Service Design for Improving Adolescents' Cyber Language Habit

Jae Sun Yi[✉], Chanmi Jeon[✉], and Yeji Yu[✉]

School of Contents Convergence Design, Handong Global University,
Pohang, Republic of Korea
creativel@handong.edu, {cksalsp,isu5519}@naver.com

Abstract. This study aims to improve excessive usage of slang and indiscriminate language habit of Korean adolescents, and the consequent social problem called 'Cyber Bullying'. A desk research is conducted to examine adolescents' language habit and the reality of cyber bullying, and the problems of current systems is analyzed to propose a new service design that can compensate the defects. Not only that, through analysis on the traits of teenagers that use lots of swear words and psychological characteristics of adolescents, a smartphone keypad and application are developed that help adolescents to check their language habit and improve it by themselves in everyday life since adolescents tend to feel resistance about coercive external interference. Teenagers can correct their language habit as soon as they type swear words by immediate feedbacks and given substitutable words, and also can recognize their habitual usage of swear words by the accumulated data of usage. The significance of this study is improving teenagers' language habit by using refined expressions instead of violent slangs, and to prevent secondary problems which can result from negative language habit.

Keywords: Design for social impact · Adolescents language habit · Mobile application and keypad · Slang tracking and recognition system

1 Introduction

Recently, the indiscriminate and violent language habit of adolescents in Republic of Korea has been a serious problem. More than two thirds of teenagers are using swear words habitually and unconsciously, and the awareness of the problem is considerably low. Using slangs in adolescence and having bad language habit can lead to brain damage so that the brain cannot grow and develop normally, and consequently the vocabulary, cognitive ability, and emotion control ability will decline. Moreover, it leaves psychological damage and aftereffect to the person who listen to swear words, which can result in depression, and the consequent problems such as difficulty in interpersonal relationship and social life. The reason why the usage of slang of Korean adolescents is a serious problem is that it not only occurs in oral conversation in daily life but also in online chats, so it causes secondary problems such as cyber verbal violence. Hence, this study defined adolescents' violent language habit as an issue, and designed a service which helps adolescents who want to improve their language habit to do so on their own. When it comes to the oral language habit, it is hard to implement

the technology that catches slang among every word said and gives immediate feedback. Besides, since the online verbal violence called 'Cyber Bullying' that is happening among teenagers is an arising social problem, a service platform is needed to make it easy to improve cyber language habit. The goal of this study is to make teenagers recognize the unconscious usage of swear words, not just once but continuously through a slang tracking system, so that it is helpful to improve their language habit. Ultimately, it aims to reduce the potential number of the victims and attackers of cyber bullying and to prevent subsequence crimes and various social problems caused by adolescents' verbal abuses.

2   The Problem of Korean Adolescents' Usage of Swear Words

2.1   Korean Home Education

Traditionally, Korea is influenced by Confucianism which considers community as being more important than individual and emphasize manners, and old generation parents are known for strict discipline on their children's language and behavior. However, double-income family increased [1] as a result of modern society, so children and parents have less time to spend together. At the same time, the rising education fever in Korean which is the highest among the world [2] and the social atmosphere that places importance on school scores and competition, the significance of home education has been relatively weakened. Accordingly the interest of parents in children's language habit waned, and the number of teenagers who use swear words unconsciously and indiscriminately are increasing for there is no specific restriction at home. The language habit of children has been changed for the worse because of the society atmosphere which considers usage of slang as the subculture of adolescents [3]. In addition, they are constantly exposed to violent contents from movies or TV shows, and learning swear words from the media and become accustomed [4].

2.2   Current Status of Korean Adolescents' Usage of Swear Words

In an observational study conducted by Korean Educational Broadcasting System [5], it has been observed that nearly every sentence in the conversation of adolescents included swear words, and it seems to be impossible to continue the conversation without using swear words because of replacing considerable number of words with slang words. It is more serious since these problems are not limited to the delinquent teenagers called troublemakers. Teenagers, regardless of gender, grade, and age, are found to be using a lot of slangs, which suggests that there is a problem with the language habits of all Korean adolescents. According to a survey conducted by a daily newspaper [6], elementary, middle, and high school teachers answered that the biggest reason why students use slang is "habitually" which was 39%, and "afraid of being alienated from friends" which rated 22.1%. It showed that teenagers have a significant meaning in their peer groups, and they tend to use swear words more than their intention in order to communicate with their peers using their common language.

2.3 Effect of Using Swear Words on Adolescents

2.3.1 Physical Damage

According to a paper published in the Journal of Mental Health [7], people who suffered from verbal abuse of people and colleagues in childhood including adolescent, had smaller corpus callosum than that of normal people because of excessive production of stress hormone called 'cortisol'. The corpus callosum is a bridge between the left and the right side of the brain, and once it is damaged, the exchange of information between the left and right side of the brain is not smooth that it results in degradation of linguistic ability and social skill.

In addition, the frontal lobe of the brain, which is responsible for rational thinking, grows greatest in teenage years, and it is hard to be developed appropriately when exposed to verbal abuse at this time. As a result, it is more likely that the instinctive and emotional limbic system will supervise the person, resulting in an impulsive and violent act [8].

Swear words have negative effect on not only those who listen to it, also those who use it. In an observational study conducted by Korean Educational Broadcasting System in cooperation with a psychological research team from Seoul National University [5], the group using a lot of slang showed a higher score in the sector of unplanned impulse which means being unable to make a plan and practice it (Fig. 1). It shows that the use of slang leads teenagers to haphazard and impulsive tendencies. In the same study, the group with high frequency of using swear words showed activated parasympathetic nervous system when hearing violent cursing, which indicates that the more frequently they use slang, the more and often they use slang as they get used to slang.
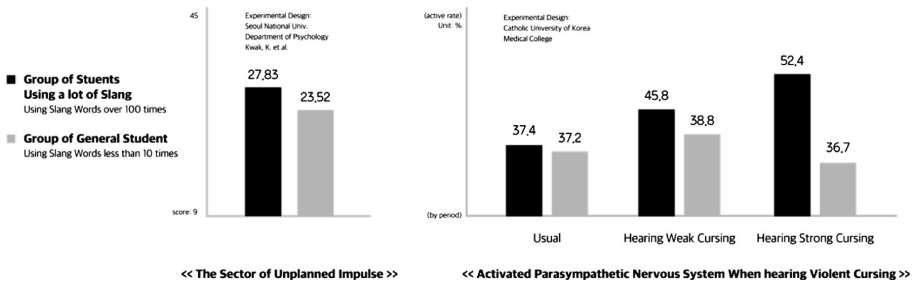

Fig. 1. The sector of unplanned impulse and activated parasympathetic nervous system when hearing violent cursing (Source: *EBS*, 2012)

2.3.2 Psychological Problems

Slang causes not only physical damage, but also contributes to the psychological problems of teenagers. When a teenager suffers from verbal abuse, he or she is likely to develop a negative self-image. Accordingly the self-esteem declines, and a person with low self-esteem can hardly have a healthy ego since it it difficult to correct a self-image. Low self-esteem often accompanies depression, and depression causes a feeling of helplessness and loss of will to live, resulting in suicide in serious cases. In fact, a

teenager who suffered from cyber language abuse in Korea in 2012 showed how constant verbal violence wreak great damage on adolescents by committing suicide [9]. In a qualitative research conducted in 2014 [10], one of the common answers of students suffering from verbal abuse was 'There is a great deal of aftereffects due to verbal abuse.' The most common forms of verbal abuse found among teenagers are negative expression about appearance, or verbal abuse such as 'Go kill yourself.' [10] These are demeaning comments made to blindly harass and hurt someone, and these are not made because the victim has done something wrong or 'deserves' it. Especially, verbal abuse occurs in mobile SNS where many young people say swear words or curses on a particular person continuously. Thus, it is not easy for the victim to deal with it, and the damage gets bigger because of repeated verbal abuse. In the end, the scars left by these verbal abuse and memory remain unsolved, deteriorating the quality of life and leaving psychological aftermath.

3   Cyber Bullying Issues in Korea

3.1   Appearance of Cyber Bullying

Recently, with the spread of smartphones, physical school violence committed offline has changed into a new type of online violence called 'Cyber Bullying'. A common definition of cyber bullying is that the individual or a group with malice bully someone intentionally or repeatedly via e-mail, web site, social networks, chatting, and so on [11]. Mostly, cyber bullying among teenagers is based on the SNS(Social Network Service), though there are types of media outlets, such as photos and videos, most of the harassment appears in text-based language violence [10]. In this study, the definition of cyber bullying refers to direct or indirect verbal and mental violence that occurs between peers and students in the same school or class which happens through mobile applications and social networks. According to research conducted by the Ministry of Education and Human Resources Development, offline violence among students has declined by 13.6%, while cyber bullying is growing steadily over time.

In particular, since a group bullying called 'outcast' which appears in Korea has changed into the cyber bullying through SNS, harassment that used to occur in school or classroom came to happen regardless of time and space. In a qualitative study [10], teenagers suffering from cyber bullying said that because it is not physical type of violence, it leaves no sign of violence on the victims, that it is hard for their parents or people around them to recognize that someone is experiencing it. In addition, it is almost impossible to find out specific attacker and punish them when reported, for it is done in groups.

3.2   Current Status of Cyber Bullying Occurrence and Problems with Current System

Currently, 34% of Korean teenagers are experiencing cyber bullying, which means that a third of teenagers are victims or attackers of cyber bullying [10]. Whereas school violence off-line is decreasing over time (Fig. 2), cyber bullying is steadily increasing
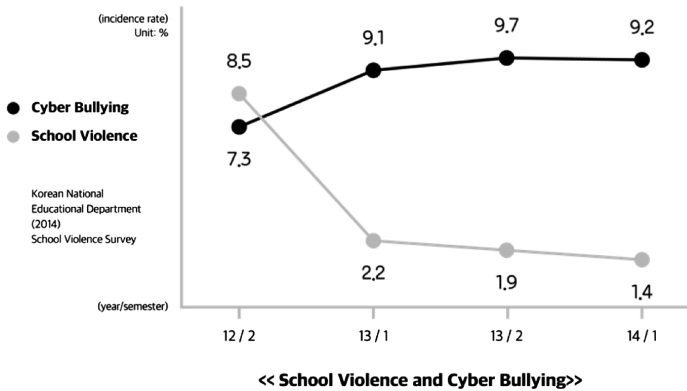
Fig. 2. School violence and cyber bullying (Source: Korean National Educational Department, 2014)

since its first sighting, and it is expected to grow further. Especially, one of the characteristics of cyber bullying in Korea is that the victims and attackers are acquaintances, and more than half of them belong to the same school [10]. Therefore, a solution from school or government is urgent, but schools fail to offer other solutions except for media education and campaigns. Through the interview [10], it is found that the content of media education and campaigns is all about encouraging teens to be aware of the harmfulness of cyber bullying, so most of students responded that they did not agree with the content. Other opinions were like these; 'Because education is not frequent, it is likely to forget about it instantly.', 'I don't know how to deal with it specifically when I get a cyber bullying even after the education.' Most of the responses were negative, so it seems that education and campaigns are not practical to solve the problems of cyber bullying [10]. Also, the problem is not improved unless the victims ask help for their parents or teachers when cyber bullying happens, and it is common that even if the adults help, the problem is repeated again, such as bully students revenge the victims with cyber verbal abuse after being punished [10]. Most of the measures were aimed at mending and managing the bullying after it happens rather than the precautionary level, and the victims need to cope actively to deal with the problem.

Results of analyzing the situation and how to deal with the cyber verbal abuse, the reason why the methods currently being implemented are not working properly are as follows. (1) The education and campaigns are not ongoing and ran on event variables, and (2) they are simply conveying messages suggesting that cyber bullying is bad, not suggesting a specific action. (3) Most of the measures to deal with the cyber bullying are compulsory such as including the third party, and (4) there is a limit to the fact that the victims' reports are needed to deal with the aftermath of cyber bullying and that they cannot reduce the number of potential victims and attackers.

4 The Service Proposal for Improving Adolescents' Cyber Language Habit

4.1 The Goal and the Target of the Service

The top priority of this study is to enable adolescents to manage their habitual usage of swear words through a service platform that they often encounter in daily life, help them improve their cyber language habits easily without outside intervention. Ultimately, it aims to reduce the potential number of the victims and attackers of cyber bullying and to prevent subsequence crimes and various social problems caused by adolescents' verbal abuses. Since more than 60% of teenagers said it was their "4–6th grade of elementary school year" when they first started learning swear words [12], teenagers from the age of 11 to 18 were chosen as targets. In particular, in order to improve language habit, the user's willingness to reduce the use of habitual and repetitive slang is crucial, and also this service regards it meaningful to help adolescents do it voluntarily, thus teenagers who have the intent to improve language habits is the target of this service.

4.2 Analysis on Current Usage of Swear Words and the Users

In the study of Korean national language centers [13], adolescents aged 13 to 18 were asked how many times they use slang a day, and the highest response was '1 to 2 times' with 38.9%, and the next was '3 to 9 times' with 30.4%. Seven out of ten students believe that their use of slang is less than 10 times a day. However, in an observational study of Korean Educational Broadcasting System [5], teenagers used 400 swear words for 8 h on average. This shows that teenagers actually use a lot more slangs than they think, and do not fully recognize their use of it.

Despite the fact that teenagers are not aware of their use of swear words accurately, they clearly know that they use slang. According to a research by the KEDI [12], one of the four students was interested in improving language habits and having a critical mind with their language habits. Nevertheless, by a research of the Korean Federation of Teachers' Associations(2011) [14], half of teenagers who use slang are habitually used to use it, and it seems to be difficult to break the habit since it is already routinized as a result of continuous usage of swear words. In case of students whose brains are damaged from habitual use of slang, the vocabulary is limited and it is not easy to think of the appropriate language expression in a moment because they had replaced a lot of words with slang. In an observational study conducted by Korean Educational Broadcasting System in cooperation with a psychological research team from Seoul National University [8], it is found that teenagers who use more swear words had lower vocabulary level compared to another group as shown in (Fig. 3). Even in the experiment of filling in the blank with correct proverb and writing the antonym, the group who use more slang showed relatively poor results than the group that use less slang, which indicates that using slang words lowers the language ability.

Autonomy is an important characteristic of adolescent psychology, and a study on self identity in adolescence suggests subjecthood (.791), initiative (.768), and goal
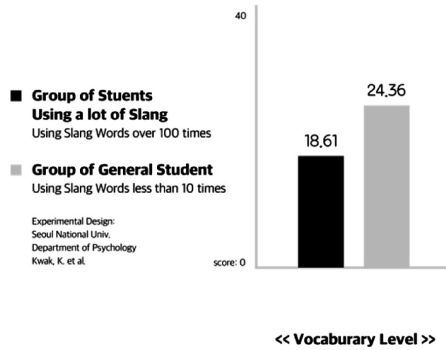
Fig. 3. Vocabulary level (Source: *EBS*, 2012)

orientation (.722) as important features [15]. This means that it will be effective to respect the autonomy of teenagers to help resolve the problem without resorting to compulsory methods or external intervention.

Based on the preceding issues, the user's needs to be considered in the service is as follows; (1) let the teenagers recognize their current status since they are not aware of the fact they use slang more than they think, and (2) manage their language habit through constant feedbacks for it is hard to break the bad habit because of chronic and indiscriminate usage of slang. (3) Suggest replaceable words for teenagers having limited vocabulary and expressiveness, and (4) all the procedure and experience of the service should guarantee the autonomy of the users. Also (5) encourage the users and give them feeling of fulfillment so that they can be interested and receive positive stimulus.

4.3 Choosing Service Platform

The most important criteria of platform for this service is if the platform is able to provide an environment, in which adolescent can improve the langue habits themselves. Due to the nature of cyber bullying, there exist multiple attackers, and that attackers are also potential victims at the same time, so it is difficult to differentiate between victims and attackers of cyber language violence. For that reason, it is not easy to deal with the problem when the third party such as teachers, school, or police are involved, and there is no significant effect of compulsory treatment due to the psychological repulsion of adolescents. Therefore, the focus of this service is on helping teenagers reduce the usage of slang and change their behaviors at their own wills. As a result, we concluded that the most effective platform that teenagers meet in everyday life and have no resistance is the smartphone keypad, which they directly enter slang with. It is also because more than 40% of teenagers spend more than three hours a day using smartphones, mostly using the SNS (76%) with smartphones [16]. Moreover, it makes the reason of choosing the platform clear that it is possible to respond to the user as soon as they type slang with the keypad, so that the typed slang can be purified or blocked before it is sent. Thus, the main platform is a smartphone keypad of android

operation system, which is relatively easy to develop and customize. With the keypad, there is an application that counts the frequency of usage of slang and shows change of the frequency according to time, in order to keep track the improvement of language habit consistently.

4.4 Service Features

- *Cumulative data of swear words usage.* The users can compare the frequency of today to that of recent times and check how much slang is used, and using the monthly data record, they can recognize what kind of slang is the most frequently used and the level of their slang usage compared to other users.
- *Instant warning.* When entering slang into a keypad, it tells them they used it right away by sending immediate vibrant or sound alarm with an instant message. Also, it is not just noticing the fact that they entered slang, but also delivering a message encouraging to consider the other people who will receive the message.
- *Suggesting replaceable words.* The user can turn on/off the function which automatically replace a slang into better expression as soon as it is typed. It gives a solution by suggesting replaceable words rather than forcing to stop using the slang.
- *Award and penalty, concept of report card.* A system that awards an prize when the user achieves certain number of daily goals and gives penalty on excessive usage of certain slang word gives young adults a motivation to improve their language habits. In addition, the concept of a school report card is applied in order to make the teenagers feel fulfilled when they receive good grade through improving the language habit, as they care a lot about getting high grades in school.

4.5 Information Architecture

(1) The main screen of the application contains informations that should be most accessible, such as today's grade and the frequency of using swear words, which changes in real time. The users are able to check daily frequency and do self check simply on the main screen. (2) The accumulative data of slang usage on daily, weekly, and monthly basis is shown with line graph so that it is easy to compare the frequency for a particular period of time at a glance. (3) In award and penalty menu, there are award cards, which is given when the users achieve their goal for a certain number of time, and penalty cards that show what slang is most frequently used and the replaceable expression. The user can see and check the list and content of award and penalty cards by simply swiping and tapping the screen. (4) The report card is a cumulative and arranged data of slang usage received at the end of each month, and it consists of frequency of the languages used in that month, the ranking of the most used slangs, and overall grade of user's language habit. The grade system is similar to that of Korean high school which classify every user of the service into 9 different grades. (5) The frequency is automatically detected and counted by slang database when a slang word is typed, and there appears an immediate notification to alert the user. Also,
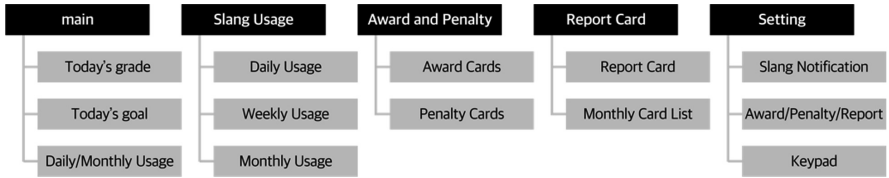
Fig. 4. Information architecture

the slang can be changed automatically into better expression or replaceable words are suggested with the keypad (Fig. 4).

5 The Process of Producing Final Output of the Service

5.1 Branding

The name 'Anslang' is a compound word of Anti and slang, which has a meaning of being against to use slang, and at the same time, in Korean it means 'I'm not going to use it!' that shows strong will of the user. The logo design reflects the contents of the service, which is school uniforms, signs of teenager students, and a firm commitment to improving language habits by the pose of the arms. 'A' in the middle stands for 'Anslang' and also the highest grade of report card that is the design concept of this service. The main colors applied to design the logo and application are purple and mint, and pastel soft colors make it easy to see the application screen. Moreover, we tried to give a neutral mood so that it is suitable for every teenagers regardless of gender, and added cute line illustration considering the preference of young adolescents. The fonts used throughout the logo and application design are vivid and cute, and harmonized with the whole concept (Fig. 5).

Fig. 5. (1) Logo (2) application icon

5.2   GUI Design

The overall design concept is to provide a desirable design environment for teenagers with illustration of report card, award and penalty cards, and daily grade. The main menu was presented with an icon on the lower part of the screen so that the menu can be easily found, and selected menu is differentiated by the difference in opacity. In addition, it is possible to visually identify the key content and other contents by using the coloring point to highlight the focal point while general color scheme is unified. Looking at the details of major screens, (1) today's grade, which is the most important visual information, is placed in the middle the main screen and it takes the largest part of design in order to capture the attention of user. Today's goal and the frequency of using swear words are presented with a text information as well as a graph to help the user's understanding. (2) In the accumulative data page, it is easy to switch the category by tapping the subordinate category button that places in the upper part of the screen. The amount of slang usage is shown in line graph to make it easy to compare the data of each day visually, and the user can check the graph by swiping the screen, and the frequency of today, this week, and this month is emphasized using point colors. (3) The recent report card, of last month, is on the report card menu, and when tapping
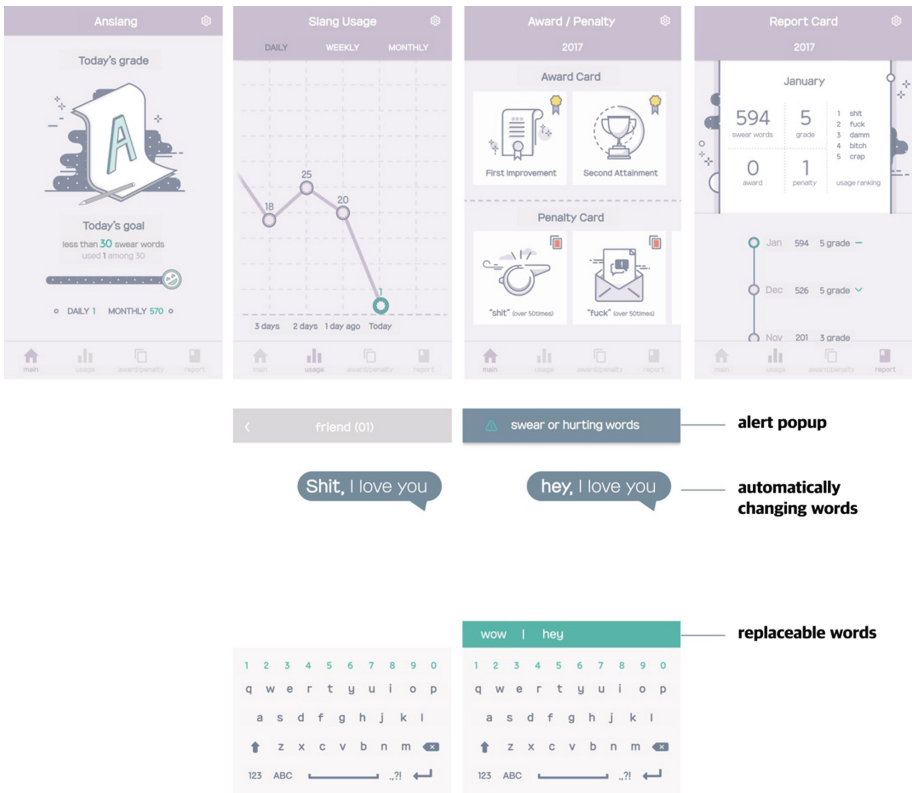

Fig. 6. Graphical user interface design: (1) main page (2) accumulative data page (3) award/penalty page (4) recent report page (5–6) keypad

the time line of monthly report card list that is below, the monthly report will be displayed on the top of the screen. (4) The keypad has the same form of existing one, and there is a space that shows replaceable words when entering slang. Also, the notification of using slang appears on top of the screen so it does not bother the user (Fig. 6).

6   Conclusion and Proposal of Further Study

The use of slang in Korean teenagers is not just a matter of language habits, but a serious problem that can greatly affect the brains and emotions of teenagers, and even created a social phenomenon called cyber bullying. The study expects that using purified and refined language instead of offensive and violent language will have a positive impact on youth's emotions and language development, and suggests concrete measures that reduce the use of swear words by presenting instant feedback and the alternate words. Continuous cumulative data enables to self-check the usage, thereby improving the long-term language habits. It aims to help the users reduce their usage of coarse language habits in everyday life with an android smartphone keypad and application that is accessible for the teenagers, and ultimately, reduce the potential number of the victims and attackers of cyber bullying.

In future follow-up studies, it is necessary to modify and supplement the application through usability test, and after that, verify that if there is real improvement of language habit using the service, and whether the change of cyber language habit is applied to oral dialogue as well. Additionally, the results of this study are solely driven by Android operating systems on smartphones, so it needs to be expanded by developing a new application for the iOS, in order to provide the service in all smartphones.

References

1. Lee, J.: South Korean family after patriarchy: from normality to flexibility. In: The Korean Cultural Studies, S.283–S.310. Korea Cultural Research Institute Ewha Womans University, Seoul, Korea (2015)
2. Coughlan, S.: Asia tops biggest global school rankings. BBC (2015). http://www.bbc.com/news/business-32608772
3. Khil, E.B.: Study on adolescents' use of slang and jargon – adolescents' verbal deviance, is it a culture of passage rites? Korean J. Youth Stud. **21**(2), 469–489 (2014)
4. Lee, J.-K., Woo, H.-J.: A study on intention to calling bad language of adolescents: exposure to curse on TV, perceived seriousness of curses on TV, stress, and variables of theory of planned behaviors. Korean J. Journalism Commun. Stud., S.356–S.380 (2011). Korean Society for Journalism & Communication Studies, Korea
5. Korean Educational Broadcasting System. Do we use slang language? Doucumentary Prime. EBS (2012)
6. Yoo, S.-J.: Korean Language Disease. Chosun (2013)
7. Martin, H.T., et al.: Hurtful words: association of exposure to peer verbal abuse with elevated psychiatric symptom scores and corpus callosum abnormalities. U.S.: Am. J. Psychiatry **167**, 1464–1471 (2010)

8. Lee, J., Byun, J.: When teenagers listen to severe slang, their brains get hurt for lifetime. dongA Science (2012)
9. Baek, S.: A silent harassment, cyber bullying. Asia Today (2016)
10. Lee, C., Shin, N., Ha, E.: A study on the situation of youth cyberbullying and measures to prevent it. Natl. Youth Policy Inst. Stud. **1**, 1–268 (2014)
11. Li, Q., Cross, D., Smith, P.K.: Predicting student behaviors: cyberbullies, cybervictims, and bystanders. In: Li, Q., Cross, D., Smith, P.K. (eds.) Cyberbullying in the Global Playground: Research from International Perspectives. Blackwell Publishing, Hoboken (2012)
12. Yang, M., Kang, H., Cho, S.: Usage of Slang in School Life and Purification Counterplan. Korean Educational Development Institute (KEDI), Seoul (2010)
13. Korean National Language Centers. How Often Adolescents Use Slang per a Day (2011)
14. Korean Federation of Teachers' Associations. Students' Language Usage Studies (2011)
15. Kim, W., Park, Y.-H., Kim, J.: A structural model of the relationships among basic psychological needs, ego identity, and career identity of middle school students in South Korea. Educ. Psychol. Stud. **28**(2), 333–352 (2014). Korean Educational Psychology Association
16. Park, H.-J.: A Study on the Perception of SNS Peer Culture and Potential of Cyber-Bullying in Adolescents. Chonbuk National University, Chonbuk (2016)