usual classroom instruction in the present classroom setting which is on flexible learning.*

Key Words: classroom comics, alternative, individual, adaptability skills

1. INTRODUCTION

The COVID-19 pandemic has been a serious problem worldwide. As implied by the study of [1], this condition calls for the alternative modes of learning in Northern Bukidnon Community College (NBCC) as one of the tertiary institutions. Before this pandemic, the researcher had recognized that there is a relationship between English proficiency and Mathematics achievement [2, 3]. This claim seems to be contrary to the 2019 -2020 NBCC entrance exam showing that most of the freshmen students are better in English than Mathematics. But the researcher believes the claim is still applicable by building a connection between what the students have learned in English and the mathematical ideas that need recall or mastery. Moreover, the researchers have observed that the students have the ability to draw or sketch. This ability combined with making a story and learning math triggered the mind of the researcher to have a study about the use of fiction comics as an alternative instruction for students during the period of a pandemic.

Researches have supported the significance of using comics and their fiction content in teaching mathematical topics. Moreover, comics do not only improve the mathematical learning of students but also their 21st-century skills as stated by [4]. In digital form, comics have a positive or negative effect on the learning performance of learners. [5] states that digital comics resulted in less motivation of Indonesian students in learning Mathematics. [6] argued that digital comics have a positive effect to the learners. He added that its factors such as appropriate material, interesting plot, smooth interactivity, and user-friendly graphics have contributed to the effective learning of Filipino senior high school students. There are studies that fiction in the content of the comic can be useful to facilitate learning. The metaphors from the fiction story can serve as a bridge between embodiment and abstraction [7]. According to [8], metaphor comprehension of the story involves more analytic and semantic processes of thinking. These studies form a partial conclusion that fiction can be integrated in mathematics instruction to improve students' learning which requires analytic, flexible, and abstract thinking.

Despite the aforementioned existence of literature for the use of comics in teaching math, the researchers of this study have found a gap which is composed of the following factors: application of the same study for college math students since the studies mentioned are mostly related to secondary mathematics; usage of comics in teaching problem solving related to a particular topic such as set theory; the discussion about idiomatic phrases such as metaphors to facilitate understanding of mathematical ideas, and consideration for students with no smartphones, computers and/or internet connection during the enhanced community quarantine or general community quarantine. By this time, the application of digital comics can be difficult for students with poor signals for the internet and a lack of smartphones or personal computers. Because of this situation, the researchers of this study should consider less fortunate students by providing instructional materials independent of the internet connection.

With these aforementioned views, the researcher would like to test whether the use of comics as an alternative form of instruction can enhance the adaptability skills of the students, particularly at the college level.

2.METHODOLOGY

2.1 Research Design

This study used the post-test-only control group design. This design involved two intact groups of students: one control group which was subjected to the usual teaching methods using PowerPoint presentation or handouts. The experimental group was subjected to the teaching methods using online or printed comics. The two groups were given posttests on adaptability skills at the end of the experimental period.

2.2 The Instruments

The researcher used a standardized test to gather data for individual adaptability skills. This test was adapted from [12].

2.3 The Participants

The participants of the study were two Mathematics classes consisting of 20 students each. These students are first-year college students enrolled in the first semester of SY 2020-2021.

2.4 Data-Gathering Procedure

The researcher asked permission from the college administrator to conduct the study. Administering the pre-test and post-test among the selected NBCC students will take less than or equal to 10 weeks. The researcher of this study has ensured the application of flexible or blended learning during the community quarantine due to pandemics.

The experimental group has undergone comics as the alternative math instruction. These comics served as a virtual classroom and this instructional material contains instructions that guide the students in answering formative assessments. The control group was exposed to the usual math instruction where students are given instructions using PowerPoint and handouts to guide them in answering the formative assessments but this instruction will be done without the use of comics.

During the experimental period, the researcher has instructed the students to write essays about the difficulties that will be encountered during the compliance of the flexible or bent learning activities, and the conditions related to individual adaptability skills. These essays serve as the source of information to answer the research questions related to individual adaptability skills. The researchers used the same individual adaptability skills test to gather data.

3. RESULTS AND DISCUSSIONS

Table 1. Mean and Standard Deviation of the Individual Adaptability Skills of College Students

Groups	Mean	SD
Experimental Group	3.57	0.73
Control Group	3.39	0.83

Table 1 shows the mean scores and standard deviation individual adaptability skills of the experimental and control group. In the individual adaptability, the mean and standard deviation of the experimental group are 3.57 and 0.73, respectively, while the mean and standard deviation of the control group are 3.39 and 0.83, respectively. This means that in the experimental group, they have higher scores in terms of their individual adaptability skills than the control group. Students who were exposed to comics as alternative instruction have a higher degree of adapting to any situation. The scores of the experimental group are closer as compared to the scores in the control group.

TABLE 2. T-test Result of Individual Adaptability Skills of the College Students

Groups	critical value	t-test value
<ul style="list-style-type: none"> • Experimental Group • Control Group 	2.086	0.7462

Referring to the second table above, using a two-tailed t-test with $\alpha=0.05$, the decision was made. Based on the table, the t-test value of 0.7462 is less than the critical value of 2.086. This means that the experimental group and the control have no great difference in terms of their individual

adaptability skills. This further explains that both groups have more or less the same individual adaptability skills. The kind of instruction made by the instructor does not make any difference in terms of how the students adapt to any situation. This condition means that there is no significant difference between the experimental group and the control group in terms of their individual adaptability. Although there is no significant difference found, the experimental group has higher scores in the test than the control group. This further explains that students exposed to classroom comics as an instruction of teaching Mathematics have higher self-esteem in terms of adapting to the people around, the physical environment, the different situations, the different problems, and the changes in the communities. In the control group, the students also have high adaptability skills for they obtained above the average level but not as high as the students in the experimental group have. This statement conforms to the study of [6]. Comics have a positive effect on the students.

4. CONCLUSIONS AND RECOMMENDATIONS

From the analysis of the data as the experimental and control group are compared, the researcher claimed that with regard to individual adaptability skills, no significant difference was found. Hence, the experimental group exposed to comics that are printed and online have higher skills in terms of their individual adaptability. The control group exposed to usual math instruction such as PowerPoint and handouts have these skills also but not as high as the experimental group. It is therefore recommended that comics that are on printed and online files may be used as alternative instruction to improve the students' adaptability skills. Classroom Comics may be needed to be enhanced or to be innovated to increase their positive effect on the part of the students.

5. REFERENCES

- [1] Daniel, S. J.(2020), Education and the COVID-19 pandemic. *Prospects*.49(1),1-6 <https://academic.microsoft.com/paper/3017029353/reference?showAllAuthors=1>
- [2] Ahmad, *et al* .(2013),Self-Medication With Antibiotics: General Perspective Among People in Peshawar and Mardan (Two Most Populated Cities of Khyber Pukhtoonkhwa -Pakistan)IJPSR, 2013; Vol. 4(5): 1809-1814.
- [3] Henry, D., Baltas,B. and Nistor,N. (2014), Examining the Relationship Between Math Scores and English Language Proficiency. *Journal of Educational Research and Practice* 2014, Volume 4, Issue 1, Pages 11–29 ©Walden University, LLC, Minneapolis, MN
- [4] Toh, T. L., Cheng, L. P., Ho, S. Y., Jiang, H., & Lim, K. M. (2017). Use of comics to enhance students' learning for the development of the 21st century competencies in the mathematics classroom. *Asia Pacific Journal of Education*, 37(4), 437-452
- [5] Rohazati,U, Mailizar and Hajidin (2020),, Junior secondary school teachers and students' needs for the use of digital comics in learning mathematics , *J. Phys.: Conf. Ser.* 1460 012026
- [6] Mamolo, L. (2019), Analysis of Senior High School Students' Competency in General Mathematics, *Universal Journal of Educational Research* 7(9): 1938-1944, 2019

- [7] Jamrozik, et.al, 2016 Jamrozik, A., Mcquire, M., Cardillo, E.R., & Chatterjee, A. (2016). Metaphor: Bridging embodiment to abstraction. *Psychonomic Bulletin & Review*, 23(4), 1080 – 1089. doi: 10.3758/s13423-015-0861-0
- [8] Bohrn, I.C., Altmann, U., & Jacobs, A.M. (2012). Looking at the brains behind figurative language- A quantitative meta-analysis of neuro-imaging studies on metaphor, idiom, and irony processing. *Neuropsychologia*, 50(11), 2669-2683. Google scholar.
- [9] Zorzie, Mark (2012) Individual Adaptability: Testing a Model of Its Development And Outcomes
<https://www.coursehero.com/file/83574432/Zorzie-gradmsu-0128D-11118pdf/>