Utilization of Multi-Media Games as a Pedagogical Approach

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Abstract – *Quality education is anchored on the effectiveness of pedagogical skills of the teachers who are at the forefront of the thrust of the Department of Education. This study aimed to determine the effectiveness of multimedia games as a pedagogical tool in improving the cognitive and affective skills of the learners. Descriptive method of research was employed with the questionnaire as the main data-gathering instrument. Data gathered were subjected to descriptive and inferential treatment. Moreover, this study made use of the frequency counts and percentages for the profiling of the students. Also, frequency counts, mode and weighted mean were employed to establish the utilization level of gadgets, media apps/game apps, perceived cognitive and affective benefits. In addition, chi-square test and Cramers V or Phi tests were used as effect sizes to measure strength of relationship of profile variables to gadget and media games utilization level; perceived cognitive and affective benefits level. Stratified random sampling was employed in this study. Such sampling design helped the researcher determine a total of 169 teachers with different specializations such as English, Mathematics, Science and Technology and Livelihood Education (TLE) who served as respondents in this study. The Junior High School teachers perceived that multimedia games can give high cognitive and affective benefits. They perceived that media games were highly beneficial to the cognitive or brain development of the learners and there was a potential high affective benefits of students when exposed to media games.*

Keywords – *affective benefits, cognitive benefits, multimedia games, pedagogical approach*

INTRODUCTION

Teachers are at the forefront of delivering quality instruction. They have to be innovative and resourceful in the pedagogical arena because this is the main thrust of the Department of Education. Regardless of how teachers perform this noble act in the classroom, what really matters is at the end of the day, students learn the different competencies that they have to learn on that particular class hour.

Pedagogy is the art, science, or profession of teaching thus, teaching is both an art and science. As an art, this requires teachers to think out of the box and exert conscious use of skill and creative imagination. Scholars from several disciplines have convincingly advocated the merits of video games as a pedagogical tool and recently, there has been a great deal of interest in the use of video games for education because of the high level of engagement of players **[1].**This allows teachers to make use of any resource materials that can be used as instructional materials that will fit to the competency learners need to learn and master. As a science, this demands a study of the process or procedure that a teacher has to go through.

The current technology boom has created a generation of "digital natives" .These are the people whose daily lives are always entangled around technologies consisting of young adults and teenagers. This indirectly affects the students' motivation and engagement level in the classrooms. This leads to boredom and anxiety for these students leading to a detachment to the schools, and the teachers **[2].**

In our modern day with the new technological advancement of societies, traditional games of old times have been replaced by electronic games and in similar manner, dramatic representations of old have been transformed into role-playing in simulation environments. Hence, electronic games and simulations have been parts of contemporary formal education.

A primary application of the interactive multimedia for instruction allows the learners to control the material at their own pace and keep their own individual interests, needs, and cognitive processes. The basic objective of interactive multimedia material is not so much to replace the teacher so to change the teacher's role entirely. As such, multimedia must be extremely well designed and sophisticated enough to mimic the best teacher, by combining in its design the various elements of the cognitive processes and the best quality of the technology.

OBJECTIVES OF THE STUDY

This study aimed to determine the perceived effectiveness of multi-media games as a pedagogical tool in the student learning in Junior High School and the perceived level of effectiveness of multimedia games to student learning in Junior High School. It also shed light on the utilization level of gadgets and multimedia games of Junior High School teachers in their subject areas. It also addressed the significant relationship on the profile variables of the secondary teachers on the utilization level of gadgets and multimedia games and the perceived cognitive and affective benefits of using multimedia games and other game applications among junior high school teachers. Furthermore, it also delved into the significant relationship on the profile variables of the secondary teachers on perceived level of cognitive benefits and affective benefits of online games.

This study was conducted to provide teachers relevant knowledge on how they can make use of multi-media games to make learning more engaging and to properly guide them about the different multi-media games and game applications available today that they can choose from to suit to every learning activity.

This effort addressed the issue on how students in general become aware of the advantages that they can get from playing multi-media games especially the different skills that can be developed and parents become more involved and hands on in guiding their children about the

proper use of modern technology particularly multi-media games and other game applications.

School heads and administrators upon the results of this study are properly guided on the creation, issuance, and implementation of guidelines and policies about the use of these multi-media games and other game applications as part of the classroom observation tool (COT) among teachers and prioritize seminars and trainings that would further enhance the digital skills of the teachers making them adept 21st century teachers who cater to the needs of the 21st century learners in the field of Information and Communication Technology arena.

MATERIALS AND METHODS

This study used descriptive method to establish the utilization of multimedia games as a pedagogical approach as perceived by the English, Mathematics, Science, and Technology and Livelihood Education (TLE) teachers of Alaminos City National High School, Alos National High School, San Vicente National High School, and Telbang National High School.

In survey method research, participants answered questions administered through interviews or questionnaires [9] [10] [11]. After participants answered the questions, researchers described the responses given. In order for the survey to be both reliable and valid it is important that the questions are constructed properly.

This study used survey questionnaire as an instrument to gather data about the profile of the respondents, multimedia games that respondents are familiar with and use in teaching English, Mathematics, Science, and Technology and Livelihood Education and the perceived cognitive and affective benefits of multimedia games.

All data gathered were summarized, encoded and organized by using Social Packages for Social Sciences (SPSS) software and Spreadsheet. These were presented in tabular forms [12].

RESULTS AND DISCUSSION

Table 1
Level of utilization of gadgets
(n=169)

Gadgets	VHU	VU	MU	RU	VRU	WM	Rank
Android phone	58	**60**	42	7	2	3.98	2
Laptop	**84**	52	27	4	2	4.25	1
Desktop	41	47	**48**	16	17	3.47	3
Tablet	26	43	**59**	23	18	3.21	4
Overall Mean		**3.37 HU**					

5- Very Highly Used (VHU) 4-Highly Used (HU)
3- Moderately Used (MU)2- Rarely Used (RU)
1- Very Rarely Used (VRU)

Result on the utilization of gadgets among the high school teachers in Alaminos City Schools Division is shown on Table 1. The gadgets considered for exploration in this study are android phones, laptops, desktops, and tablets which are the usual tools nowadays. Among the four identified gadgets, laptop was very highly used by the teachers (84), followed by the android phones (60) which was high utilization rating.

Two gadgets – desktop and tablets are only moderately used as marked by their highest frequency counts. In general, the utilization level of all the gadgets secured a high utilization level laptop being the highly used because most teachers do have laptops not only as tool in the classroom setting but also an ally in preparing reports to be submitted as well.

The demands of teaching profession in public is not only limited to pedagogy but there are also others reports to be submitted that's why laptop is very essential. E class records or electronic class records are what teachers use in recording the scores as well as in computing the grades of learners per quarter.

Android phone comes next for very obvious reason- communication means. Also, with android phones, teachers download games and play these multimedia games or game apps on their phones.

Level of Utilization of Multimedia Games There are a lot of multimedia games

readily available for use in the internet. These multimedia games are not only limited for purely playing but there are those that may ignite and enhance cognitive or affective skills of the students specific to subject areas. Hence, the researcher had compiled game apps which teachers are most familiar with and usually used by the teachers per subject areas. And these were scrutinized to deduce the teacher's level of utilization on game apps. Results are exhibited in Tables 3 to 7.

Table 2
Level of utilization of multimedia games in English (n=49)

English Related Game Apps	VHU	HU	MU	RU	VRU	WM	Rank
Wordscapes	**19**	16	10	4	0	4.02	3
	38.8%	32.7%	20.4%	8.2%	0.0%		
Picross	6	9	22	8	4	3.1	11
	12.2%	18.4%	44.9%	16.3%	8.2%		
Word Cross Puzzle	9	17	**18**	4	1	3.59	6
	18.4%	34.7%	36.7%	8.2%	2.0%		
Word Charm	4	9	**21**	13	2	3	12
	8.2%	18.4%	42.9%	26.5%	4.1%		
Word Search Pro	11	9	**21**	6	2	3.43	8
	22.4%	18.4%	42.9%	12.2%	4.1%		
Password	5	14	**17**	10	2	3.14	9.5
	10.2%	28.6%	34.7%	20.4%	4.1%		
Scrabble	**24**	12	10	2	1	4.14	1
	49.0%	24.5%	20.4%	4.1%	2.0%		
Scrabble upwords	**18**	14	8	5	1	3.69	5
	36.7%	28.6%	16.3%	10.2%	2.0%		
Text Twist	**19**	14	11	3	2	3.92	4
	38.8%	28.6%	22.4%	6.1%	4.1%		
Word Zigzag	5	14	**18**	8	3	3.14	9.5
	10.2%	28.6%	36.7%	16.3%	6.1%		
Four words 1 pic	**21**	15	11	2	0	4.12	2
	42.9%	30.6%	22.4%	4.1%	0.0%		
Catch phrase	5	10	**18**	12	4	3	13
	10.2%	20.4%	36.7%	24.5%	8.2%		
Word Connect	10	14	**16**	8	1	3.49	7
	20.4%	28.6%	32.7%	16.3%	2.0%		
Overall Mean			**3.52 HU**				

5- Very Highly Used (VHU)4-Highly Used (HU)3-
Moderately Used(MU)2- Rarely Used (RU)1- Very
Rarely Used (VRU)

The "game apps" considered in this study under English subject are exhibited in Table 2. Forty nine (49) English teachers were asked on their utilization level on the different media games. Records show that the following five (5) multi-media games registered a "very high utilization" rating: Wordscapes, Scrabble, Scrabble Upwords, Text Twist and Four Words 1 Pic while the remaining "game apps" were moderately used as expressed by the highest registered
frequency counts or simply the "mode".

These top 5 commonly played multimedia games in English enhance and improve vocabulary of learners making them more adept in their writing and speaking skills. Good communication skill is anchored on wide range and grasp of active vocabulary and these word game app mix in fun with learning elements to give players an amusing time that can educate gamers while they entertain them after all, learning should be fun.

In general, the English related media games secured a weighted mean of 3.52, hence, there is a "high" utilization level.

Table 3
Level of utilization of multimedia games in Mathematics
(n=39)

Math Related Game Apps	VHU	HU	MU	RU	VRU	WM	Rank
						3.3	1

Sudoku	3	15	15	4	2	3	
	7.7 %	38.5 %	38.5 %	10.3 %	5.1 %		
Toon Math	2	4	24	5	4	2.87	8
	5.1 %	10.3 %	61.5 %	12.8 %	10.3 %		
Math Game Pyramid	2	9	19	6	2	3	6
	5.1 %	23.1 %	48.7 %	15.4 %	5.1 %		
Math Riddles and Puzzles	3	16	13	4	3	3.31	2
	7.7 %	41.0 %	33.3 %	10.3 %	7.7 %		
Mental Math Master	3	13	14	6	3	3.18	3
	7.7 %	33.3 %	35.9 %	15.4 %	7.7 %		
Math Game Playmind	2	10	17	7	3	3.03	4.5
	5.1 %	25.6 %	43.6 %	17.9 %	7.7 %		
Threes!	2	11	16	6	4	3.03	4.5
	5.1 %	28.2 %	41.0 %	15.4 %	10.3 %		
Math x Math	1	10	17	7	4	2.92	7
	2.6 %	25.6 %	43.6 %	17.9 %	10.3 %		
Overall Mean			3.08 MU				

5- Very Highly Used (VHU) 4-Highly Used (HU)3-
Moderately Used (MU) 2- Rarely Used (RU) 1- Very Rarely Used (VRU)

Mathematics teachers were asked on the level of utilization of the different math related game apps. The table above shows that only two out of eight or 25% of the games were highly used. These two game apps are Sudoku and Math riddles and puzzles. The remaining game apps Toon Math, Math Game Pyramid, Mental Math Master, Math Game Playmind, Threes!, and Math x Math are only moderately used.

Considering the overall mean utilization rating (3.08), Mathematics related game apps are moderately used in their classes. Since Mathematics is highly technical in nature, maybe some of the game apps were found inappropriate to use in teaching some topics, or since the Mathematics teachers are serious so, they don't usually get down with using Math games. .

Table 4
Level of utilization of multimedia games in Science
(n=38)

Science Related GameApps	VHU	RU	MU	RU	VRU	WM	Rank
Ecodefenders	3	9	**15**	4	7	2.92	2
	7.9%	23.7 %	39.5 %	10.5 %	18.4 %		
Power Up	2	10	**14**	6	6	2.89	3
	5.3%	26.3 %	36.8 %	15.8 %	15.8 %		
Global warming Interactive	10	6	**13**	4	5	3.32	1
	26.3 %	15.8 %	34.2 %	10.5 %	13.2 %		
You Make Me Sick	3	7	**17**	4	7	2.87	4
	7.9%	18.4 %	44.7 %	10.5 %	18.4 %		
Overall Mean			**3.00 MU**				

5- Very Highly Used (VHU) 4-Highly Used (HU)3-Moderately Used (MU)2- Rarely Used (RU)1- Very rarely used (VRU)

Only four science related game apps were considered in this study. These are Ecodefenders, Power up, Global Warming Interactive, and You Make Me Sick. The 38 Science teachers had mutually answered a "moderate" utilization of all the game apps related to Science. It was also found out that a relatively similar number of Science teachers answered highe r and lower utilization rating.

Table 5
Level of utilization of multimedia games in TLE
(n=43)

TLE Related Game Apps	VHU	HU	MU	RU	VRU	WM	Rank
SimCity Build-it	2	13	**19**	5	4	3.09	3
	4.7%	30.2 %	44.2 %	11.6 %	9.3%		
Build your own dream house	5	12	**17**	5	4	3.21	1.5
	11.6 %	27.9 %	39.5 %	11.6 %	9.3%		
Princess nail salon	4	5	**17**	8	9	2.7	9
	9.3%	11.6 %	39.5 %	18.6 %	20.9 %		
Princess hair salon	5	4	**17**	8	9	2.72	8
	11.6 %	9.3%	39.5 %	18.6 %	20.9 %		
Beauty						2.9	5

make-up salon	7	5	**17**	6	9	5	
	16.3 %	11.6 %	39.5 %	14.0 %	20.9 %		
Street Food Maker	3	10	**15**	8	7	2.86	6.5
	7.0%	23.3 %	34.9 %	18.6 %	16.3 %		
Fruit Slice	4	13	**18**	4	4	3.21	1.5
	9.3%	30.2 %	41.9 %	9.3%	9.3%		
Burger Shop	3	12	**14**	9	5	2.98	4
	7.0%	27.9 %	32.6 %	20.9 %	11.6 %		
Dinner Tycoon	3	9	**15**	9	7	2.81	6.5
	7.0%	20.9 %	34.9 %	20.9 %	16.3 %		
Overall Mean			**2.95**	**MU**			

5- Very Highly Used (VHU)4-Highly Used (HU)3-
Moderately Used (MU)2- Rarely Used (RU)
1- Very Rarely Used (VRU

The commonly used game apps in TLE are Build Your Own Dream House and Fruit Slice.

A similar study found out that Fruit Slice was the most utilized game applications under the strand of Food Technology by the high school students **[3].**

SimCity Build-It allows learners to build and design a city of their own and it tests their planning and engineering skills.

The three game applications were moderately used by the teachers. On the other hand, Beauty Makeup Salon, Princess Nail Salon and Princess Hair Salon are simulations under Beauty Care were also moderately used.

Summary of the level of utilization of multimedia games by subject areas

Table 6
Summary of the Utilization Level of Multimedia Games
(Game Apps) by Subjects Areas

Game Applications by Subjects Areas	WM	DR	Rank
English	3.52	HU	1
Mathematics	3.08	MU	2
Science	3.00	MU	3
TLE	2.95	MU	4

5- Very Highly Used (VHU) 4-Highly Used (HU)3-Moderately Used (MU)2- Rarely Used (RU) 1- Very Rarely Used (VRU)

The table above shows the summary of the utilization level of the teachers by subject areas. Results show that game apps related to English were highly utilized as proven by the computed weighted mean of 3.52. Whereas, the game apps related to Mathematics, Science, and TLE garnered weighted means: 3.08, 3.00 and 2.95 respectively which exclaims a "moderate" level of utilization. The lowest utilization mean (2.95) was in TLE. This may be attributed to the practical importance of actual demonstration than gadget simulation.

Relationship of game application utilization level and profile of high school teachers

Similarly, the "game apps" utilization level and the profile variables of the high school teachers was tested using chi-square test. Results of the test are revealed on Table 8.

Table 7
Relationship of Game Application Utilization and Profile Variables of High School Teachers

	Profile Variables	Chi Square	Sig.	Effect Size	Sig.
Game Apps	Sex	12.56*	0.01	0.27*	0.01
	Age	7.67	0.81	0.12	0.82
	Position	14.05	0.30	0.17	0.29
	Specialization	19.82	0.07	0.20	0.07
	Civil Status	4.078	0.85	0.10	0.90
	Educational Attainment	41.84*	0.00	0.52*	0.00

*significant at .05 level

By employing the chi-square test, age, position, specialization and civil status were found to have no significant relationship with the game apps utilization of high school teachers. This is due to the obtained chi-square values with larger p-values (p>.05). With such values, we can say that we were not able to gather enough evidence to support relationship among the profile variables with the game utilization level. Hence, leads to the acceptance of the null hypothesis.

On the other hand, the variables sex and educational attainment recorded chi-square values of 12.56 and 41.84 respectively. The computed p-values for both variables obtained less than .05 level of significance. Thus, we say that sex and educational attainment are related to game apps utilization level. Furthermore, sex obtained a significant effect size of 0.273 which signifies a **weak relationship** whereas the educational attainment garnered an effect size of .524. Such effect value was appraised by Guilford's (1956) to have a **moderate, substantial relationship**.

LEVEL OF PERCEIVED COGNITIVE AND AFFECTIVE BENEFITS OF MULTIMEDIA GAMES

There are three major areas of focus for teaching and learning that teachers aim to develop. These are cognitive, affective and psychomotor.

Digital commercial games were developed primarily for fun, entertainment and recreation, while the main aims of games-based learning and serious games are learning and behavior change **[4**].

The researcher has focused only on the perceived cognitive and affective benefits of the students primarily multimedia games that contribute to the development of the brain and heart of the students.

The level of cognitive and affective benefits as perceived by the high school teachers are reflected on Table 8 and 9. The frequency counts, mode and weighted mean results were used as bases in the findings of this study.

Perceived Level of Cognitive Benefits Depending on the specific game and the educational context, these games may have general motivation effects or effects that increase the general level of cognitive stimulation and activity. On an intellectual level, game experience may improve system thinking including the enhanced combination of multiple concepts and/ or introduce failures as a new learning device **[5].**

Cognitive pertains to the brain - thought processes, including remembering, problem solving, decision making and others. In this study, perceived benefits in the different cognitive skills are exhibited in table 8.

Table 8
LEVEL OF PERCEIVED COGNITIVE BENEFITS OF MULTIMEDIA GAMES

Perceived cognitive benefits of multi-media games	VH	H	M	L	VL	WM
1.Multi-media games sustain attention of the learners.	30 17.8 %	59 34.9 %	**65** **38.5%**	8 4.7 %	7 4.1%	3.57
2.Multi-media inhibit one's own response to distractions.	26 15.4 %	58 34.3 %	**68** **40.2%**	14 8.3 %	3 1.8%	3.53
3.Multi-media games promote the ability to change what learners think about.	30 17.8 %	**67** **39.6 %**	53 31.4%	14 8.3 %	5 3.0%	3.61
4.Multi-media games enhance the ability to switch ways of thinking.	26 15.4 %	**68** **40.2 %**	59 34.9%	13 7.7 %	3 1.8%	3.6
5.Multi-media games develop the ability to multitask.	38 22.5 %	**58** **34.3 %**	53 31.4%	14 8.3 %	6 3.6%	3.64
6.Multi-media games promote the ability to organize information.	23 13.6 %	**68** **40.2 %**	61 36.1%	14 8.3 %	3 1.8%	3.56
7.Multi-media games enhance ability of the human brain to anticipate future actions.	25 14.8 %	**77** **45.6 %**	48 28.4%	14 8.3 %	5 3.0%	3.61
8.Multi-media games enhance the ability to remember instructions.	32 18.9 %	**73** **43.2 %**	44 26.0%	15 8.9 %	5 3.0%	3.66
9.Multi-media games provide opportunities to bring various real-life situations.	34 20.1 %	**58** **34.3 %**	55 32.5%	15 8,9 %	7 4.1%	3.57
10.Multi games serve as tailored teaching materials for acquisition and retention of knowledge.	39 23.1 %	**64** **37.9 %**	49 29.0%	14 8.3 %	3 1.8%	3.72
11.Multi-media games make the learners think about the problems and arrive at the solution.	37 21.9 %	**62** **36.7 %**	50 29.6%	16 9.5 %	4 2.4%	3.66
Overall Mean			**3.61**	**H**		

5- Very High (VH)4-High (H)3- Moderate (M) 2- Low (L) 1- Very Low (VL)

Table 8 shows that teachers perceived that the use of media games can give

"moderate" benefits on the sustenance of attentions of learners and think about tasks over a period of time and promote response inhibitions.

On the other hand, majority believed that multimedia games can give **high** benefits on the following: enhancement of cognitive flexibility; promotion of cognitive control; develop multiple simultaneous attention or ability to multitask; promote category formation; pattern recognition; enhance working memory; provide opportunities to bring real-life situations and makes the learners think about problem solution fast.

These players appear to have a better conscious control of their attention and exhibit a better cognitive flexibility and multisensory temporal processing [**6]**.

In general, the calculated overall mean is 3.61. Thus, it is perceived that media games are **highly beneficial** to the cognitive or brain development of the learners.

Perceived Level of Affective Benefits

A burgeoning field of research has begun to document the impact of video game play on cognition. However, many are considering the potential of these games for social and emotional learning, too [**7].**

In order to produce highly skilled, knowledgeable, specialized, globally competent professionals , teachers have to rear also the "heart" related characteristics of the students to ensure a grown up peace abiding citizen of the country who would become building blocks of a strong nation.

Game-based may not only enhance the cognitive aspect but may also as well nurture the affective domain of the learners. **[8]**

Table 9
LEVEL OF PERCEIVED AFFECTIVE BENEFITS OF MULTIMEDIA GAMES

Perceived affective benefits of multi-media games	VH	H	M	L	VL	Mean
1. Multi-media games make learners feel they are progressing.	29	57	**66**	11	6	3.54
	17.2%	33.7%	39.1%	6.5%	3.6%	
2. Multi-media games reinforce that failure is not a setback.	31	**63**	54	19	2	3.6
	18.3%	37.3%	32.0%	11.2%	1.2%	
3. Multi-media games allow students to see the interrelationship of tactics and strategy.	24	**73**	52	14	6	3.56
	14.2%	43.2%	30.8%	8.3%	3.6%	
4. Multi-media games help students learn about following procedure.	41	**58**	52	15	3	3.7
	24.3%	34.3%	30.8%	8.9%	1.8%	
5. Multi-media games help students become independent thinkers.	37	52	**59**	16	5	3.59
	21.9%	30.8%	34.9%	9.5%	3.0%	
6. Multi-media games help learners gain self-confidence.	44	47	**60**	15	3	3.67
	26.0%	27.8%	35.5%	8.9%	1.8%	
7. Multi-media games help students learn the value of perseverance.	47	50	**55**	12	5	3.72
	27.8%	29.6%	32.5%	7.1%	3.0%	
8. Multi-media games help learners understand value of patience.	43	50	**56**	12	8	3.64
	25.4%	29.6%	33.1%	7.1%	4.7%	
9. Multi-media games help students appreciate the value of hard work and reward.	47	44	**62**	12	4	3.7
	27.8%	26.0%	36.7%	7.1%	2.4%	
10. Multi-media games help learners become resourceful and innovative.	48	**53**	50	15	3	3.76
	28.4%	31.4%	29.6%	8.9%	1.8%	
Overall Mean		**3.65**		**H**		

5- Very High (VH)4-High (H)3- Moderate (M) WM= Weighted Mean2- Low (L)1- Very Low (VL)

In this note, the researcher also studied the level of affective benefits of students in using media games as perceived by the teachers. Recorded data reveal that the students can attain moderate benefits on the following as suggested

by the obtained mode or with the highest occurrence/ response rate: hone student abilities while achieving interim or alternate goals (66); help students become more confident and independent thinkers who are more prepared to take on large projects (59); help learners gain self-confidence and boost their self-esteem by allowing them to finish a task that they started (60); help students learn the value of perseverance as they progress from one level to the next (55); help learners understand and practice the value of patience as they slowly and continuously go through the different steps until they finish the assigned task (56); help students learn and appreciate the value of hard work and reward (62).

On the other hand, data speak that the following can be some **"high"** affective benefits of students when they are exposed to media games: reinforce the fact that failure is not a setback nor an outcome but indication that more skill building is needed (63); leads students to major goal allowing students to see the interrelationship of tactics and strategy (73); help students learn about following procedure and the value of alternative paths (58); and help learners become resourceful and innovative as they try several attempts and different strategies (53). In addition, there were only few teachers who believed that media games can give very low benefits to the affective development of the students in general.

In conclusion, a computed weighted mean of 3.65 entails that there is a potential **high affective benefits** of students when exposed to media games. An experimental study on this matter is highly encouraged to prove such assertion in the different subject areas.

RELATIONSHIP ON PROFILE VARIABLES OF HIGH SCHOOL TEACHERS ON PERCEIVED LEVEL OF COGNITIVE AND AFFECTIVE BENEFITS

The relationship between the perceived cognitive benefits level of students and the profile variables of teachers was also studied. Results of the chi-square tests are presented on Table 10.

Table 10
Relationship of Perceived Cognitive Benefits Level and
Profile Variables of Secondary Teachers

	Profile Variables	Chi Square	Sig	Effect Size	Sig
Cognitive Benefit Level	Sex	2.81	0.59	0.132	0.57
	Age	24.41*	0.02	0.217*	0.021
	Position	6.54	0.86	0.109	0.917
	Specialization	16.12	0.186	0.165	0.316
	Civil Status	6.16	0.629	0.128	0.703
	Educational Attainment	18.97	0.271	0.161	0.351

*significant at .05 level of significance

The perceived level of cognitive benefits and the profile of variables like sex, position, specialization, civil status, and educational attainment recorded a chi-square value that has p-values greater than .05. Hence, statistically speaking, the evidences recorded are not enough to support relation between the profile variables mentioned earlier and the perceived cognitive benefits level.

Additionally, results from table 10 denote that age and perceived cognitive benefits level are related as expressed by the tabulated chi-square statistic (24.41) and highly significant p-value (0.02). Furthermore, the effect size (.217) obtained

[4] significant p-value (.017). This supports the relationship between the two variables. Such relationship according to Guilford's (1956) has a small or weak relationship.

Table 11

Relationship of Perceived Affective Benefit Level and Profile Variables of Secondary Teachers

	Profile Variables	Chi Square Statistic	Sig	Effect Size	Sig
Affective BenefitSex Level		4.54	0.34	0.16	0.343
	Age	26.17*	0.01	0.22*	0.015
	Position	12.96	0.37 2	0.152	0.455
	Specialization	19.54	0.07 6	0.196	0.076
	Civil Status	10.67	0.22 1	0.178	0.217
	Educational Attainment	18.51	0.29 5	0.158	0.395

*significant at .05 level

Table 11 shows the test results for the perceived level of affective benefits and profile variables are shown. Similar results were drawn in the relationship of perceived cognitive benefits level and profile variables with the perceived affective cognitive benefits level to profile.

Meanwhile, age and affective benefits are statistically related since the obtained chi-square statistic value (26.17) has a p-value less than .05. Moreover, the effect size of .22 has attained a significant p-value of (.015). With this result the relationship was described to be significant weak/small according to Cohen (1988)**.**

CONCLUSION AND RECOMMENDATION

There is high utilization level of gadgets among the junior high school teachers in Alaminos City Division particularly on the use of laptop as gadget while multimedia games related to various subjects have moderate level of utilization.

The junior high school teachers perceived that multimedia games can give high cognitive and affective benefits.

Specialization and level of utilization of gadgets are related. Sex and educational attainment are related to utilization of multimedia games. Age is significantly related to perceived cognitive and affective level of benefits.

Specialization, civil status, and educational attainment differed significantly in the overall gadgets and utilization level of multimedia games of the junior high school teachers.

The Junior High School teachers may study the use of multimedia games and gadgets to establish effectiveness of such pedagogical strategy through an experimental research.

All Junior High School teachers should undergo trainings on multimedia games appropriate to their respective specializations.

School administrators should start investing more on technology (gadgets) and may encourage their teachers to utilize the use of media games in their class [11].

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