

ADOLESCENTS' USAGE OF SNS AND FACE-TO-FACE INTERACTION WITH SIBLINGS

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Abstract- Data were collected from 385 students of Form 1 and Form 4 from Sekolah Menengah Kebangsaan in Kuala Lumpur and Selangor to explore the difference in their social networking sites (SNSs) usage in terms of time spent and login frequency. In particular, this study examined the associations between adolescents' usage of SNSs and their face-to-face interaction with siblings and whether age did moderated this relationships. Hierarchical multiple regressions and simple slope analyses indicated that younger adolescents' face-to-face interaction with siblings decreased the more time they spent on SNSs during school days and non-school days. In addition, face-to-face interaction of younger adolescents with their siblings decreased the more frequent they logged on SNSs on non-school days. These results suggested that age did moderated the relationships of adolescents' SNSs usage to face-to-face interaction with siblings.

Keywords: social networking sites, face-to-face interaction, siblings

1. INTRODUCTION

Innovations and technologies come into our homes without boundaries. The internet has become the most vital communication tool today. It comprises a gigantic but an almost invisible universe that includes thousands of networks, millions of computers, and billions of users across the world [1]. Adolescents are more exposed to the internet and tend to explore it without limitations compare to the others. Most of adolescents spend a lot of their time on the internet. This was proved by the statistics of Pew Research Center, Internet and American Life Project. 93% of adolescents' ages 12 to 17 years old go online in 2010 and 55% of teenagers have their own Social Networking Sites (SNSs) profile [2]. Besides, 48% of adolescents visit their SNS profiles daily or even more often [3]. Hence, it is important to be aware of the impact on their development, behavior, psychological well-being and relationships with others. This study seeks to gather information about how adolescents' frequency and amount of SNSs usage might influence their relationship with their siblings.

Social networking sites are online communities where users can create their own profile, connect with their real-world friends and find new acquaintances based on shared interests. Boyd and Ellison [4] defined social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. According to Kaveri Subrahmanyam and Patricia Greenfield [5], social networking utilities were online services that allow users to create profiles (public or private) and form a network of friends: allow users to interact with their friends via public and private means (such as messages and instant messaging), also that allow the posting of user-generated content such as photos and videos.

The common features that are essential in SNSs are profiles, friends and friend lists [6]. Once individuals have signed up and created a new account or profile, users need to identify their friends (or with whom they wish to have a relationship) in the systems straightaway [4]. The term for this friendship differs among SNSs, such as 'friends', 'contacts', 'fans' and 'followers'. Users can view their friends' contact or friend lists by looking up in their friends' profile where the link is usually provided. Moreover, most SNSs offer private messaging as a mechanism for users to leave their messages to their friends specifically. These convenient and user-friendly common features are among the reasons why people are so attracted and attached to SNSs. Besides that, there are several other activities that users are able to do, such as updating their status, commenting on other users' statuses and contents [7], and also making use the 'like' and 'tag' function. Generally, 26% of Facebook users are found to 'like' another user's content, 22% comment on another's post or status, 15% update their own status and 20% comment on another users' photo [8]. People who love games can invite their friends to play online games on Facebook or play them self. All the above user-friendly features attract users to spend their time on SNSs.

Adolescents have incorporated internet into their lives as a daily routine. This was supported by the data provided by Malaysian Communication and Multimedia Commission (MCMC) [9] in their annual report that adolescents, mostly from 15 to 19 years old group, were the main internet users at home. A study done in Malaysia found that Chinese youths spend double the time online compared to the Malays and Indians [10]. Among the activities that they are engaged in are online gaming, chatting, listening music, surfing social sites, and gathering

information. Meanwhile, their Malays and Indians counterparts are found to view internet as a medium to help them in their studies. In addition, when it comes to gender differences, boys particularly spend more time online than girls [11] and most of them use for recreational purposes such as online gaming [12]. Since adolescents' usage of internet and SNSs take much of their time and they use it without a clear purpose, a research on this area is vital, especially to examine the implication towards adolescents' lives.

Adolescents apparently spend less time with parents than they did during childhood. As the age of children increased, the time spent with family members will decrease radically [13]. Moreover, there are gender differences of time spending preference between boys and girls which displace the amount of time they previously spend with their family members. Boys replace it with their time to spend alone by themselves, whereas girls spend more time with friends [13].

This pattern may reflect the adolescents' struggle to become more independent. A certain degree of separation from parents may be adaptive for adolescents as they are engaged in the task of forming relationships outside the family circles and entering adulthood. However, greater independence does not mean that adolescents have become emotionally detached from their mothers and fathers [13]. Adolescents still continue to maintain a great deal of love, loyalty and respect for their parents.

In general, the relationship between parents and adolescents is not always good. Amplified disagreements and a decline in shared activities and expressions of affection, especially during early adolescence, will lead to more conflicts in this relationship. Generally, most parents love to see their children use the internet technologies for beneficial use such as searching for information for academic purpose, but when their children use it mainly for socializing (chatting, surfing SNSs) and recreational use (online gaming), this will deviate from their initial expectation. Thus, parent-child conflict might occur. Conflict is greatest during puberty and will decrease in late adolescence. Conflictive incidence does not only occur with parents, but also with siblings.

Individuals have no option in selecting their siblings but they do make a decision on how, when and why they should communicate with their siblings [14]. Some studies found that positive sibling interactions were linked with a good level of personal adjustment while conflictive and aggressive sibling relationships are linked to antisocial behaviour and personal adjustment problems during adolescence [14]. High levels of conflicts which previously occurred infrequently will decrease as adolescents grow and the level of intimacy in sibling relationships will increase slightly or will stay constant [15]. However, parents and siblings support and advice are still needed by adolescents even though at most of times they can think and make decision independently.

According to Family Systems Theory, there is a relation between family members and dependence on one another [16]. Besides, family is a very complex system where every portion of this system are connected, dependent and related with each other, in which if any changes occur in one of it, the whole system will be affected [17]. Because of family interdependence, if something were to happen in the family – whether it is good or bad, such as marriage, death, losing a job or winning a competition, it will affect all the other family members.

With regard to this theory, whatever decision or behavior made by adolescents will affect the way his/her family members interact with each other. For instance, if he/she were to decide to spend more time online as he/she will get more fun and be closer to friends online, and at the same time will neglect his/her family members, eventually the whole family interaction will deteriorate.

2. METHOD

A. PARTICIPANT

This study targeted to recruited 400 participants comprising students aged 13 and 16 years old. These two groups of ages were chosen to compare the difference of early and late adolescence SNSs usage. The participants came from urban Kuala Lumpur and two rural Selangor districts. These areas were chosen because they had among the highest internet usage and broadband penetration in Malaysia. Sampling was done during October to November 2013.

B. PROCEDURES

Questionnaires were distributed among students in classrooms. Respondents completed the questionnaires after filled up the informed consent.

C. MEASURES

- **Family Interaction**

Frequencies of face-to-face interaction with siblings were assessed using a adapted version of Revised Taxonomy of Interpersonal Speech Events (Goldsmith & Baxter, 1996). The respondents reported frequencies of face-to-face interaction over the past month using a 5-point Likert-type scale (1= never, 2= seldom, 3= sometimes, 4= often and 5= regularly. Previous studies have shown the Revised Taxonomy of Interpersonal Speech Events to be reliable to measure interaction with family members (Cronbach's alpha = .92) (Corti, 2009). It has also been used by past researchers successfully (Schrodt, Braithwaite, Soliz, Tye-Williams, Miller, Normand, & Harrigan, 2007). Cronbach's alpha for face-to-face interaction for this study were .928.

• SNSs Usage

Eleven multiple choice questions on SNSs usage were asked such as frequency and amount of SNSs usage and type of SNS joined. These questions were adapted from Social Networking Use Questionnaire (Swang, 2011). Out of 36 questions, 11 questions were used. The other questions were not applicable to Malaysian secondary school students and not related to this study. Another two questions were added to measure the frequency of SNSs usage during a typical weekday and weekend. The social networking measure had a Cronbach's alpha of .83 for Swang's study. The instrument for this study measured the amount of time spent on social networking sites during a typical day and weekend, number of 'friends' in the friend list and the main activities on SNSs. Cronbach's alpha for this section in this study was not measured because after adaptation this measure was multidimensional.

D. STATISTICAL ANALYSES

For this study, independent sample t-test was run to examine the difference in time spent and frequency of login on SNSs among the two age groups of adolescents. Meanwhile, a series of hierarchical multiple regression were conducted to examine the moderation effect of demographic factor (age) in the relation between SNSs usage and face-to-face interaction with siblings. In the first step, face-to-face interaction was entered as a dependent variable, while time spent on SNSs on school days and moderator variable (age) were entered as the independent variables. In the second step, an interaction term (e.g., time spent on SNSs on school days x age) was entered into the equation.

3. RESULTS

TABLE I. DESCRIPTIVE OF SNS USAGE

Variables	n	%
<i>Access Internet via</i>		
Computer	79	20.5
Mobile phone	86	22.3
Both	207	53.8
<i>Has at least one SNSs account</i>		
Yes	365	94.8
No	20	5.2
<i>Frequency of login on SNSs on school days</i>		
1-2 times	197	51.2
3-4 times	95	24.7
5-6 times	29	7.5
More than 7 times	50	13.0
<i>Frequency of login on SNSs on non-school days</i>		
1-2 times	77	20.0
3-4 times	116	30.1
5-6 times	62	16.1
More than 7 times	117	30.4
<i>Time spent on SNSs on school days</i>		
Less than 1 hour	136	35.3
1-2 hours	136	35.3
3-4 hours	61	15.8
5-6 hours	15	3.9
More than 6 hours	23	6.0
<i>Time spent on SNSs on non-school days</i>		
Less than 1 hour	67	17.4
1-2 hours	137	35.6
3-4 hours	87	22.6
5-6 hours	40	10.4
More than 6 hours	41	10.6

The data show that 76.6% of the respondents reported that they had an internet connection at home. Most of the respondents who had internet connection at home used both computer and mobile phone to access the internet. A part from that, 95% of them had at least one SNS account. A majority of the respondents (51.2%) reported that frequency of login on SNSs on school days was about 1-2 times a day and the frequency of login increased during the non-school days. Besides, 6% of the respondents reported that they spent more than 6 hours a day on school days and the number was increased during holidays, in which 10.6% of them reported the same. Summation of the time spent on SNSs on weekdays and weekends will give an average about 10.5 hours per week.

H1: There is an Age Difference in Time Spent on SNSs among Adolescents

This hypothesis was divided into two sub hypotheses: (1.1) There is an age difference in time spent on SNSs during school days among adolescents and (1.2) There is an age difference in time spent on SNSs during non-school days among adolescents. In order to answer these hypotheses, independent sample t-test was performed.

The result of t-test in Table II shows that there was a statistically significant difference in time spent on SNSs on school days between 13 years old adolescents and 16 years old adolescents $t(376) = -2.134, p < .05$. Older adolescents spent more time on SNSs during school days ($M = 2.12, SD = 1.22$) compared to younger adolescents ($M = 1.87, SD = 1.09$). However, there was no statistically significant difference between the two age groups in time spent on SNSs on non-school days.

H2: There is an Age Difference in Frequency of Login on SNSs among Adolescents

This hypothesis was divided into two sub hypotheses: (2.1) There is an age difference in frequency of login on SNSs on school days among adolescents and (2.2) There is an age difference in frequency of login on SNSs on non-school days among adolescents.

An independent sample t-test with age entered as the grouping variable and frequency of login on SNSs on school days entered as the dependent variable revealed that there were no statistically significant difference between the two age groups. However, the result of t-test on age and frequency of login on SNSs on non-school days shows that there was a significant difference between the two age groups $t(376) = -2.273, p < .05$ (see Table III). Older adolescents logged in more frequently during non-school days ($M = 2.65, SD = 1.22$) compared to the younger adolescents ($M = 2.37, SD = 1.19$).

H3: Age Moderates the Relationship between Time Spent on SNSs and Face-to-Face Interaction with Siblings.

This hypothesis was divided into two sub hypotheses: (3.1) Age moderates the relationship between time spent on SNSs on school days and face-to-face interaction with siblings and (3.2) Age moderates the relationship between time spent on SNSs on non-school days and face-to-face interaction with siblings.

TABLE IV. TIME SPENT ON SNS AND AGE AS PREDICTORS OF FACE-TO-FACE INTERACTION WITH SIBLINGS

Block	Variables	R ²	β	p
1	TSSD	.010	.099	.071
	Age		-.006	.915
2	TSSD X age	.028	.496	.012
1	TSND	.009	.097	.075
	Age		.004	.942
2	TSND X age	.040	.624	.001

Note. TSSD= Time spent on SNSs on school days

TSND= Time spent on SNSs on non-school days

The results shows that, the interaction between time spent on SNSs on school days and age was significantly related to face-to-face interaction with siblings ($\beta = 0.496, p < 0.05$). This result was graphed using ModGraph [18] to aid the interpretation.

To facilitate the interpretation of the interaction pattern, a simple slope analysis was performed on the resulting slopes described in Fig. 1. For 16-year-old adolescents, there was a non-significant relationship between time spent on SNSs on school days and face-to-face interaction with siblings, (simple slope= -0.026, $t = -0.475, p > 0.05$). However, for 13-year-old adolescents, there was a negative and significant relationship between time spent on SNSs on school days and face-to-face interaction with siblings (simple slope= -0.215, $t = -1.755, p < 0.05$). The steeper slope occurred on time spent on SNSs on school days suggesting that younger adolescents' face-to-face interaction with siblings decreased the more time they spent on SNSs during school days.

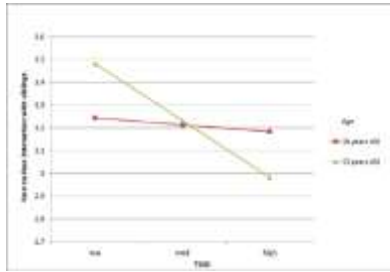


Fig. 1. Graphical depiction of age moderating the TSSD to face-to-face interaction with siblings relationship.
Notes: Low, med and high levels on the X-axis were automatically generated by ModGraph.

Besides, the regression result also shows the interaction between both time spent on SNSs on non-school days and age was significantly related to face-to-face interaction with siblings ($\beta = 0.624, p < 0.05$) (refer Table IV). A simple slope analysis was performed on the two slopes described in the Figure 4.4, to facilitate the interpretation of the interaction pattern. For 16-year-old adolescents, there was a non-significant relationship between time spent on SNSs on non-school days and face-to-face interaction with siblings, (simple slope= $-0.038, t = -0.694, p > 0.05$). However, 13-year-old adolescents show a significant negative relationship between frequency of login on SNSs on non-school days and face-to-face interaction with siblings (simple slope= $-0.251, t = -2.393, p < 0.05$). The steeper slope occurred on time spent on SNSs on school days, suggesting that younger adolescents' face-to-face interaction with siblings decreased the more time they spent on SNSs during non-school days.

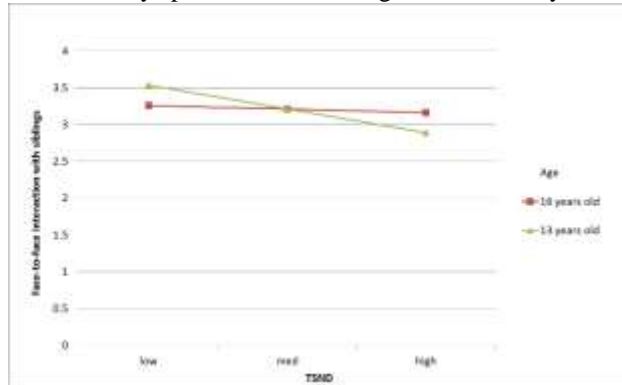


Fig. 2. Graphical depiction of age moderating the TSND to face-to-face interaction with siblings relationship.
Notes: Low, med and high levels on the X-axis were automatically generated by ModGraph.

H4: Age Moderates the Relationship between Frequency of Login on SNSs and Face-to-Face Interaction with Siblings

This hypothesis was divided into two sub hypotheses: (4.1) Age moderates the relationship between frequency of login on SNSs on school days and face-to-face interaction with siblings and (4.2) Age moderates the relationship between frequency of login on SNSs on non-school days and face-to-face interaction with siblings.

TABLE V. FREQUENCY OF LOGIN ON SNS AND AGE AS PREDICTORS OF FACE-TO-FACE INTERACTION WITH SIBLINGS

Block	Variables	R ²	β	p
1	FLSD	.005	.066	.223
	Age		.011	.840
2	FLSD X age	.010	.259	.165
1	FLND	.008	.088	.105
	Age		.001	.985
2	FLND X age	.032	.591	.004

Note. FLSD= Frequency of login on SNSs on school days
FLND= Frequency of login on SNSs on non-school days

The regression result shows that the interaction term of frequency of login on SNSs on school day and age was non-significant. In contrast, the interaction between both frequency of login on SNSs on non-school days and age was significantly related to face-to-face interaction with siblings ($\beta = 0.581, p < 0.05$).

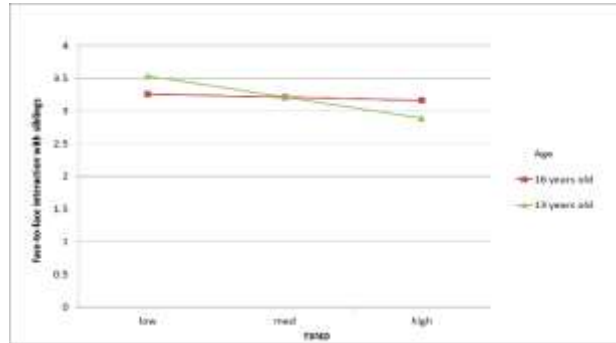


Fig. 3. Graphical depiction of age moderating the FLND to face-to-face interaction with siblings relationship.
Notes: Low, med and high levels on the X-axis were automatically generated by ModGraph.

To facilitate the interpretation of the interaction pattern, a simple slope analysis was performed on the two slopes described in Figure 4.5. For 16-year-old adolescents, there was a non-significant relationship between frequency of login on SNSs on non-school days and face-to-face interaction with siblings, (simple slope= -0.037, $t = -0.676$, $p > 0.05$). However, 13-year-old adolescents show a negative and significant relationship between frequency of login on SNSs on non-school days and face-to-face interaction with siblings (simple slope= -0.244, $t = -2.227$, $p < 0.05$). This result suggested that face-to-face interaction of younger adolescents with their siblings decreased the more frequent they logged on SNSs on non-school days.

4. DISCUSSION

Age moderates the relationships between times spent on SNSs on non-school day, time spent on SNSs on non-school day and frequency of login on SNSs on non-school day with face-to-face interaction with siblings. This finding indicated that younger adolescents' face-to-face interaction with siblings decreased the more time they spent and the more frequent they logged in on SNSs. Young adolescents is still less mature, more independent and ego centric. They might argue and fight for limited resource such as computer with other siblings.

Family Systems Theory refers that one event that happen in a family will affect the whole persons in the family. In typical family relationships, interaction among subsystems (parent-child and siblings relationships) have been shown to impact the quality of relationships [19]. This is also applied on how one behaves, the whole family will be affected and react with his/her action. According to the findings, adolescents' face-to-face interaction with siblings decreased the more time and the more frequent they spent on SNSs moderated by age.

5. CONCLUSION

Adolescents logged in on SNSs frequently and spent a significant amount of time on them every day. The findings showed that associations existed between adolescents' SNSs usage with their face-to-face interaction with siblings. Thus, parents may take some proactive and creative measures to avoid excessive usage of SNSs among their child that may lead to decline in face-to-face interaction among them in order to promote a good face-to-face interaction within family.

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Variables		<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Time spent on SNSs on school days	13 years old	1.87	1.09	376	-2.134	.033
	16 years old	2.12	1.22			
Time spent on SNSs on non-school days	13 years old	2.42	1.26	376	-1.337	.182
	16 years old	2.60	1.30			

TABLE II. TIME SPENT ON SNSS AMONG 13- AND 16-YEAR-OLD ADOLESCENTS

Variable		<i>M</i>	<i>SD</i>	<i>df</i>	<i>t</i>	<i>p</i>
Frequency of login on SNSs on school days	13 years old	1.68	1.03	375	-1.567	.118
	16 years old	1.85	1.42			
Frequency of login on SNSs on non-school days	13 years old	2.37	1.19	376	-2.273	.024
	16 years old	2.65	1.22			

TABLE III. FREQUENCY OF LOGIN ON SNSS AMONG 13- AND 16-YEAR-OLD ADOLESCENTS

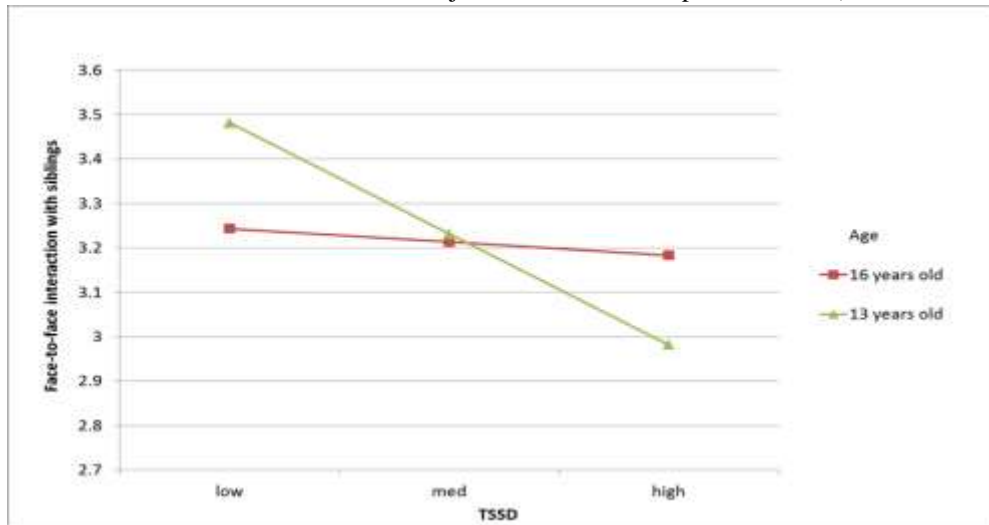


Fig. 1. Graphical depiction of age moderating the TSSD to face-to-face interaction with siblings relationship.
Notes: Low, med and high levels on the X-axis were automatically generated by ModGraph.

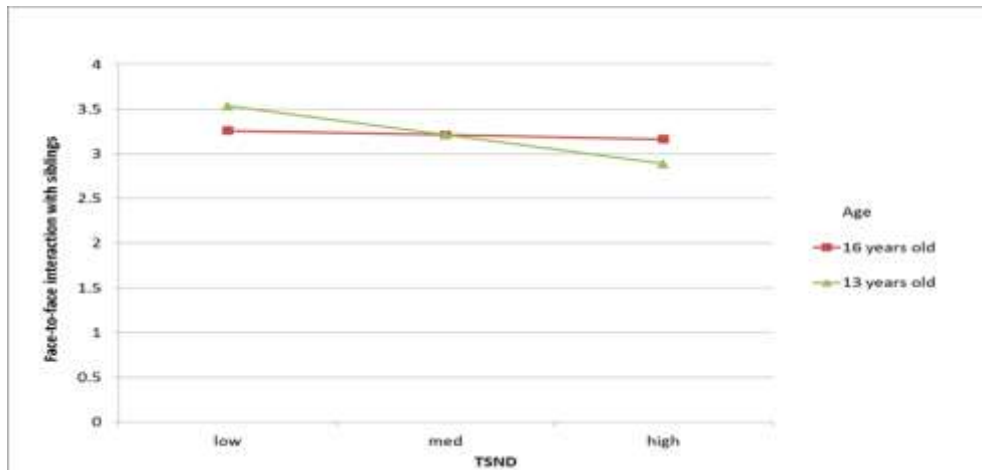


Fig. 2. Graphical depiction of age moderating the TSND to face-to-face interaction with siblings relationship.
Notes: Low, med and high levels on the X-axis were automatically generated by ModGraph.

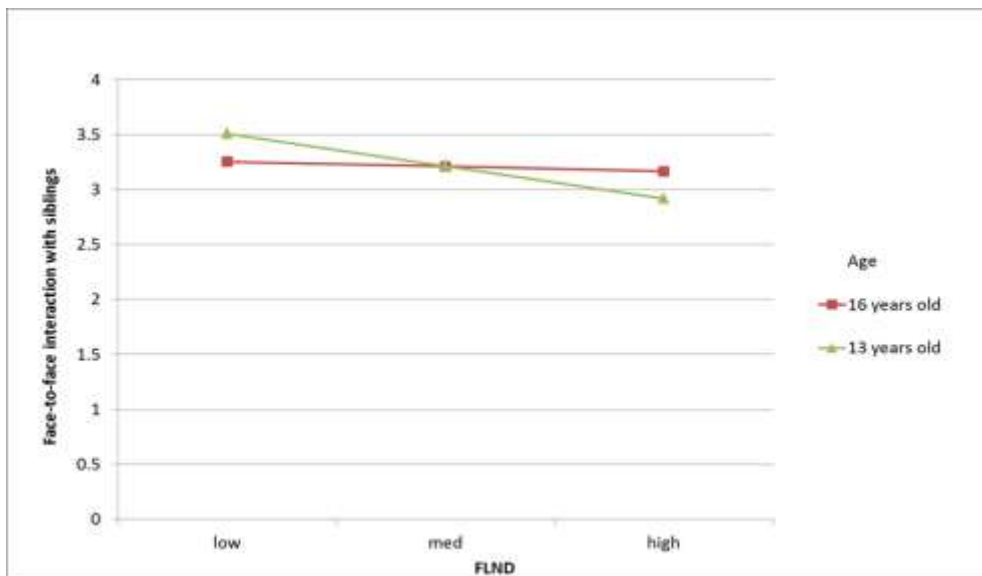


Fig. 3. Graphical depiction of age moderating the FLND to face-to-face interaction with siblings relationship.
Notes: Low, med and high levels on the X-axis were automatically generated by ModGraph.

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