

Computer-Mediated Communication and Family Communication among Deaf Teenager

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Abstract As a basis for parenting, communication can change patterns of interaction in the family. This study examines how computer-mediated communication (CMC) is related to and influences family communication (including conversation and conformity) in adolescents with disabilities. Participants in this study were 100 adolescents with deafness scattered in Indonesia. Through ANOVA analysis, the results show that CMC is significantly positively related to the conversation, conformity, and interaction between the two. Regression analysis found all four CMC factors as significant predictors affecting 50.4% in the climate of family communication among deaf teenagers. The findings in this study produce an empirical explanation of the CMC motive as a factor in family communication in deaf teens. Suggestions and research for the future are discussed.

Keywords: computer-mediated communication, family communication, deaf teenager

1. Research background

Computer-mediated communication (CMC) is communication that occurs between humans through computer equipment in the era of moderate society today (Ngai, Tao, and Moon 2015). CMC allows everyone to communicate without the constraints of distance and time, and contribute to social change in society. The emergence of CMC can also change interactions, namely when reducing face-to-face relationships (FtF), so this phenomenon raises new issues about whether current technology supports relationship maintenance, especially in contexts within the family.

Conversations between parents and children are now more interactive and are a phenomenon using the internet (Cummings, Butler, and Kraut 2002). This process can be in the form of voice messages, video messages, instant messages, symbols, text, and multimedia messages. Social networking sites

(WhatApps, LINE) are a popular form of CMC used by teenagers as a medium of communication with friends and parents. Through social networking sites, parents can easily interact with their teenagers by sharing messages online, including those who have deaf teens.

Deaf teenagers have limitations in hearing sensors, which can arise various serious problems, such as social isolation and lack of listening response. In addition, deaf teens often experience frustration in their lives, because they have limited access and communication interactions (Alnfai and Sampali 2017), and the role of parents is important in establishing communication with their children, instead of many busy parents, and ignoring the learning progress of their teenagers (Karsidi et al. 2014). In interactions with deaf children, their communication symbols are generally visual, and the application of CMC through social networking sites is the most common interactive media, and it is important to apply this CMC in a family context.

The CMC model is part of a theoretical study of interpersonal interactions that involves the attributes of motivation, knowledge, and skills related to interpersonal competence

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(Spitzberg 2015). The basis of this CMC component is the communication process through several factors, such as interactions, messages, media, and results (Bubaš, Radošević, and Hutinski 2003). Several studies direct the focus on CMC users and symbolic communication (Lei and Wu 2007), and links to social abilities, attitudes, social interaction motivations, entertainment motivations, and social efficacy. The use of CMC is a challenge in interpersonal communication studies (Grant 2005), although it can complement traditional communication, CMC may negatively influence other types of communication (Jarvenpaa and Lang 2005), and inhibit the ability to interact in general (Srivastava 2005).

As a medium for adolescents in expressing, personal information, and socializing (Fox and Lenhart 2006), they also use CMC on various topics such as romance, friends, parents, popular culture, sexuality, and depression (Mazur 2005). In monitoring their teenage activities, the role of parents is very important, so it relates to the problems of behavior and delinquency, in addition to academics (Amato and Fowler 2002). Supervision with CMC in adolescents is a challenge for families because many teenagers have more understanding of using the internet than their parents (Spooner 2001).

The study of communication in the family focuses on ways with parents and adolescents when involved in transmitting the meaning of messages, identity, and relationship interactions (Baxter 2016), facilitating family functions (Schrodt and Shimkowski 2017), family social reality (Koerner and Fitzpatrick 2002), through two orientations, namely conversation and conformity (Fitzpatrick and Ritchie 1994). Conversation orientation is about how families create an atmosphere when family members, in conversation interactions for various topics, while conformity is about the uniformity that families bring up in beliefs, values, and attitudes (Koerner and Fitzpatrick 2002). The use of CMC in adolescents helps to increase the availability of social support and family communication, only for this reason, there have been no findings on the level of influence, especially among deaf teenagers.

The reason for applying CMC to deaf adolescents in this study is in order to eliminate communication barriers because smartphone technology has brought important changes in conversation messages for deaf people, which has a positive impact on interaction, motivation, and support (Toofaninejad et al. 2017). In maintaining parent and child relationships, conversations in the family correlate with aspects of knowledge and family characteristics, while aspects of motivation and knowledge also influence aspects of skills in using CMC (Bubaš et al. 2003).

Messages in family conversations can vary according to conversation topics and interactions that arise so that the openness of CMC between them appears in the form of content, length of text, speed of response time, orientation to tasks, and content related to social and emotional problems. Media factors also determine the level of interactivity, and efficiency in using media depends on different goals. Finally, CMC achieves uniformity of behavior and effectiveness of interactions, so that the level of satisfaction of family members is achieved in establishing family communication, and achieving the personal and social identity of children in the family (Ramadhana et al. 2019).

There needs to be an examination of CMC in family communication in deaf adolescents, and the role of the family is very important in providing protection through CMC interactions for their adolescents (Utari and Hermawati 2017), especially limitations on deaf teens. There is limited literature that discusses how these two relationships are interconnected, and the results of this study can complement previous research in developing and maintaining relationships (Lea and Spears 1995).

1.1 Computer-Mediated Communication

The Computer-Mediated Communication (CMC) competency model explains interactional factors, such as motivation, knowledge, and skills (Spitzberg 2006). Motivation influences involvement in communication, whereas knowledge, shows the cognitive characteristics of individuals who have a causal relationship with motivation, and skills are repetitive behaviors that are in

accordance with the goals (Bubaš et al. 2003). The study of CMC focuses on media effects that influence the attention of social actors in the use of media. Previous studies of CMC studies have focused on impression formation (McKenna, Green, and Gleason 2002), effectiveness (Tidwell and Walther 2002), coordination [31], learning outcomes (Brandon and Hollingshead 1999), intimacy in interactions (Tidwell and Walther 2002), achievements (Burgoon et al. 2000), and satisfaction (LaLomia and Sidowski 1990). Although the construction of CMC can be different, the basic components in this CMC still lead to motivation, because as a motive in the use of online media (Bubaš et al. 2003).

Teenagers' motives for using CMC depend on how their attitude adopts communication technology to achieve their satisfaction and goals. Although not directly related to satisfaction, there are a number of studies on CMC that measure predictions about openness and user-friendliness (Campbell and Neer 2001), personalities that impact loneliness (Kraut et al. 2002) (Mazur 2005), and the frequency of Internet use (Wästlund, Norlander, and Archer 2001). Knowledge in CMC is a belief in someone to use the CMC effect as a mastery of expectations (Kraut et al. 2002). Studies have found that self-efficacy from the internet predicts Internet use (LaRose, Eastin, and Gregg 2001). With the increasing use of CMC, it is also necessary to improve the aspects of knowledge and skills. Knowledge leads to 'how' to communicate and how to transmit content. With repetitious experience, deaf children can easily apply this CMC and be meaningful to their skills (Kraut et al. 2002).

Competence in CMC shows that motive provides an impetus for CMC to become more skilled, and provides procedures for applying motives. Though in different perspectives, both of them can interact in certain ways. There are propositions about these three CMC models, (i) there is a relationship between motivation and knowledge, (ii) there is an inverse relationship between anxiety and knowledge, (iii) there is a relationship between competence and knowledge, and (iv) there is a unique and interactive effect of CMC in predicting competence in CMC (Spitzberg 2006).

In general, CMC theory assumes that media is simpler than face-to-face interactions, although it limits expression, and compensates for problems (Cerulo 1997). For deaf teens, skills in CMC explain how the motives for attention, calmness, coordination, and expression. Many aspects of attention relate to the interest in interacting with topics that are supportive and entertaining. The calm aspect refers to the use of message directions, the application of methods, and strategies. The aspect of coordination is how to manage interactions in message attributes such as content and length, speed and response time, number of messages, task orientation, and emotional social content. And the aspect of expression is about message clarity, the use of emoticons, and humor in the message content.

1.2 Family Communication Pattern

The pattern of family communication is a concept that explains the communication relationship between parents and children in the family and has two orientations, conversation, and conformity (Koerner and Fitzpatrick 2006). *Conversation orientation* refers to families with a free climate of conversation, frequent frequency, and the nature of spontaneous interaction, without limiting the topic of discussion in the family. High conversation categories have intensive interactions, family members share activities, and feelings between family members. High conversations indicate an open level of communication, respect for the exchange of ideas, and many parents use communication as a way to educate and socialize. Conversely, a low conversation is a family with a scarce level of interaction, few topics of conversation in the family, and a lack of exchange of thoughts, feelings, and joint activities (Koerner and Fitzpatrick 2002).

Conformity Orientation shows how families emphasize the uniformity of values, beliefs, and attitudes between family members. High conformity categories emerge with interactions that emphasize the demands of equality and focus on strengthening harmony, avoidance of conflict, and interdependence among family members. High conformity can be cohesive and hierarchical, and everything must be coordinated among family members. Parents in the family can make family decisions, and adolescents must be able to obey

the wishes of their parents. Conversely, low conformity focuses on heterogeneous attitudes and beliefs, family members have individuality and independence. This family has independence between family members, respects personal space, and places its individual interests above those of the family (Koerner and Fitzpatrick 2002).

Some studies report that the use of CMC affects family interactions, which usually focus on how much time the family spends (Lee and Chae 2007). This issue gave rise to the idea of how CMC has a relation with family coherence, according to research, which shows that technology emerged as a breakthrough in family boundaries (Mesch 2003). With current changes, understanding of family attachment shows new ways, although generally includes aspects in communication, discussion, joint activities, and the presence of emotional ties, and CMC has the potential to facilitate every aspect of conversation through family relationships (Coyne et al. 2011). I speculate that interaction factors, messages, media, and results in CMC will have a positive relationship with a family orientation. Thus, the authors propose a hypothesis **(H1)**: *The CMC is significantly positively related to conversation orientation*. Conformity orientation emphasizes the uniformity of values and attitudes among family members, especially compliance and openness through communication using the media, so the hypothesis **(H2)**: *The CMC is significantly positively related to the corresponding orientation*. Research has shown that conversation and conformity often interact with others, so the effect of one orientation often depends on the level of orientation of another (Schrodt, Witt, and Messersmith 2008). So, hypothesis **(H3)**: *The CMC is significantly positively related to conversation interactions and conformity in family communication patterns*. Recent literature studies found that communication quality can change communication patterns among users (Favotto et al. 2019), so the following hypotheses **(H4)** is: *The CMC can affect family communication patterns*.

2. Research Methods

2.1. Participant

In this study, 100 deaf adolescents were randomly used as research respondents. 46%

were boys ($n=46$), 54% were girls ($n=54$), and the average age of participants was 15.9 ($SD_{age}=2.01$). The level of deaf participants consisted of very mild (0-25dB; 15.2%; $n=47$), mild (30-40dB; 23.3%; $n=72$), severe (60-70 dB; 27.5%; $n=85$), and very severe (total 70 dB; 34%; $n=105$). All participants have parents (father and mother) and live in urban areas. After receiving school approval, we requested direct participation from students to complete responses about risk factors, family communication patterns, and family functions, and three distributed survey instruments. All participants can see and read all questions, and fill out a questionnaire. All participants were given assessment points for participation.

2.2. Measurement

Computer-mediated communication (CMC). The first instrument used was a set of CMC measures and modifications (Spitzberg 2006). This scale contains 90 items and contains 4 factors as subscales; *interaction factors* (motivation, knowledge, coordination, expressiveness, attention, composition), *media factors* (efficiency and interactivity), *message factors* (task orientation and openness), and *result factors* (accuracy, effectiveness, satisfaction, co-orientation, and relationship development). Responses use a scale of 1-5 (1 = not suitable; 2 = not suitable; 3 = quite right; 4 = suitable; and 5 = very appropriate). The validity and reliability of this scale produce an accepted alpha coefficient (0.945).

Family Communication Pattern. The second instrument is the Revised Family Communication Pattern (Ritchie and Fitzpatrick 1990) which consists of 26 items with a Likert scale, which asks respondents to evaluate how many communication patterns through conversation orientations (15 items) and or cross conformity (11 items). Responses use a 5-point scale from 1 (strongly disagree) to 5 (strongly agree). In this study, FCP-R produced an alpha coefficient of 0.937 for conversation ($M=3.79$; $SD=0.712$) and 0.819 for conformity ($M=3.21$; $SD=0.648$). H1, H2, and H3 were tested using the Pearson product-moment correlation. And H4 was tested by regression analysis using all dimensions of CMC to see predictions in both orientations of family communication patterns.

This study supports H1, that the use of media communication is positively related positively to conversation orientations ($r=.653$, $p<.001$) with moderate relations. The results of other moderate relationships were obtained for interaction factors ($r=.655$), media factors ($r=.654$), result factors ($r=.589$), and message factors ($r=.445$). CMC was also significantly positively related to conformity orientations ($r=.201$, $p<.05$), although with a relatively low relationship, this can be seen from the result factor ($r=.227$), interaction factor ($r=.210$), and media factors ($r=.204$), but H2 is still supported. The CMC was also related to the interactions of both orientations, with the results showing $r=0.632$ ($p<0.001$) so that H3 was supported. Regression analysis was used in H4, and resulted in a significant correlation of $R=0.710$; $F(4.95)=3.262$, $p<0.001$, there were 50.4% contributions of media communication variants to family communication patterns. Interaction factors ($\beta=.320$; $t=2.38$; $p<.05$), media factors ($\beta=.385$; $t=3.09$; $p<.05$), message factors ($\beta=-.321$; $t=-2.73$; $p<.05$), and result factors ($\beta=.312$; $t=2.40$; $p<.05$) appear as significant predictors in this model, and H4 is supported.

This study identifies the relationship between CMC and family communication patterns (including conversation orientation and conformity) among deaf teenagers. The results found that all four aspects of CMC (including interaction, media, messages, and results) by deaf teenagers had a significant positive relationship (intermediate level) with conversation orientations (0.445-0.655), and conformity orientation (0.201-0.227), with one aspect (message factor) that has no relationship. Despite having a different theoretic framework, communication that focuses on interaction is a concept similar to a conversation in the terminology of family communication patterns as a form of participation in interactions (Koerner and Fitzpatrick 2002).

Table 1. Partial Correlation between CMC and Family Communication Patterns for Deaf Children

CMC Factors	Conver sation	Confor mity	Conver sation Interact ion and Confor mity
Motivation	.999 **	.125	.387 **

Knowledge	.594 **	.176 *	.571 **
Coordination	.999 **	.146	.479 **
Expressive	.546 **	.228 *	.561 **
Attention	.582 **	.123	.533 **
Calmness	.572 **	.230 *	.584 **
Efficiency	.556 **	.156	.530 **
Interactivity	.584 **	.196	.574 **
Openness	.322 **	.22	.259 **
Task Orient.	.419 **	.151	.417 **
Accuracy	.429 **	.153	.427 **
Effectiveness	.583 **	.206 *	.578 **
Satisfaction	.543 **	.177	.532 **
Coorientation	.455 **	.217 *	.481 **
Relation Dev.	.653 **	.99 *	.468 **
Interaction Factor	.655 **	.201 *	.638 **
Media Factor	.654 **	.204 *	.634 **
Message Factor	.445 **	.089	.405 **
Result Factor	.589 **	.227 **	.595 **
CMC	.653 **	.201 *	.632 **

Family members who spend time interacting through the media tend to relate to the behavior of sharing knowledge, giving attention and giving peace to each other so that the media factor has a relationship with the form of family conversation. On the other hand, CMC messages do not always have a relationship with the conversation, for example in conveying feelings that generally use emoticons, this problem arises because the content and duration of messages become aspects of influence. It is concluded that CMC interactions are related to the involvement of family members in conversation, this supports the idea about CMC conversations in interpreting interpersonal skills and influencing face-to-face interactions.

In general, CMC is still significantly associated with conformity, despite having a low level of association. The orientation of conformity in the uniformity of values and attitudes (Koerner and Fitzpatrick 2002) is still related to the effectiveness of media use and coordination, namely how to understand messages. Sharing understanding includes family efforts in achieving uniform values. One thing that is of concern is related to the process and delivery of message content, supporting the explanation that family communication patterns are a process of sending meaning of messages (Baxter and Pederson 2013), and the factor of self-disclosure in CMC in interactions shows a very low correlation.

Overall, the use of CMC and family communication patterns have a positive

relationship with a contribution of 50.4%, and most support conversation orientation. The use of CMC can affect family communication patterns. An interesting finding in this study is that self-disclosure in CMC is inversely proportional to family communication patterns, meaning that the higher the openness of communication, can reduce the level of conversation and conformity. Then, other factors considered in this study appear to be related to the dominant role (parent) that determines interaction. This fact considers the ideas of that the role of parents can express family communication through messages of rules, discipline, and parenting patterns (Fitzpatrick et al. 2014).

3. Conclusion

The CMC model related to theory and empiricism has resulted in applications in family communication. In this study, all hypotheses are supported, the part in CMC has a significant meaning in the pattern of family communication among deaf teens, especially in favor of conversation orientations. The results of the discussion in this study suggest that the theoretical background of interpersonal communication can support family conversation through motivation, knowledge, and skills. The structure of CMC may not be so different from face-to-face interpersonal communication (FtF), but the strength of CMC including interaction, media, messages, and skill outcomes are significant predictors of conversation orientation and conformity in family communication patterns among deaf teenagers.

Some of the findings in this study appear related to understanding the reception of coordinated message meanings and the management of media privacy communications, both of which may be involved in conversation and conformity messages. In fact, further investigation may need to be based on the socio historical condition of the family, one of which is to identify respondents about the structure and function of the family. However, these results broaden understanding of family communication patterns that can explore communication transmission through conversations and conformity among

generations in the family (Braithwaite, Suter, and Floyd 2017).

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