

Perceived Influence of Video Games on the Academic Achievement and Social Interactions of Pupils in Selected Primary Schools in Lagos State

¹Omotuyole, Christy O. & ²Olowe Peter K.

¹Department of Arts and Social Sciences Education, University of Lagos, Akoka-Lagos, Nigeria

²Department of Early Childhood Care and Education
Adeyemi College of Education, Ondo, Ondo State, Nigeria

Abstract

This study investigated the perceived influence of video games on the academic achievement and social interaction of primary school pupils in Lagos State. A descriptive survey method was used for this study. The sample for the study comprised 120 respondents who were made up of 40 teachers and 80 pupils from eight primary schools (4 public primary schools and 4 private primary schools) in Shomolu Local Government Area of Lagos State. These schools were selected using the stratified sampling technique. Through the simple random sampling technique, 10 primary five pupils were selected each from both the public and private schools while five (5) teachers each were also selected randomly from all these schools. The instruments used for the study were expert validated questionnaires named "Influence of Games on the Academic Achievement and Social Interaction of Pupils' Questionnaire (IGAASIPQ)" and "Participation in Games Questionnaire (PIGQ)". The internal consistency of the instruments following a pilot study stood at .68 for IGAASIPQ and .69 for PIGQ. The participants were given a copy of the questionnaire to tick the level at which they agreed or disagreed with the items on the instrument. One hundred and eleven (111) out of One hundred and twenty (120) questionnaires that were administered were returned and retrieved and used for analysis. Percentages were used to analyzed the demographic data while t-test correlation coefficient was used to test all the hypotheses at .05 level of significance. The first hypothesis which stated that there is no significant difference between the academic achievement of pupils who were exposed to games and those who were not and the second hypothesis which stated that there is no significant difference between the social interaction of pupils who were exposed to games and those who were not were rejected while the alternate hypotheses were accepted.

Keywords: Video games, Academic achievement, Social interactions, Pupils

Corresponding Author: Omotuyole, Christy O.

Background to the Study

Young children can be affected by many social, mental, environmental and economic factors both in positive and negative ways. This is because children are so vulnerable, as they can easily get affected by things their parents and caregivers take for granted. Research has shown that social isolation or lack of socialization can lead to early childhood development issues, such as speech problems or an inability to socialize with other children, such as neighbors, classmates or family members in a civilized way. Social relationships play a vital role in a child's academic achievement. Social cognition is seen as key to the learning process, as learning requires that a child be able to interact effectively with others. Play is one of the first early year's social interactions that contribute to a child's ability to learn effectively. Later, as a child becomes involved in different social activities with other children, the children learn creative thinking and problem solving skills. Cultural influences also affect a child's academic achievement, one of the most persistent cultural influences being the school system.

Cognitive development is the improvement of intelligence, creative thought and the ability to solve problems; it begins in infancy and continues throughout adult life. Children grow playing with or without purpose, and play is natural and necessary in their development. Play gives children joy, amusement and motivation so they are encouraged to continue playing. Through play, children develop their cognitive, social, physical, and emotional abilities. Galiguzova (1995) described that children's play is filled with repetitions of imaginations which is based on what they have heard, seen, and experienced. Play is a method for children to investigate their environment with fantasy and creativity. Anderson, Huston, Schmitt, Linegarer and Wrigest (2001) confirmed that "creativity by young children may be manifested most obviously in imaginative play, that is, where children generate roles, characters, objects, and plots". They need the hands on approach to their world with enough human touch.

Morris (1990) in a paper presented at the Tokyo International Conference on the Children's right to play, discussed the lack of material resources for children's creative play. Children use material objects for their pretend play or make-believe play. Through their play, they imitate and repeat what they have seen, heard and experienced. They associate together what they learned and experienced and create new ideas or games. Thus rich atmosphere for play with materials and time can give children much experience to develop their creativity. Vandenberg, (1998) citing the 1989 adoption by General Assembly of the United Nations of the Convention on Children's Rights said that "Play is an educational process of fundamental importance and the birthright of every child". Children play not only for ontological reasons to learn social and cognitive skills for survival, but also for natural reasons to have fun, freedom, joy and passion, realizing at the boundary of real and not real world with internal motivation. Children's play provides cognitive, social, emotional and physical developments.

Piaget (1959) saw play as involving a mix between processes of accommodation and assimilation. Play is a child's natural and developmental process of learning. Through play, children develop their social, emotional, physical and cognitive development. Piaget stressed the natural play without adult's interference and direct experiences through physical and social activity may improve children's academic achievement without structured educational forms.

Without an adult's direction or educational recitation, spontaneous and free natural play to interact with their surrounding enables children to develop their cognition. When children's games are guided by adults and caregivers, it is a wonderful method which has great beneficial impact on children's social and intellectual capacities at varying developmental stages, because play is the primary way in which children receive and process information. All of that playing is actually quite a bit of work for young children through which they acquire and develop their social and cognitive abilities by interacting with others.

Based on Bandura's (1973) social learning model, there has been long and deep concerns about the effects of playing computer games with violent content. Anderson and Dill (2000) reported the exposure of violent video games increases violent behaviours. Another research study using meta-analysis, which tested the influence of violent video games on children's aggressiveness in laboratory and field settings, reveals that exposure to violent video games increases children's aggressiveness and decreases pro-social behaviour. However, some researchers argue that violent content in computer games are different from actual real life aggression. A study from Buchman and Funk found that "violent games became consistently popular across grades for both boys and girls" (Cesarone, 1998). Educational games were more popular for some of the girls being asked, but throughout all the age groups, violent video games never lost their superior power in the gaming industry. Studies have also shown the negative effects violent video games have on the younger generation.

Calvert and Tan did a study on young adults, where they compared the differences between playing versus observing violent video games. Studies found that "students who had played a violent virtual reality game had a higher heart rate, reported more dizziness and nausea, and exhibited more aggressive thoughts in a posttest than those who had played a nonviolent game" (Cesarone 1998). Although these studies do not directly determine if aggression increases in their experimenters, they are able to observe behavioural changes that include more aggressive patterns.

Another aspect of video games is the fact that children are spending too much time playing the games rather than physically playing outside. It is evident that children involved with video games are spending 13 and 14 hours a week playing them rather than just an hour here and there. By spending so much time on their game console or on the computer, children are missing out on their social life. They are less likely to go out and compete in extracurricular activities which inhibit them from meeting new people and making friends. This study therefore investigated the influence of video games on the academic achievement and social interactions of pupils in selected primary schools in Lagos State.

Statement of Problem

There have been outcries that games, especially computer and video games have affected children's social and intellectual ability. More focus has been on the negative aspect of games. Games are designed in various genres to challenge with great focus on the cognitive and psycho-social intelligence of the players, but in reality, the controls and regulatory precautions were not observed to check the type of games that children are exposed to. According to

Cesarone (1998), games are associated with low self-competence in one or more developmentally important areas including academic, interpersonal and behavioural skills especially those with poor parental guidance. He also pointed out parents negative attitudes towards games, as parents fail to see the positive side of games especially as a medium of learning. Nowadays, gaming is becoming the reason for the steady decline in television viewing habits, as video games can today be found almost everywhere including portable and mobile devices, making gaming a possibility for everyone regardless of their location. As such, home consoles and computers also remain popular gaming systems for children and adults.

Undoubtedly, the ever-present nature of video games coupled with children who do not always know when to stop playing, has resulted in parents' concerns such that children are now prioritizing games as they may neglect friends, hobbies, sports and argue frequently with family members who try to stop or limit them from playing games, and put poor effort into schoolwork. More common problems include failing to do homework, irregular sleep habits (especially for teens that may stay up very late playing computer games), poor eating habits, loss of non-gamer friends, social isolation and anger or physical aggression when asked to stop playing. Youngsters who are addicted to computer games are more likely to experience social phobia and have poor school grades. Children with lower social competence and higher social anxiety are more likely to become addicted to video games. Based on this background therefore, it is therefore obvious that there are some factors associated with the use of games in order to actualize its design purpose; these factors are the gap which this study set out to address.

Methodology

A descriptive survey method was used for this study. This required the researcher to collect data and analyzed in order to answer the research questions and test the research hypotheses. This design was used because the researcher wanted to determine the influence of games on the academic achievements and social interactions of children that are exposed to video games and those who are not exposed to video games. The sample for the study comprised 120 respondents who were made up of 40 teachers and 80 pupils from eight primary schools (4 public primary schools and 4 private primary schools) in Shomolu Local Government Area of Lagos State. These schools were selected using the stratified sampling technique. Through the simple random sampling technique, 10 primary five pupils were selected each from both the public and private schools while five (5) teachers each were also selected randomly from all these schools. The instruments used for the study were expert validated questionnaires named "Influence of Games on the Academic Achievement and Social Interaction of Pupils' Questionnaire (IGAASIPQ)" and "Participation in Games Questionnaire (PIGQ)". The questionnaires were given to some experts in the field of measurement and evaluation to ascertain the construct and content validity. The internal consistency of the instruments following a pilot study stood at .68 for IGAASIPQ and .69 for PIGQ. Before the filling of the questionnaire, the participants were distributed into two groups of A and B. Group A represents those who play video games and group B were those who did not. This was determined using the Participation in Games questionnaire (PIGQ). The researcher and four

trained research assistants personally administered the questionnaire to the respondents. The participants were given copies of the questionnaire to tick the level at which they agreed or disagreed with the items on the instrument. One hundred and eleven (111) out of One hundred and twenty(120) questionnaires that were administered were returned and retrieved from the respondents. Percentages were used to analyze the demographic data while t-test correlation coefficient was used to test all the hypotheses at .05 level of significance.

Data Analysis
Demography of

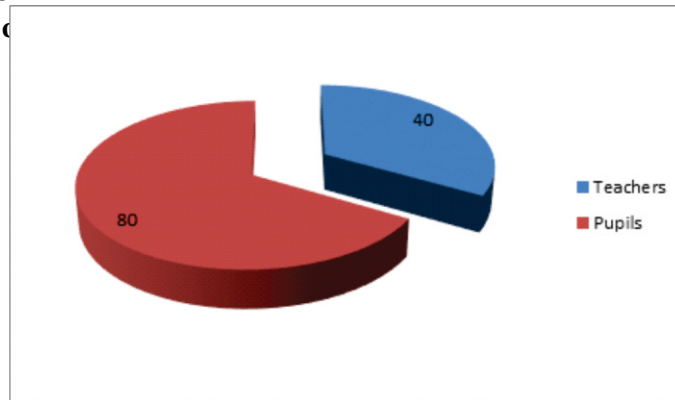


Fig 1: Distribution of respondents by category

Table 1: Distribution of respondents by category

Demographic Status	Number	%
Teachers	40	33
Pupils	80	67
Total	120	100

Table 1 ad Fig 1 indicates the distribution according to demographic status of the sampled population in which 40 (33.3%) are teachers while 80 (66.6%) are pupils accordingly.

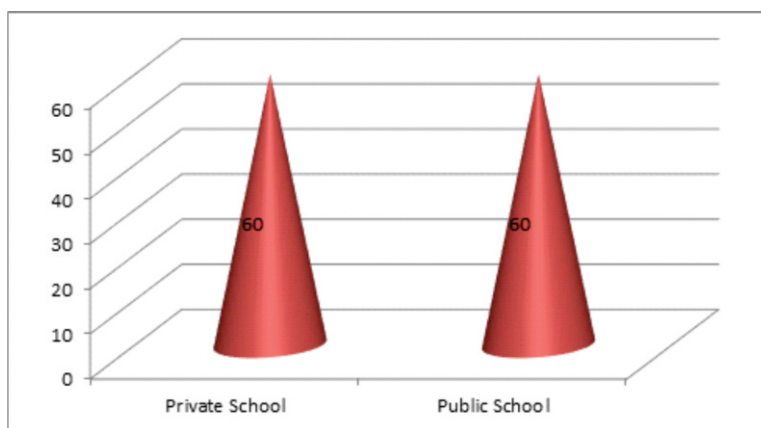


Fig 2: Distribution of data according to school type

Table 2: Distribution of data according to school type

Demographic Status	Number	%
Private School	60	50
Public School	60	50
Total	120	100

Table 2 indicates the distribution of respondents according to schools which shows that 60(50%) of the respondents were drawn from private schools while 60(50%) from public schools.

Hypotheses Testing

Hypothesis One (Ho1): There is no significant difference between the academic achievement of pupils who are exposed to games and those who are not.

Table 3: Differences between the academic achievement of pupils who are exposed to games and those who are not

Variables	N	df	P-value	t-cal	t-tab	Decision
Academic Achievement of pupils who are exposed to games						
	111	109	0.05	*3.354	1.659	Accept H₁
Academic Achievement of pupils who are not exposed to games						

**Significant level = 0.05

Based on data available for this research work on table 3, it revealed that there is a significant difference between academic achievements of pupils who are exposed to games and pupils who are not exposed to games. T-test was employed in analyzing the data and t-cal value of 3.354 was derived while the tabulated value (t-tab) gives of 1.659. The calculated t value of 3.354 is greater than the table value of 1.659 at 0.05 level of significance; hence, the alternate hypothesis is upheld. This implies that there is significant difference between the academic achievement of pupils who are exposed to games and those who are not.

Hypothesis Two (Ho2): There is no significant difference between the social interaction of pupils who are exposed to games and those who are not.

Table 4: Differences between the social interaction of pupils who are exposed to games and pupils who are not

Variables	N	df	P-value	t-cal	t-tab	Decision
Social interaction of pupils who are exposed to games						
	111	109	0.05	*2.713	1.659	Accept H₁
Social interaction of pupils who are not exposed to games						

**Significant level = 0.05

Based on the analysis in table 4, there is a significant difference between social interactions of pupils who are exposed to games and pupils who are not exposed to games. T-test was employed in analyzing the data and t-cal value of 2.713 was derived while the tabulated value (t-tab) gives of 1.659. The calculated t-value of 2.713 is greater than the table value of 1.659 at 0.05 level of significance; hence, the alternate hypothesis is upheld. This implies that there is significant difference between the social interaction of pupils who are exposed to games and those who are not.

Discussion of Findings

This study examined the perceived influence of video games on the academic achievement and social interactions of pupils in selected primary schools in Lagos State. Two hypotheses were generated for this study and the two alternative hypotheses were retained. The first hypothesis which states that there is no any significant difference between the academic achievement of pupils who are exposed to games and those who are not was rejected based on the analysis which means that there is a significant difference between the academic achievement of pupils who are exposed to video games and those who are not. The implication of this is that various video games like snake and ladder, scrabble, crossword puzzle, monopoly, word cookies etc. could help students to do well in their studies. This is in agreement with the view of Tumbokon (2014) who concluded that players can learn strategy and anticipation, management of resources in simulation games, mapping, pattern recognition, how to judge the situation and practice reading with directions, dialogue and quantitative calculations through educational games, managing finances, buying and selling for profit, in puzzles or games involving an artistic layout such as mahjong, solitaire, monopoly games or other video games.” The finding is also in accord with Anderson, Bates, Futter, Gal, Rouse, Whitmarsh, (2010), Green, Malsch, Kothari, Busse, & Brennan, (2012) and Colzato, Benz, Sellaro, & Hommel, (2014) whose studies was based on the use of video games simulation training on gross and fine motor skills of students and it was all discovered that video games also increase hand-eye coordination, fine motor skills and spatial reasoning of participants. It further revealed that video games improve the abilities to switch rapidly and without error between tasks that have conflicting demands respectively. On the contrary, Shao, Jie, and DerHsiang (2004) disagreed with this result by submitting that when students are addicted to these games it could lead to decrease in academic performance.

The second hypothesis which states that there is no significant difference between the social interaction of pupils who are exposed to games and those who are not was rejected and the alternate hypothesis was accepted which implies that there is significant difference between the social interaction of pupils who are exposed to games and those who are not. This affirmed that video games largely contribute to the social interaction of primary school pupils. Among these benefits is friendly relationship, team spirit and social interaction, this is in conformity with reason for children to get involve in playing computer games as social aspects of computer games generate friendship, social events and common interest that often goes beyond the playing itself (Greenberg, 2004). Newman (2004) investigated the different kind of games that can contribute to and promote children social interaction, his study revealed that there are various kinds of games that can promote children social development. Among the various games are: YoWorld, Banyan Tales, The Circles, Talking Tom, etc. This is in harmony with the view that “players indicated the ways in which they learned from each other and helped others to learn, by sharing information on strategies and techniques through talk and observing the play of others”.

Conclusion

From the findings, it is obvious that games have active roles to play for the attainment of academic achievement and social development of the primary school pupils. The supervisory role of parents and teachers are therefore very important to monitor and control the types of game that children play. Games play, when guided, has positive influence on the academic achievement and social development of primary school pupils, Computer games provide children fantasy and realism which can make them feel real and vivid during playing computer games. Games provide many levels or graded challenge so that children choose their proper level to make a strategy for winning. Dimensions of control which games provide children may bring different results, children feel ownership because they can control the game to choose their levels and can aim to improve their level. Games provided is the most appealing factor and games increase self-esteem after gamers fulfilled certain challenges or goals that the games provided. Games provide children an opportunity to create their own strategy for improving their level in many different ways.

Recommendations

It is therefore recommended that:

1. Games are majorly played for entertainment purposes but there is lot to what children can profit from playing games. There is therefore need to introduce game play to the co-curricular activities of pupils at the primary school level so as to stimulate social interaction and academic development in them.
2. In order for children to achieve the embedded benefits of playing games, there is need for conscious learning awareness such that the process be guided by adults so as to help children learn consciously.
3. Though, it is largely agreed that parents should allow their children participate, play and watch games, it is highly advocated that parents should have ideas of the type of games their children play in order to gain control and regulate the times that children play games in clear agreed terms.

References

- Aarseth, E. (2001). Computer game studies year one. *International Journal of Computer Game Research*, 1(1), 23-26.
- Anand, V. (2007). A study of time management: The correlation between video game usage and academic performance markers. *Journal on Cyber Psychology and Behavior*, 10 (4), 552-559.
- Anderson, C. A. & Dill, K. (2000). Video game and child aggression. *Journal of Personality and Social Psychology*, 78(4), 772-790.
- Anderson, C., & Dill, K. (2000). Video games and aggressive thoughts, feelings, and behavior in the laboratory and in life. *Journal of Personality and Social Psychology*, 78(4), 772-790.
- Anderson, D. R., Huston, A. C., Schmitt, K. L., Linegarer D. L., & Wrigest, J. C. (2001). *Monographs of the Society for Research in Child Development*, 66(1), 67-78.
- Anderson, C., Bates, I., Futter, B., Gal, D., Rouse, M., & Whitmarsh, S. (2010). Global perspectives of pharmacy education and practice. *World Medical & Health Policy*, 2(1), 5-18.
- Annetta, L., Murray, M., Laird, S., Bohr, S., & Park, J. (2008). Investigating student attitudes toward a synchronous, online graduate course in a multi-user virtual learning environment. *Journal of Technology and Teacher Education*, 16(1), 5-34.
- Bandura, A. J. (1973). *Aggression: A social learning analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Cesarone, B. (1998). *Video games: Research, ratings, recommendations*. ERIC Clearinghouse on Elementary and Early Childhood Education, University of Illinois.
- Colzato, L. S. Benz, S., Sellaro, R. & Hommel, B. (2014). Music makes the world go round: The impact of musical training on non-musical cognitive functions—A review. *Frontiers in Psychology*, 6, 2023.
- Crossman, B. D. (2004). *Play and cognitive development: A Piagetian perspective*. In R. L. Clements & L. Fiorentino (Eds.), *The child's right to play: A global approach* (pp. 89-94). Westport, CT: Praeger.
- Din, F., & Calao, J. (2001). The effects of playing educational video games on kindergarten achievement. *Child Study Journal*, 31(2), 95.
- Galiguzova, L. N. (1995). Child psychology, *Journal of Russian and East European Psychology*, 33 (1), 50-64.

- Gelfond, H. S. & Saloni Pasternak, D. E. (2005). Child adolescent, *Psychiatric Clinics of North America*, 14(3), 491-508.
- Goldstein, J. (1994). *Toys, play, and child development*, New York: Cambridge University Press.
- Greenberg, N. (2004). *The beast at play: The neuroethology of creativity*. In R. L. Clements & L. Fiorentino (Eds.), *Children's right to play* (pp. 309-327). Westport, CT: Praeger.
- Green, B. L., Malsch, A. M., Kothari, B. H., Busse, J., & Brennan, E. (2012). An intervention to increase early childhood staff capacity for promoting children's social-emotional development in preschool settings. *Early Childhood Education Journal*, 40(2), 123-132.
- Hart, G., Johnson, B., Stamm, B., Angers, N., Robinson, A., Lally, T., & Fagley, W. (2009). Effects of video games on adolescents and adults. *Journal of Cyber Psychology and Behavior*, 12(1), 63-65.
- Jackson, L., Zhao, Y., Kolenic, A., Fitzgerald, H., Harold, R., & Von Eye, A. (2008). Race, gender, and information technology use: The new digital divide. *Journal of Cyber Psychology and Behavior*, 11(4), 437-442.
- Jaruratanasirikul, S., Wongwaitawewong, K., & Sangsupawanich, P. (2009). Electronic game play and school performance of adolescents in southern Thailand. *Journal of Cyber Psychology and Behavior*, 12(5), 509-512.
- Kestenbaum, G. I. & Weinstein, L. (1985). *American Academy of Child Psychiatry*, 24(3), 329-337.
- Morris, B. (1990). The child's right to play, *Paper presented at the meeting of the International Conference on the Child's Right to Play*, Tokyo, Japan.
- Newman, J. (2004). *Video games*, New York, NJ: Routledge.
- Pellegrini, A. D., VanSchie, E. G. M. & Wiegman, O. (2003). Child Development, *Journal of Applied Social Psychology*, 27(13), 1175-1194.
- Piaget, J. (1959). *The origin of intelligence in children*, New York: International University Press.
- Russ, S. W. (1996). *Development of creative processes in children*. In M. A. Runco (Ed.), *Creativity from childhood through adulthood: The developmental issues* (pp. 31-42). San Francisco, CA: Jossey-Bass.
- Sakamoto, A. (2005). *Video games and the psychological development of Japanese children*, In D. W. Shwalb, J. Nakazawa, & B. J. Shwalb (Eds.), *Applied developmental psychology: Theory, practice, and research from Japan*(pp. 301- 319). Greenwich, CT: IAP.

- Saracho O. N. & B. Spodek (Eds.), *Multiple perspectives on play in early childhood education*(pp. 295-305). Albany, NY: State University of New York Press.
- Sarah Mae Sincero (2012). *Theory of cognitive development*. Retrieved Aug 03, 2018 from Explorable.com: <https://explorable.com/theory-of-cognitive-development>
- Shao-I, C., Jie-Zhi, L., & Der Hsiang, H. (2004). Video game addiction in children and teenagers in Taiwan. *Journal of Cyber Psychology and Behavior*, 7(5), 571-581.
- Singer, D. G.& Singer, J. L. (2005). *Imagination and play in the electronic age*. Cambridge, ssssMA: Harvard University Press.
- Skoric, M., Teo, L., & Neo, R. (2009). Children and video games: Addiction, engagement and scholastic achievement. *Journal of Cyber Psychology and Behavior*, 12(5), 567-572.
- Smolucha, F. (1992). The relevance of Vygotsky's theory of creative imagination for contemporary research on play. *Creativity Research Journal*, 5(1), 69-76.
- Smyth, J. (2007). Beyond self-selection in video game play: An experimental examination of the consequences of massively multiplayer online role-playing game play. *Journal of Cyber Psychology and Behavior*, 10(5), 717-721.
- Tumbokon, D. (2014). Effect of video games on child development. *Developmental Psychology at Vanderbilt*.
- Tuzun, H. (2004). *Motivating learners in educational computer games*. Unpublished Ph.d thesis, Indiana University. Dissertation Abstract International, 65 (05), 1749A. (UMI No. 3134052)
- Vandenberg, B. (1998). *Real and not real: A vital developmental dichotomy*. Albany, NY: State University of New York Press.
- Wack, E., & Tantleff-Dunn, S. (2009). Relationships between electronic game play, obesity and psychosocial functioning in young men. *Journal of Cyber Psychology and Behavior*, 12(2), 241-244.
- Williams, J. (2006). *Why kids need to be bored: A case study of self-reflection and academic performance*. *Research in Middle Level Education Online*, 29(5), 1-17.
- Wohlwill, J. F. (1988). *Artistic imagination during the latency period revealed through computer graphics*. In G. Forman & P. B. Putfall (Eds.), *Constructivism in the computer age* (pp. 15-35). Hillsdale, NJ: Lawrence Erlbaum.
- Wood, R., Griffiths, M., & Parke, A. (2007). Experiences of time loss among videogame players: An empirical study. *Journal of Cyber Psychology and Behavior*, 10(1), 38-44.