

lip sync technology is divided into synchronization process that enable to choose voice information to mouth shape and visualization process that play after combining data to video. Invention of lip sync automation device and method that could be found in recent patent technology in Korea suggest realistic method that automatically realize lip sync of animation character by accurately reflecting production feature of animation and Korean pronunciation structure by using voice recognition technology.

If development of these technologies can be commercialized to technology that could be used in actual animation work production, it would have meaning on developing both animation industry and creation that use mother language and contribute on quality increase of domestic animation. Also, this possibility of using animation lip sync automation technology on work in poor production environment of domestic animation would have to provide computer recording medium that recorded program that could be operated in computer.



< Fig. 3 Comparative table of Mouth Chart English vs. Korean for lip sync in animation by Tak hoon Kim, 2009>

In development of domestic technology, Takhoon Kim suggested in his thesis that Korean lip sync has difference of mouth shape compare to English due to vocalization that opens mouth small for all pronunciation. This issue based on expansion of animation character's feature. Therefore, it is deeply agreed that lip sync Korean mouth chart is studied as a part of art work that visualize mouth shape by dividing dialogue into syllables rather than linguistic or phonetic side. Thus, it is considered as a point of view that suggest various applicability of animation in visual image medium as a pop culture art rather than one dimensional industrial technology with use of lip sync technology.

In animation of American major movie production, it improves audience's immersion by producing high quality animation by perfectly show character's performance with realization of perfect lip sync, so it could perfectly realize Korean lip sync when developing domestic animation, and furthermore, if development of Korean based character's facial animation continues, industry that could use lip sync automation will be useful in domestic purely creative 3D animation as well as movie that requires high quality CGI in the future.

As looked into production technology side earlier, it would be important to take a look at what influence would utilization of audiences' lip sync who are target to watch that object. In the aspect of audience, implication of regulation on recent American public TV animation mentioned earlier has great social and cultural impact. Bill that permits only matched lip sync with character for broadcasting of all imported animation in America would be the case. From animation <Duli> that made big flow in vitalization and development of animation in domestic market to <Pororo> and currently hitting <Lava>, the case of all these TV series animation mainly targeting children, critical mind occurs on educational influence that if mouth shape of character's lip sync would influence language learning side.

There is assumed situation that opportunity to crate high value would be increased in movie and game that realized high quality animation character. In those situations, animation producer or creator's position accordance with progress and development of lip sync technology would have to be using this as a tool to make accurate language expression by surpassing existing concept that lip sync would just visualize talking shape of mouth. This would make opportunity to change social recognition that could re-illuminate important meaning and value of animation and it would be developed more.

4. Conclusion

After 2000, as production technology of whole world animation industry becoming 3D from 2D digital method, it used mixed type between 2D and 3D, and from 2004, it changed fast to 3D animation. With this international trend, 3D creation has been increasing in Korea recent few years and it is urgent to develop animation production technology that could reduce risk by reducing production cost and production period of animation. Especially, as the game that use real time animation character and virtual reality based digital character video production assumes live air as well as 3D production type TV animation, company tend to increase their related projects, and demand to develop animation production technology that could enhance efficiency of contents production is rapidly increasing as well.

In industrial aspect, since cartoon/animation/character industry has low cultural barrier such as linguistic, geological and racial, thus it is easy to expand to overseas and it is soft industry with great effect to create work, thus it is considered as representative advanced country type industry. It is because one hit product could expand into overall cultural contents industry such as movie, drama, game, play, musical and character, and create high value added product.

However, since domestic animation industry is produced based on character's gesture performance by leaning too much

towards children market, thus it seems need to develop Korean character lip sync technology that could visually accurately express pronunciation expression with linguistic characteristic of Korean character in animation or detailed emotional and cultural difference is passed unnoticed.



<Fig. 4 From Duli to Lava animation character, Economic growth prospective table by Korea economy, 2013>

As it shown in the table above, domestic animation market will record 568 billion KRW this year. Start with baby dinosaur “Duli” in 1983, there are virtual characters in the center of domestic animation like “Pucca”. As commercialized animation <Pororo> that had greatest success until a recent date has been produced since 2003, 2013, currently domestic animation is growing fast such as “Robocarpoly” and “Lava”.

In recent domestic patent technology of Korean cultural contents and industries, effort to develop real time lip sync animation production technology using voice recognition in idea stage or theory stage could be found. This will make Korean speaking character to have authentic speaking scene more efficiently and easily in domestic animation. Also, as effect of Korean character that can correspond in real time, Korean lip sync automation device that applied in real time animation character, and the technology that compose that was revealed in areas like movie, broadcasting, smart contents, game video, AR/VR which claims to be high technology, it is being commercialized.

However, it could be told that animation made base of creation with pure domestic animation technology is growing centered on children. This means mass media animation expand its range of influence on growing children and audience. Also, it has been developing hectic by considering movement of character as a main technology with strategy to show plausible scene in real world with exaggeration and personification, thus technology development of lip sync in domestic animation and discussion on its utilization could not be done. The point of view that just match mouth shape of character for animation lip sync like dubbing foreign movie and having pattern of modification would affect as cause of hindrance in development of animation in the future.

Thus, for linguistic problem and that influence of domestic animation that aiming world market, industrial technology development that realize character’s script and facial expression is prior project, and it could be used as core value technology with superiority of technology competitiveness that make animation Korean lip sync character based on creativity and originality of country’s culture through progress of industrial technology to success in domestic and foreign market.

In the future, like the development of device technology that automates character Korean lip sync technology of animation, change of recognition on proper use and technology of animation lip sync technology for visualization of language expression would be needed in production of domestic animation rather than just focusing on non-linguistic expression

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