Use of Technology and Moral Competence across Younger and Older Adults

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The aim of this study was to examine the impact of technology usage on moral competence of young and older adults. The sample consisted of 309 participants both young adults (n=189) and their parents (n=120) hence referred as older adults. The participants were administered Moral Competence Test (Lind, 2008) and a self-developed Technology Usage Questionnaire along with the demographic information questionnaire. Moral competence was expected to be predicted by use of technology in relation to age group. Results showed that there were significant gender differences in technology usage and moral competence of older adults. Technology usage did not show independent significant impact on moral competence of participants. However, age group moderated in the relationship between the technology usage and moral competence. Similar findings were observed for gender. Implications regarding moral competence across gender and age groups are discussed.

Keywords: Moral Competence, Technology Usage, Young Adults, Older adults, Gender

Researchers have started investigating the impact of technology usage on different aspects of human development (Baum, 2005; Bellemare & Holmberg, 2010; Cavalier, 2005). One of the aspects is moral development including moral reasoning and judgment. Contemporary theorists have emphasized the role of family, culture and social network in development of moral judgment. Modern technologies have widened the horizon of social networking for individuals.

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The use of computers, tablets and smartphones has revolutionized the arena of social networking across generation world over. In Pakistan, recent progress in technology has equally impacted young and old. According to a recent survey, Pakistan's progress rate of web clients is second most noteworthy in SAARC nations (Amin, 2014). The recent public policy of distributing laptops in educational institutions by Government of Pakistan has provided opportunities for the public to indulge in online networking. Similarly, the availability and popularity of smart phones have further added to the diversity of technology users in the country. Social networking has now become an inseparable part of our lives where people are constantly forming acquaintances (both real and virtual) with new people and renewing them with older friends. Amongst other things which differentiates the virtual world from the real one is the experience of being in a world constructed entirely on the basis of information. Recent developments show the emergence of a newer "augmented reality" which allows people to interact in the virtual world oblivious to their surroundings. Images are captured conveniently and information regarding different items is also at user's disposal with a click. All of this has empowered individuals to manipulate information according to their desire. Interestingly, not only the young adults but also older adults are becoming increasingly exposed and consequently habituated to use of technology gadgets. This change shows that an increasing number of people have started spending most of their time online with other users which is resulting in an unprecedentedly new kind of lifestyle.

Keeping in view the above mentioned social change, one becomes inquisitive about the impact of the technology usage on moral reasoning across generation. Early adulthood is the time when moral judgment is passing through Conventional stage and it is generally a time when young adults are attracted toward the world of online communication. Hence, their resultant moral competence is being shaped in a world where the role of immediate behavioral feedback is minimal along with decreased risk of parental punishment. On the internet, the individuals are judged by the sketchy standards such as the things they write, instead of the kind of people they really are. The degree of interaction amongst people is unprecedented and the need to validate the trivial bits of information is disturbingly high. Hence, the role of moral judgment cannot be denied for technology users. Morality has been studied in three aspects namely cognitive, emotional and behavioral (Eysenck, 2004; Sigelman, 1999). Some theorists have tried to test the cognitive aspect through conventional methods of assessment of moral judgment (Tirri & Nokelainen, 2007). The Kohlberg approach to moral reasoning refers to the socio moral perspective guided by moral judgments (Kohlberg, 1969, 1976). Kohlberg (1969)

identifies six stages of moral development, categorized into three basic levels. Progression in the stages is contingent upon the development of adequate cognitive capacities in the context of moral reasoning. The progression is also subject to an acute understanding of other people's perspective, which builds with time. At the pre-conventional level, moral understanding is signified by a categorical, self centered perspective. At the conventional level the individual obtain a sense of other people's perception and also an adequate understanding of societal norms that maintain a unique functional balance in the society. At the post conventional level, moral understanding is defined by standards of justice and fairness, which serve as underpinnings for the aforementioned societal norms and mores. Thus, Kohlberg's perspective assumes an affective-cognitive parallelism for moral maturity. Lind (1985) argued that the above mentioned assumption has not been investigated empirically. To deal with this shortcoming, Lind (1995) developed Moral Judgment Test which helps to investigate the proposed affective-cognitive parallelism. Lind further argues that it is more important to assess how decision making process is modulated by a person's competence to deal with dilemmas. In order to support this assumption Lind (2008) developed an approach to assess dual aspect of moral reasoning (i.e. affective-cognitive parallelism).

The current study aims to investigate the relationship between moral competence and utilization of internet technology across generations and gender. Research on the impact of use of technology on moral judgment has yielded interesting results. It has been associated with declining moral reasoning. Formative patterns in moral judgment among graduates who use internet showed that the degree of technology utilization is associated with reduced post conventional reasoning, and has a negligible impact on egocentric reasoning (Thoma & Bebeau, 2008).

A growing body of data supports the evidence that moral reasoning becomes more sophisticated and abstract with an increase in age (Eisenberg, Carlo, Murphy, & Van Court, 1995; Eisenberg, Cumberland, Guthrie, Murphy, & Shepard, 2005). A large number of people are pre conventional in their thinking, amid adolescence, however by young adulthood; most people begin to reason at the routine phase of moral development. Routine thinking is likewise regular for grown-up's moral considering, in any case, still once in a while happening amid the center secondary educational years. Through early adulthood, post conventional moral thinking can surface and can be observed among mature people (Eisenberg, Hofer, Sulik, & Liew, 2013).

In addition, gender differences in moral reasoning have also been explored. It has been proposed that women value a care orientation whereas men are more preoccupied with absolute standards of justice and fairness (Gilligan, 1982, 2012). However, after being subjected to plenty of empirical data, we are no longer sure of the authenticity of moral orientation being different simply on the basis of gender difference. Growing body of data has investigated this contention, with inconsistent results (Dewolfe, Jackson & Winterberger, 2004; Eysenck, 2004; Jaffee & Hyde, 2000; Klein & Hodges, 2001). Bouhnik and Mor (2014) investigated contrasts across gender regarding young people's behavioral attributes and moral judgment in the internet environment. Young women have a tendency to utilize the internet more for doing homework and sites than young men, though young men have a tendency to play internet amusements more than young women. Gender contrasts were discovered with respect to immoral conduct. Young men were more likely to be indulged in practices like, digital harassing, literary theft, and downloading music and motion pictures unlawfully from the Internet. Tapia (1999) and Dunn (2002) found out that young women score much more concerning sympathy, social obligations and interpersonal connections than young men. Young women seem, by all accounts, to be touchier towards their associations with relatives, folks and companions.

The role of family set up cannot be overlooked in relation to moral judgment. The impact of family on moral development is vital. Family is the primary institution where an individual learns moral values and reasoning tactics. White (2000) studied the association of familial socialization and its consequent impact on the moral understanding of adolescents and their parents. Impact variables for family process included adaptability, cohesion and parent adolescent communication. High familial cohesion correlated with family as a source of moral authority. Dyadic interaction among parents and adolescents depicted greater agreement on all levels of moral authority, when perception of positive communication was high.

It can be seen in the researches stated above that technology does play a vital role in keeping individuals updated in the social milieu and can have an impact on their moral judgment. Therefore, it can be established that moral reasoning is not only intended for self but also keeps in view the others' perspective thereby making it a socio-cognitive process. In the current socio-cultural scenario, our generations are witnessing considerable social change in the form of increased dependence on technology and its usage. Hence, the question arises; is use of technology taxing moral values of masses? Does it make oneself Egocentric? Therefore, it becomes crucial to investigate this phenomenon in terms of its impact on moral reasoning as individuals of a society represent its collective moral thought which contributes to a society's

progress and survival in the existing global scenario.

Method

Participants

The sample comprised of 309 participants including young adults (N=189) and their parents (N=120) hence referred as older adults. The age range for young adults was 18 to 23 years and for older adults it was 40 to 70 years. Both men and women were included in the sample for both age groups. Descriptive statistics for demographic characteristics of participants are given in Table 1.

Table 1: Demographic Characteristics of Participants, (N=309)

Variables	Young Adults		Older Adults	
	f(SD)	*f*(%)	M(SD)	*f*(%)
Age	19.70 (1.85)	-	52.71 (6.39)	-
Gender				
Men	-	69 (37%)	-	57 (48%)
Women	-	120 (63%)	-	63 (52%)
Education	13.89 (1.69)	-	14.15 (1.59)	-
Family System				
Nuclear	-	117 (62%)	-	54 (45%)
Joint	-	72 (38%)	-	66 (55%)

Measures

Moral Competence Test: The standard form of the Moral Competence Test (MCT) contains two stories. Each one presents the test taker with a dilemma; whatever he or she chooses to do, it will clash with a few tenets of behavior. So the quality of decision is paramount and not the decision itself. The integrity of disagreeableness of the decision relies on its purpose. For some individuals, it has an enormous effect whether someone carries on well on the grounds that he or she feels in the state of mind to do so, or hopes to get a reward or constraint to do so by external forces or on the basis of his or her moral conscience. Subjects are approached to judge contention for their worthiness. These contentions present distinctive level of moral reasoning, six supporting the decision that the hero in the story made, six contending against contending against his or her decision. So for every dilemma, the respondent has to judge twelve contentions. In the standard form there are 24 contentions to be appraised. The hypothetical

legitimacy of MCT has been assessed on the premise of extremely thorough criteria, which is not accessible in traditional psychometric theory (Lind, 2008).

Technology Usage Questionnaire: It was a self devised questionnaire which consisted of twelve questions. The technological devices focused were computer, internet and mobile phones the questions focused on the usage and familiarity with these technology devices. The responses were taken on a three point likert scale. The outcome of the questionnaire was to figure out frequency of technology usage by participants.

Demographic Questionnaire: It was developed for the study in order to obtain information regarding age, gender, education and family system of the participants.

Procedure

Young adults (age range 18-23 years) were approached in a private sector university in order to collect data for study. Permission was taken from university authorities and informed consent was taken from participants. Initially, 350 participants were contacted, however, 290 participants agreed to participate in the study, they were also asked to take consent of their parents to fill the questionnaire pertaining to data for older adults. Two hundred and fifty parents consented to participate in the study. Finally, 189 younger adults and 120 older adults returned the completed questionnaires. The response rate for younger adults was 65% and 48% for their parents. The data was analyzed by using SPSS 18.

Results

To achieve the goals of current results, Pearson's correlation coefficient was calculated for key variables of study regarding two generations (i.e. young adults and their parents {hence referred as older adults}). Table 2 shows these findings in bold face for young adults and in light face for older adults.

Table 2: Pearson Correlation among demographic variables and use of computer, internet, mobile and moral competence (N=309)

Variables	1	2	3	4	5	6	7
1.Gender	-	**.09**	**-.02**	**-.02**	**.07**	**.13**	**-.01**
		.13	.05	-.19*	-.23	-.24**	-.19*
2.Education		-	**.15**	**-.07**	**-.18**	**.11**	**-.11**
			-.11	-.01	.03	.19*	.11

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	3	4	5	6	7
3.Family System	-	**-.04** / -.07	**-.24**** / .02	**-.01** / .16	**-.20** / .06
4.Computer Use		-	**.58**** / .76**	**.45**** / .21**	**-.08** / .29**
5.Internet Use			-	**.40**** / .42**	**.12** / .23*
6.Mobile Use				-	**-.02** / .07
7.Moral Competence					-

Note:**$p<0.01$; *$p<.05$

It is quite interesting to observe that younger adults did not exhibit significant association among gender, technology use and subsequent moral competence. Also, education was not found to be significantly correlated with moral competence, however, family system significantly inversely correlated with internet use and moral competence. It shows that younger adults belonging to nuclear family systems tended to use internet more often and they scored higher on moral competence in comparison to those belonging to joint family systems. On the contrary, significant inverse correlation was observed among gender, computer, internet, mobile use and moral competence of older adults. It shows that older men tended to use internet, mobile and computer more often than women. Moreover, men showed increased moral competence than women. Contrary to younger adults, older adults' educational level was significantly positively associated with mobile use. However, education was not significantly related to moral competence for both samples. For older adults, increased use of computer and internet was associated with high moral competence whereas no significant association was found for young adults.

Two way analysis of variance was applied to study impact of gender and age group on moral competence (Table 3). Main effects for age and gender were not significant. Moreover, interaction of age gender was also insignificant for moral competence of current sample.

Further, impact of gender and age group on technology usage was also calculated through two way analysis of variance. It was found out that main effect of gender was significant for computer and internet use and was insignificant for mobile use. Main effects for age were

significant for computer, internet and mobile usage. However, interaction of gender and age was significant for internet and mobile usage (Table 4).

Table 4: Two way Analysis of Variance showing impact of gender and age on use of computer, internet and mobile phones (N=309)

Source	Computer Use				Internet Use				Mobile Use		
	SS	*MS*	*F*	*p*	*SS*	*MS*	*F*	*p*	*SS*	*MS*	*F*
Intercept	21753.27	21753.27	12081.66	.000	23372.99	23372.99	17750.90	.000	33830.93	33830.93	21955.36
Gender	7.12	7.12	3.95	.048	5.89	5.89	4.48	.035	1.08	1.08	0.702
Age	46.64	46.64	25.90	.000	77.47	77.47	58.78	.000	7.28	7.28	4.72
Gender x Age	*5.09*	*5.09*	2.82	.094	13.32	13.32	9.35	.002	16.60	16.60	10.77
Error	549.15	1.80	-	-	40160	1.31	-	-	469.97	1.54	-
Total	24675.00	-	-	-	25568.00	-	-	-	37158.00	-	-

Hierarchical Multiple Regression analysis was conducted to study the contribution of demographic variables and use of technology to moral competence of participants. For this purpose, gender, age, education and family system were entered in the first block. It was observed that age significantly positively predicted moral competence of participants. It shows that older adults were more likely to have high moral competence then younger adults. However, gender, education and family system did not significantly predict moral competence. Overall, this model explained 2% of variance in dependent variable. Variables related to use of technology were entered in step 2. It was observed that none of the variables predicted moral competence significantly. However, the overall model was significant explaining 3% of variance. At step 3, moderated impact of age and gender on moral competence regarding technology usage was observed.

Table 5: Hierarchical Multiple Regression Analysis predicting moral competence from demographic variables and computer, internet and mobile use (N=309)

Predictors	*B*	*SE*	β	95% CI LL-UL
Step 1				
Gender	-1.51	1.11	-.06	-3.34, 1.041
Age	2.97	1.35	.15*	0.30, 5.62
Education	-0.30	0.35	-.05	-0.99, 0.40
Family System	-1.50	1.21	-.08	-3.71, 0.71

$R^2 = .02$, $F (4,304) = 1.48$

Step 2				
Computer Use	-0.88	2.46	-.13	-5.71, 3.10
Internet Use	1.86	2.76	.25	-3.57, 7.30
Mobile Use	-3.67	2.12	-.49	-7.85, 0.50
$\Delta R^2 = .03$, $F (7,301) = 2.06$				
Step 3				
Age x Comp. Use	2.94	1.15	.70*	0.68, 5.21
Gender x Comp. Use	-2.36	1.13	-.56*	-4.59, -0.13
$\Delta R^2 = .06$, $F (13,295) = 2.44$**				

Note:**$p<0.01$; *$p<.05$

For gender 0=Men, 1=Women ; For Age; 0=Young Adults, 1=Older Adults

For Family System 0=Nuclear Family System, 1=Joint Family System

It was found out that increased use of computer in old age positively predicted moral competence. Interaction of gender and computer use significantly negatively predicted moral competence. On the contrary, interaction of gender and mobile use significantly positively predicted moral competence.

Discussion

The findings of current studies are quite enlightening with reference to the socio-cultural scenario of Pakistan. First of all, it is interesting to note that for young adults, gender neither correlated nor impacted moral competence of participants. Although existing research literature regarding role of gender in development of moral reasoning suggests conflicting findings (Walker, 1991). Surprisingly, for older adults, gender significantly negatively correlated with moral competence showing that older men tended to have higher moral competence than older women. Hence it is also supported that moral competence has increased with age in our sample which is consistent with the findings of Colby et al. (1983), Eisenberg, Carlo, Murphy and Van Court (1995). These findings suggest that moral reasoning becomes more sophisticated with the increasing age. It was also observed that there were gender differences in use of technology on older age group implying that men tended to use technology more often than women. In contrast, there were no gender differences in technology uses among young adults. Perhaps this might be due to the fact that the younger sample comprised of university students who generally

use technology for different purposes for example, for completing their assignments, being an active part of social networking, and for entertainment. In addition, education neither correlated nor predicted moral competence across both age groups. Existing body of research literature also fails to establish relationship between education and moral competence (Lind, 2008). Furthermore, family system was significantly inversely related to moral competence of younger adults. It indicates that young adults belonging to nuclear family systems scored high on moral competence. It is generally observed in Pakistani culture that nuclear families tend to be more cohesive then joint family systems. This is due to the fact that in our indigenous scenario, a joint family system is generally a forced choice due to inability to develop a nuclear family setup involving financial pressure. In our research, the higher moral competence of young adults belonging to nuclear family systems can be explained through findings of White (2000) who also found out that high family cohesion is associated with increased moral maturity.

Results regarding role of gender and age in relation to moral competence yielded insignificant results. It was due to the fact that moral competence is not directly impacted by age group and gender yet there are some other variables, i.e. use of computer, internet and mobile phones which may explain the phenomenon better with these variables interaction. However, the findings for impact of gender and age regarding use of technology yielded significant results. It was found out that interaction for gender and age was significant regarding technology usage. Men from the older generation used technology more often than women of older age. It happens due to the fact that most of the older women participants were house wives and older men participants were either on job or business. Older men might be more in need of using technology than women.

Findings related to the moderating role of age in the relationship between technology usage and moral competence turned to be significant for computer use only. Interaction of age and computer use significantly positively predicted moral competence of participants. It indicates that older adults using computer more often do have higher moral competence. This may be due to the fact that use of technology in older adults is more purpose based than for the younger counterparts. The interaction of gender and computer usage significantly negatively predicted moral competence implying that women who used technology more often tended to have low moral competence than men. These findings get strength from the above mentioned rationale that it depends upon the purpose of the technology. Generally women use technology for social networking and getting know-how of others in the surroundings. It sometimes results

in the invasion of privacy of other having serious moral consequences.

In conclusion, current research confirms the existing assumptions that moral competence is achieved with increasing age. Moreover, this research also explained the role of use of technology on moral competence of younger and older adults. It is evident from our findings that older adults sustain their moral competence in spite of technology usage in comparison to the younger adults. It is further revealed that a potential factor may be the purpose of technology usage which may turn a blessing into a curse.

References

Amin, Y. (2014). *Pakistan has highest growth rate of internet users in SAARC.* Retreived on 3rd November, 2014 from http://www.mediapoint.pk/pakistan-has-highest-growth-rate-of-internet-users-in-saarc

Baum, J. J. (2005). Cyber Ethics: The new frontier. *Technology Trends, 49*(6), Sciences Module, 54-55.

Bellemare, M. F., & Holmberg, A. M. (2010). *The Determinants of Music Piracy in a Sample of College Students.* Retrieved from: http://dx.doi.org/10.2139/ssrn.1481272.

Bouhnik, D. and Moor, D. (2013). Adolescents' perception of illegal music downloads from the internet: An empirical investigation of Israeli high school students' moral attitude and behaviors. *Proceedings of the American Society of Information Technology,* 50 (1), 1-11. doi: 10.1002/meet.14505001043

Colby, A., Kohlberg, L., Gibbs, J. and Lieberman, M. (1983). A longitudinal study of moral judgment. *Monographs of the Society for Research in Child Development,* 48(1–2, Serial No. 200).

DeWolfe, T. E., Jackson, L. A. and Winterberger, P. (2004). A comparison of moral reasoning and moral character in male and female incarcerated felons. *Sex Roles Journal,* 18(9), 583-593.

Dunn, S. (2002). *Emotional intelligence quotations from around the world.* Retrieved from http://www.eqcoach.net/.

Eisenberg, N., Carlo, G., Murphy, B. and Van Court, P. (1995). Prosocial development in late adolescence: A longitudinal study. *Child Development, 66,* 1179 –1197. doi:10.2307/1131806

Eisenberg, N., Hofer, C., Sulik, M. J. and Liew, J. (2013). The development of pro-social moral reasoning and a pro-social orientation in young adulthood: concurrent and longitudinal correlates. *Developmental Psychology,* Advance online publication. doi: 10.1037/a0032990

Eisenberg, N., Cumberland, A., Guthrie, I. K., Murphy, B. C. & Shepard, S. A. (2005). Age changes in prosocial responding and moral reasoning in adolescence and early adulthood. *Journal of Research on Adolescence. 15*(3), 235–260. doi: 10.1111/j.1532-7795.2005.00095.x

Eysenck, M. W. (2004). *Psychology: An international perspective.* Canada: Psychology Press.

Gilligan, C. (1982). *In a different voice: Psychological theory and women's development. Cambridge,* MA: Harvard University Press.

Gilligan, C. (2012). In a different voice: women's conceptions of self and of morality. *Harvard Educational Review, 47*(4), 481-517.

Jaffee, S. and Hyde, J. S. (2000). Gender differences in moral orientation: a meta-analysis. *Psychology Bulletin, 126*, 703–726.

Klein, K. J. K. and Hodges, S. D. (2001). Gender differences, motivation, and empathic accuracy: when it pays to understand. *Personality and Social Psychology Bulletin, 27*, 720–730.

Kohlberg, L. (1969). Stage and sequence: The cognitive developmental approach to socialization. In D.A. Goslin (Ed.), *Handbook of Socialization, Theory and Research* (pp. 370-480). Chicago: McNally.

Kohlberg, L. (1976). Moral stages and moralization: The cognitive developmental approach. In T. Lickona (Ed.), *Moral Development and Behavior: Theory, Research and Social Issues* (pp. 31-53). New York: Holt, Rinehart and Wilson.

Lind, G. (1985). The theory of moral cognitive development. A socio-psychological assessment. In G. Lind, H.A. Hartmann & R.H. Wakenhut (Eds.), *Moral Development and Social Environment* (pp. 21-53). Chicago: Precedent Publishing.

Lind, G. (1995). *The Meaning and Measurement of Moral Judgment Competence Revisited.* A Dual Aspect Model. Invited address, SIG Moral Development and Education, American Educational Research Association (AERA), San Francisco, April 17-21. http://www.uni-konstanz.de/agmoral/mjt-95.htm

Lind, G. (2008). The meaning and measurement of moral judgment competence revisited - A dual-aspect model. In: D. Fasko & W. Willis, (eds.), *Contemporary Philosophical and Psychological Perspectives on Moral Development and Education,* pp. 185 - 220. Cresskill. NJ: Hampton Press.

Sigelman, C. K. (1999). *Life – span human development.* USA: Book/Cole Publishing Company.

Tapia, M.L. (1999). A study of the relationships of the emotional intelligence inventory (intelligence tests). Dissertation Abstracts International.

Thoma, S. J. and Bebeau, M. (2008). *Moral Judgment competency is declining over time: Evidence from 20 years of defining issues test data.* Paper presented to the American Educational Research Association, New York.

Tirri, K. and Nokelainen, P. (2007). Comparison of academically average and gifted students' self-rated ethical sensitivity. *Educational Research and Evaluation, 13*(6), 587-601.

Walker, L. J. (1991). Sex differences in moral reasoning. In L.Gewirtz (Ed.), *Handbook of moral behavior and development:* Vol. 2. Research (pp. 333–364). Hillsdale, NJ: Erlbaum.