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A STUDY OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) UTILIZATION IN SUNDAY CATECHISM CLASSES IN THE ARCHDIOCESE OF HO CHI MINH CITY

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Abstract: The current study was carried out in the context of Church efforts to promote the utilization of ICT in religious activities, especially in catechism education to children and adolescents in the Archdiocese of Ho Chi Minh City. In this day and age, information and communication technology (ICT) has become an important integrated component in every area of people's lives from the workplace and to the school/educational environment, from social activities to religious practices. The Church acknowledges that these ICT advances provide people with various ways of learning new knowledge, sharing ideas and faith, and expanding means of communicating with other people, creatively and conveniently. This research was conducted in May, 2012. The quantitative research approach was employed by means of a survey questionnaire. Data obtained from 351 lay catechists were statistically analyzed in order to identify the types of ICT used in catechesis classes and, at the same time, to examine gender and age differences in ICT utilization. The results of data analysis revealed the following: (a) lay catechists used different types of ICT to support their teaching practice, with Internet/Catholic websites being the most frequently used ICT tool, followed by mobile phone, and then by desktop/laptop computer; (b) there are no differences within catechists' gender in the use of ICT tools for catechism activities in catechism classes; and (c) there are no differences among catechists' ages in the use of ICT tools for catechism activities in catechism classes.

Keywords: Vygotsky's Social Development Theory, Information and Communication Technology (ICT), Catechism Classes, Ho Chi Minh City

Introduction

Pope Benedict XVI and his predecessor Pope John Paul II stated that the Church should urgently deploy these kinds of modern technologies in order to proclaim the Good News and to reach the young generation. Parents and teachers should wisely endorse the utilization of modern technologies to convey the beauty, the truth, and the values of the Gospel to young people in order to make their lives meaningful and valuable (Benedict XVI, 2007, 2010; John Paul II, 2000).

With regard to the young generation living in today's modern technological era, both Pope Benedict XVI and former pope John Paul II expressed that the powerful potentials of modern communication technology are seen as gifts for people because ICT provides abundant sources for searching and sharing knowledge, enabling people to approach new ways of learning and communication. Today's young people, having grown up in the computer culture or digital world, have embraced these technologies as part and parcel of their lives. The language they have created is being used in their day-to-day lives in the new culture created by computer technology, media, and the Internet (Benedict XVI, 2009; John Paul II, 1989).

In meeting the needs of learners by taking advantage of modern technology, the General Directory for Catechesis (1997) mandated that, in teaching catechism, teachers and catechists should not only use traditional means of teaching but also use modern technological supports such as cassettes, video, DVD, and all kinds of available media that the young generation is familiar with, and ensure that these tools provide relevant and influential illustration of the lesson at hand. Additionally, Pope John Paul stated that teachers gain psychological advantage if they avail of the computer, the Internet, or various mass media in catechism classes to support their teaching. Catechists are aided in cultivating Gospel message in the new generational culture by using the new language provided by new technologies (John Paul II, 1990).

Ideally, a catechism learning environment must be a joyful environment in which catechists and students can have friendly communication moments and sincere faith-sharing opportunities. During the process of catechism learning, catechists not only teach their learners the knowledge content of the Gospel, theology, or liturgy but also share with learners their lived experiences about their close relationship with Christ. At the same time, students are invited to share their knowledge, thoughts, and beliefs with their teacher and peers through communication opportunities. Zukowski observed that when catechists presented the lesson with technology support, students actively engaged in their learning. They asked questions and excitedly communicated with the catechist and their classmates about the catechism content (Zukowski, 2010).

In this research, the researcher attempted to examine the different types of information and

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communication technologies being used in Sunday catechism classes from Grade 1–12 in the Archdiocese of Ho Chi Minh City. A review of the literature revealed much information about the role of ICT in catechism education, and even more information about ICT in education. However, there appears to be no previous empirical exploration of the application of ICT in catechism classes, particularly within the Vietnamese context. This knowledge gap justified the conduct of this study as its findings would inevitably add to the literature.

A modified survey questionnaire was developed for use in this study. The researcher applied a questionnaire which was adapted and modified from many authors (Isleem, 2003; Kitchin, 2005; Papanastasiou & Angeli, 2008). The researcher also based the question items and rating system on literature review and related studies in association with the research objectives.

Theoretical Framework

The current researcher presented Lev Vygotsky's *Social Development Theory* as the underlying theory supporting this study. According to this theory, learners' cognitive development occurs within the process of *social interaction* in which language, signs, and symbols are deemed cultural tools that help mediate learners in the course of their learning. Language, in particular, is a powerful tool that helps convey cultural knowledge from generation to generation. According to Vygotsky, the *zone of proximal development* (ZPD) is the bridge that connects learners' prior knowledge to their unknown knowledge. Learners eventually reach new knowledge through the support of other people and, as a result, are better able to solve problems independently (Bonk & Cunningham, 1998; Hall, 2007).

Vygotsky's social development theory provided fundamental elements that could be applied in religious education such as in catechism classes. The first element is the importance of *social interaction*. The learning process involves an active relationship between learners and social circumstances and that the intellectual development of learners is enhanced through the process of combining external communication and internalization (Hall, 2007; Santrock, 2009). In the context of religion, a parish is seen as a community with various activities within the social and religious dimensions. For example, all the laity are invited to build their parish to become a dynamic community of faith by attending charitable activities, participating in catechism courses, attending worship services, and so on (United States Conference of Catholic Bishops, 1996). Furthermore, the interaction in a community does not only involve relationship and communication between people with people as the horizontal dimension, but also the relationship and communication between people and God as the vertical dimension.

In a catechism class, both catechist and learners search for the truth and share their experiences of faith together. Second, a *mediator* is seen as a skilled teacher who profoundly helps his or her students through different styles of teaching-learning engagement or mediation such as role playing and use of learning software (Hennessy & Deaney, 2007). The computer and digital technologies mediate positively between learners and their parents or classmates in updating new information while they travel or do things together. A parish priest or a senior person is also seen as a mediator who has taken the responsible to convey faith content to the others, especially the younger generation (Lund, 2009). Besides, in a catechism class, the catechist takes the role of mediator who helps students understand what it means to know and love God. Additionally, mass media and computer technology are considered as tools that serve as useful sources of Bible pictures and short films/video clips for teaching catechism (Benedict XVI, 2010). Finally, in the religious perspective, the *zone of proximal development* (ZPD) of learners, during the process of gaining knowledge about the Church's teachings and traditions, is enhanced through the learning of catechism and search for truth. At the same time, love for God is being developed when a person's knowledge of God is internalized to become personal confidence in God's love. Furthermore, love for God and others is expanded broadly when the laity's life of faith is associated with practicing Gospel values in one's family, workplace, and social environment (Paul VI, 1965).

Mass media, the Internet, and other modern technologies are seen as gifts that provide people various ways of communication, learning, sharing, and searching for knowledge. At the same time, people use these powerful tools to build relationships with other people and to form a community based on specific purposes such as a learning community, a faith sharing community, and so on. The Church should creatively and wisely use these power tools to promote human rights, justice, and peace. While using these tools in religious education, the Church can reach the digital generation more effectively and accompany them on the journey of faith development and search for truth (John Paul II, 1989; Pontifical Council for Social Communications, 2002).

Pope Benedict XVI also asserted that the Church should creatively integrate the marvelous source of symbols, images, and rituals from the Bible and Church tradition in the new culture created by digital technology. These contemporary images and messages of the Bible would not only help young

people to broaden their knowledge about faith but also touch their hearts through the beauty of the Gospel messages. Catechists could draw abundant authentic documents to support their teaching. Furthermore, the advantages of these new technologies would enable teachers and students engaged in individual or collaborative learning to search for the sources of information and data to support their teaching and learning. The youth are especially encouraged to enhance their learning of the Bible and Church doctrine via Catholic websites (Benedict XVI, 2009, 2010; John Paul II, 2005).

One of benefits has been proposed relative to the use of information and communication technology in religious education. ICT usage and application in religion-based teaching and learning processes has enabled teachers to teach the subject matter in new and various ways. Consequently, by using these technologies strategically and creatively, teachers encourage students to engage in their learning with interest and pleasure. Without changing religious content, ICT utilization leads to new ways of teaching and learning on account of new information provided via computer technology and the media (BECTA, 2009a). A research conducted by the University of Dayton reported that participation in the virtual learning community has increased of late. The report revealed that, increasingly, young people have joined the virtual community where they can learn from each other, improve their knowledge of faith, and share their lived experiences, thus, helping to strengthen their faith. Furthermore, they created their own parish to initiate an active community of living faith and participate in worship practice (as cited in Zukowski, 2007).

The religious education learning environment should be a place in which students can develop their interest in religion, develop critical thinking skills in order to gain deep religious knowledge, understand and respect cultural and religious diversity, and practice skills that would help them to live their life with satisfaction. ICT instruments are tremendous resources that allow teachers and students to search for useful information and enable young learners to open their horizons through teamwork, communication, and cooperation with friends from other faiths or belief systems (Non-Statutory National Framework, 2004). For example, Grade IV–VI students can learn the meaning of faith and how faith impacts on people's lives with a view to changing their behavior for the better, through digital storytelling. Additionally, students can be taught how to use a digital camera to record different religious community activities and then share the outcome with their classmates; this way, students develop respect and sensitivity towards other religions (BECTA, 2009b).

Helping students to understand and appreciate religious doctrines, develop good values, and learn proper conduct are some of the purposes of teaching religion. BECTA demonstrated that, when teachers used religious websites to facilitate the lesson, learners changed from passive learning to active learning. For instance, secondary level students were taught Buddhist meditation techniques by using websites to search for appropriate video clips and, subsequently, practice meditation. This style of learning helps students to acquire effective listening habits and develop concentration skills. ICT assistance to teaching and learning allows teachers to use numerous tools and resources for different teaching methods to facilitate student learning. At the same time, students gain deeper understanding about specific lessons by whatever kind of learning form they choose to adopt: individual learning, peer learning, or group learning (BECTA, 2009b).

Religion-based subjects not only aim to sharpen content memorization but also to develop and enhance thinking skills. Using ICT support to demonstrate lessons that enhance learners' cognitive skills is the foremost factor that teachers wish their learners would gain in the process of learning. A past research on the use of ICT in teaching Islamic subjects in Brunei Darussalam demonstrated that multimedia integration assisted teachers in making their lesson presentation more appealing to students. Moreover, this system encouraged students to positively engage in expanding their research skills and take pleasure in disseminating the new knowledge gained (Lubis et al., 2011). However, Laurillard posed the caveat that while teaching religion aims to help students strengthen their spiritual life and extend their good behaviors towards serving society responsibly and honestly and that utilizing ICT instruments in facilitating the teaching process is not a problem, what is of greater concern is how both teachers and learners use these resources and to what aim; it would be ideal if teachers could use them to help students link knowledge gained with positive emotions (Laurillard, 2001, as cited in Lubis et al., 2011).

Regarding gender difference in the use of ICTs in education, the previous research findings on gender difference in ICT in education are mixed. Some find difference, some do not. A study found that girls and boys in primary and secondary education differed in the use of ICT in terms of skills, attitude, and work patterns (Volman, Eck, Heemskerk, & Kuiper, 2005). Likewise, it was found that Arts and Social Sciences female students spent much more time on the computer for their study than male students (Rathore, 2008). However, in the learning process, male respondents were more confident than female in the use of ICT tools (Jamieson-Proctor,

Burnett, Finger, & Watson, 2006; Mahmood, 2009). On the other hand, there are studies that demonstrated that there is no gender difference in the use of ICT in education. For example, in a study on student teachers' attitudes toward information technology (IT) at Putra University in Malaysia, it was reported that there were no differences in attitudes toward IT as a function of gender (Wong & Hanafi, 2007). In addition, there was no difference in the adoption of ICT for instructional and assessment purposes or the use of computer among female and male educators (Cushing, Lindenfeld, Morete, Kelly, & Rudiger, 2010; Rahimi & Yadollahi, 2011).

Regarding age difference in the use of ICTs in education, the previous research findings on the difference of age in ICT usage in education are mixed. Some find difference, some do not. Lau and Sim (2008) explored the extent of ICT adoption among secondary school teachers in Malaysia and found that, among 250 secondary school teachers of Mathematics and Science aged between 35–45 years, senior teachers valued more the use of multimedia, PowerPoint, and simulation programs in their teaching than did junior teachers. A study involving senior administrators, teachers, and graduate students showed a difference in the use of ICT in terms of computer software and Internet facilities, as a function of age (Bakkabulindi, 2011; Mumcu & Usluel, 2010). In the same token, a research on the stress levels of social network users in Turkey revealed that ICT users aged 20 years and below had lower stress levels than those aged 31 years and above (Coklar & Sahin, 2011). In contrast, however, a study reported that trained teachers in Australia who belonged to different age groups had the same level of computer utilization at home and at work (Burnip, 2006). Besides, other studies also notified that respondents' age had no impact on their use of ICT tools in work and educational environment, even though these respondents believed that ICT tools played a very important role in their professional development (Dhanavandan, Esmail, & Mani, 2008; Peeraer & Van, 2010).

Method

Population

The study involved a target sample of 400 lay catechists in the Archdiocese of Ho Chi Minh City. The target population included male and female catechists who teach Sunday catechesis classes attended by Grade 1–12 students. The final number of respondents was confirmed 351 out of 400, comprising 150 male and 201 female catechists. The current research utilized a quantitative approach to draw outcomes based on target participants' responses to a survey questionnaire.

Instrumentation

The researcher applied the descriptive/inferential survey research methodology to illustrate the findings of the study. A modified survey questionnaire was used as a tool to achieve the goals of the study. The questionnaire was divided into two parts. The first part (A) consisted of the personal information section aimed at obtaining demographic information regarding respondents' gender, age, and academic level. The second part (B) comprises questions about catechists' ICT usage in their catechism classes. This part consisted of questions regarding the use of ICT in Sunday catechism classes. It has two sections. Section 1 contains 11 items while section 2 has 16 items.

Section 1 asks about respondents' specific kinds of ICT used as tools to support teaching catechism class. This series of 11 questions items referred to the use of the following ICT tools: television, printer, overhead projector, digital camera, mobile phone, cassette recorder, video projector, CD-ROM/VCD/DVD players, desktop/laptop computer, tablet computer, and Internet/Catholic websites. Rating is accomplished by means of a five-point Likert-type scale of 1 to 5 where: 1 = *Never*; 2 = *Once or twice a year*; 3 = *Once or twice a semester*; 4 = *Once or twice a month*; and 5 = *Almost every week*.

Section 2 focuses on catechism activities that require ICT tools. This series of 16 items referred to two types of activities: instructional activities (items 1–12 and 16) and communication activities (items 13–15). Rating is accomplished by means of a five-point Likert-type scale of 1 to 5 where: 1 = *Never*; 2 = *Rarely*; 3 = *Sometimes*; 4 = *Often*; and 5 = *Almost always*.

Procedure

This study was conducted by the researcher himself in Ho Chi Minh City in Vietnam. In May, 2012 the researcher personally distributed 400 questionnaires (Vietnamese version). The returned questionnaires were individually inspected for possible errors in completion, with the objective that only those deemed valid would be subjected to data analysis. Finally, it was confirmed that 351, or 87.75%, out of a total of 400 questionnaires released were deemed valid and would undergo statistical analysis.

To determine the reliability of Part B of the survey questionnaire, including sections 1 and 2, the researcher conducted a pretest of the questionnaire. The survey tryout was carried out by asking 30 lay catechists who did not belong to the target sample to complete the questionnaire, in an attempt to determine the reliability of the questionnaire, by computing for the Cronbach's alpha reliability coefficient of each section of the main questionnaire. Table 1 presents the summary of the reliability values.

Table 1: Summary of the Reliability of Variables Measured in Alpha

Variables	Tryout Alphas Coefficient
The specific types of ICTs	.73
The use of ICT tools for instructional activities	.85
The use of ICT tools for communication activities	.82

According to Gliem and Gliem (2003), a Cronbach's alpha reliability coefficient that is >.7 is acceptable and >.8 suggests good reliability. In this study, all the items of the questionnaire sections (kinds of ICT, ICT tools for instructional activities, ICT tools for communication activities) listed in Table 1 were found to be reliable for the current research, with Cronbach's alpha coefficients computed at .73, .85, and .82, respectively.

Table 2: Frequency and Percentage Distribution Tools Used

Variables	Frequency		Never	Once or twice a year	Once or twice a semester	Once or twice a month	Almost every week
	Mean	SD	%	%	%	%	%
Television	2.00	1.28	56.1	6.8	23.9	6.8	6.3
Printer	2.47	1.39	33.3	24.2	17.7	11.4	13.4
Overhead projector	1.90	1.27	61.3	6.3	19.4	7.1	6.0
Digital camera	1.93	1.14	53.3	12.8	24.2	6.6	3.1
Mobile phone	2.24	1.58	53.3	11.7	11.7	3.7	19.7
Cassette Recorder	1.53	1.00	74.6	4.6	14.5	4.8	1.4
Video projector	2.29	1.32	42.2	13.1	27.1	8.8	8.8
CD-ROM, VCD and DVD players	2.57	1.20	26.8	16.0	37.0	13.7	6.6
Desktop or laptop computer	2.63	1.39	30.2	16.8	27.4	10.5	15.1
Tablet computer	1.30	.85	86.6	3.7	4.8	2.6	2.3
Internet/Catholic Websites	2.68	1.48	28.8	24.4	16.5	10.3	20.2

Results

Personal information

The results of descriptive statistics revealed that, with regard to gender, majority of respondents were female catechists (n=201 or 57.3%). The remainder consisted of 150 male catechists (n=150 or 42.7%). With regard to age, majority of respondents were aged between 18 to 25 years (n=236 or 67.2%), followed by the middle bracket comprising those aged between 26 to 37 years (n=73 or 20.8%). The smallest age group consisted of those aged 38 years and above (n=42 or 12.0%). With regard to academic level, majority of respondents were 246 catechists (70.1%) who had an academic diploma below bachelor's degree. The remainder consisted of 105 catechists (29.9%) who had a bachelor's degree or above bachelor's degree.

ICT tools utilization

In Table 2, results of the current study indicated that the target catechists used different types of information and communication technology (ICT) to support their Sunday catechism classes. It was found that, among the different types of ICT tools identified for the purposes of the study, Internet/Catholic websites usage had the highest percentage (20.2%), closely followed by mobile phone usage at 19.7%. The third most frequently used ICT tool was the desktop and laptop computer at 15.1%. On the other hand, the least used ICT tool among the group of catechists is the cassette recorder at only 1.4% almost every week, followed by the tablet computer at 2.3%.

ICT utilization as a function of gender

Table 3: T-Test of ICT Usage in Instructional Activities According to Gender

				Independent Samples t-Test (2-tailed)	
Instructional Activities	n	M	SD	t	Sig.
Male	150	38.29	8.32	.730	.466
Female	201	37.55	10.04		

*P < .05

Table 4: T-Test of ICT Usage in Communication Activities According to Gender

				Independent Samples t-Test (2-tailed)	
Communication Activities	n	M	SD	t	Sig.
Male	150	10.22	3.05	-1.649	.100
Female	201	10.79	3.25		

*P< .05

In Table 3 and 4, independent Sample t-Test was applied to test ICT utilization as a function of gender, there being two variables involved–male and female. The result of data analysis revealed that males and females do not differ significantly in the use of ICT tools for both instructional activities (P = .466 > .05) and communication activities (P = .100 > .05). In effect, no significant gender difference was found in the use of ICT. In response to the first research hypothesis, there is no significant difference in the use of ICT as a function of catechists' gender. The alternative Hypothesis 1 is thus rejected.

In Table 5 and 6, one-way ANOVA was applied to test ICT utilization as a function of age, there being three variables involved: age groups 18–25 years, 26–37 years, and 38 years and above. The result of data analysis revealed that the age groups do not differ significantly in the use of ICT tools for both instructional activities (P = .067 > .05) and communication activities (P = .192 > .05). In effect, no significant age difference was found in the use of ICT. In response to the second research hypothesis, there is no significant difference in the use of ICT as a function of catechists' age. The alternative Hypothesis 2 is thus rejected.

ICT utilization as a function of age

Table 5: Difference in ICT Usage for Instructional Activities According to Age

	Sum of Squares	df	Mean Square	F	P
Between Groups	470.802	2	235.401	2.725	.067
Within Groups	30064.429	348	86.392		
Total	30535.231	350			

*p < .05

Table 6: Difference in ICT Usage for Communication Activities According to Age

	Sum of Squares	df	Mean Square	F	P
Between Groups	33.415	2	16.708	1.659	.192
Within Groups	3505.462	348	10.073		
Total	3538.877	350			

*p < .05

Discussions

This research could not express detailed explanations about the influence of ICT on catechists' teaching methods and motivational strategies aimed at enhancing students' learning. The intention of this study was simply to explore the specific types of ICT utilization in Sunday catechesis classes and to determine the differences the use of ICT tools as a function of catechists' gender and age.

Catechists indicated their use of Internet/Catholic websites and the computer noticeably, which was consistent with the results of Campbell (2009) as well as Kabilan and Rajab (2010) who found that Internet and websites provided various relevant information that supported teaching and learning undeniably. Surprisingly, some catechists implemented tablet computers in their teaching although these have just been produced recently. One could say that young people very quickly adapted themselves to the new digital culture, as earlier cited (Benedict XVI, 2010; Tapscott, 2009) and they had made it into a beneficial tool to support their work.

However, the limitation in the use of some ICT tools in Sunday catechism classes was in agreement with the observations of Rahimi and Yadollahi (2011) in that some teachers in English foreign language classes realized that applying ICT tools such as computer and the Internet to support teaching was a heavier task compared to using textbooks as well as prepared exams, allowing teachers to finish their tasks faster. In addition, Mumcu and Usluel (2010) noted in their research that vocational and technical teachers used much more ICT in their daily life activities than in their professional activities.

There were no gender differences in the use of ICT for instructional activities as well as communication activities in catechism classes. This result was consistent with the finding of Cushing et al. (2010) that there was no correlation between the role of gender and use of technologies for instruction and assessment. In addition, Rahimi and Yadollahi demonstrated that using computer technology for lesson preparation and activities in English foreign language classes was not associated with teachers' gender (Rahimi & Yadollahi, 2011).

There were no age differences in the use of ICT for instructional activities as well as communication activities in catechism classes. This result was similar to that of Dhanavandan, Esmail, and Mani (2008) who found that librarians belonging to different age groups did not show any difference in their utilization of ICT tools for their professional and research activities. Peeraer and Van reported that teachers from different age groups did not differ significantly in the implementation of ICT in their teaching practice (Peeraer & Van, 2010).

There are ongoing challenges in the use of ICT in teaching practice, particularly in Vietnam. As far as implementing computer, Internet, and mass media technology in the teaching-learning process is concerned, Vietnamese teachers and students continue to face many challenges. Vinh, Hoa, Ha, and Binh (2010) expressed in their study entitled, *ICT Applications in TVET Institutions in Vietnam* that there were existing barriers that needed to be overcome relative to ICT applications in the classroom, namely: (a) slow policy making for greater ICT application in teaching; (b) lack of financial assistance for teacher training; and (c) limited resources/training aimed at improving users' capacity for using ICT tools and equipment. These and other reasons explained why teachers and students still have limited use of ICT tools in the teaching-learning environment. It was ironic that this problem remains unresolved in spite of the Catholic Church's stand to constantly promote deployment of ICT tools, particularly the computer, Internet, and mass media technology in Church activities such as pastoral instruction, religious dialogue activities, and Christian faith education (BISCOM VI, 2007).

This research was conducted primarily to examine the use of ICT in Sunday catechism classes in the Archdiocese of Ho Chi Minh City. Future researchers may look further into the impact of catechism classes on the attitudes of a particular grade level of students toward friendship or perhaps other psychosocial factors such as forgiveness, hospitality, and joy of catechism learning, through the mediating influence of ICT tools and resources. Other researchers may wish to take this study further by investigating the productive integration of ICT tools in education, to improve students' knowledge and skills in major subjects such as science, mathematics, history, etc., using a larger population and more suitable research methods and instrumentation. It is recommended that other researchers should expand the literature by extending this current study to the use of ICT in various domains such as:

- Public administration.
- Business and management.
- Health sciences and suchlike.

The current study focused on ICT utilization in Sunday catechism classes for children and adolescents. It is recommended that this study be extended to examine the role played by ICT-based catechism classes in adult domains such as:

- Preparing for marriage and parenthood.
- Retirement, dealing with chronic illness and death in the family.
- Retirement, facing with domestic violence and poverty.

- Retirement, coping with tragedy and disaster, and other critical and developmental transitions.

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