How to Cite
Mustafa, A. R., Ramadany, S., Sanusi, Y., Made, S., Stang, S., & Syarif, S. (2020). Learning media applications for toddler midwifery care about android-based fine motor development in improving midwifery students skills. *International Journal of Health & Medical Sciences*, *3*(1), 130-135. https://doi.org/10.31295/ijhms.v3n1.290

Learning Media Applications for Toddler Midwifery Care about Android-Based Fine Motor Development in Improving Midwifery Students Skills

Ayu Resky Mustafa
Department of Midwifery, Graduate School, Hasanuddin University, Indonesia
Corresponding author email: mustafaar19p@student.unhas.ac.id

Sri Ramadany
Faculty of Medicine Hasanuddin University, Indonesia
Email: sriramadanufk@gmail.com

Yusring Sanusi
Center for Media Studies, Learning Resources, and E-Learning Hasanuddin University, Indonesia
Email: yusring@unhas.ac.id

Sutinah Made
Economics of Fisheries Companies, Hasanuddin University Makassar, Indonesia
Email: *inasmade@gmail.com*

Stang
Health Faculty Community Hasanuddin University Makassar, Indonesia
Email: *stangbios@gmail.com*

Syafruddin Syarif
Department of Telecommunication Engineering, Hasanuddin University Makassar, Indonesia
Email: *syafruddin.s@eng.unhas.ac*

Abstract---*Fine motor development is the development of children's movements that use small muscles or certain limbs that are influenced by the child's opportunity to learn and practice. The purpose of this study is to find out the improvement of students' skills in detecting early fine motor development aged 6-12 months after being given an android-based GoMent application. This study used Pre experimental method (one group pre-test and post-test design) with samples in this study as many as 31 midwifery students using purposive sampling techniques following inclusion and exclusion criteria at the Academy of Midwifery Tahirah Al Baeti Bulukumba. This study used primary data. The statistical test used was Mc Nemer. Based on statistical tests between skills before and after the provision of android-based GoMent learning media increased by 90.32% and found the value of Asymp sign = 0.000 (p<0.05). The use of an android-based GoMent learning media application is effective to improve students' skills in detecting early development of fine motor aged 6-12 months and it is expected that this android-based learning media (GoMent application) can be used and used as an alternative to practicum learning in the laboratory.*
Keywords---*android, GoMent application, learning media, midwifery student skills, practicum learning.*

ISSN 2632-9433
Submitted: 27 October 2020 |Revised: 09 November 2020 | Accepted: 18 December 2020

Introduction

Early childhood development is an important determinant of an individual's potential, especially health, education, and economic status, throughout the life span. The development of the child is a gradual opening of biologically determined characteristics and traits that arise as the child learns from experience. During childhood, motor development also appears sequentially, cumulatively, and sustainably in the expected time. Broadly speaking, the realm of child development consists of rough motor, fine motor, language/speech, and social personal/self-reliance. Developmental delay disorders are characterized by slow maturity of nerve cells, slow motor movement, lack of intelligence, and slow social response (Sinno et al., 2018).

Motor development is a process that is in line with gradual and continuous age from simple to complex and from skilled to skilled. Motor development is divided into two of them are the development of rough motor and fine motor. Fine motor development is the development of children's movements that use small muscles or certain limbs that are influenced by the child's opportunity to learn and practice. Several factors affect the development of children including heredity, neuroendocrine, interpersonal relationships, socioeconomic level, disease, danger, environment, the stress in children, and the influence of mass media (Handayana Sri et al., 2019; Indraswari, 2012; Haryanti et al., 2018).

Development begins from the womb and then continued to 8 stages ranging from infant (0-18 months), toddler (1.5-3 years), early childhood or preschool (3-6 years), school (6-1 2 years), adolescents (12-18 years), young adults (18-35 years), middle adults (36-65 years old) and the last stage is the final adult (> 65 years). The quality of toddler growth in Indonesia needs to get serious attention, namely adequate stimulation and affordable quality health services including early detection and intervention of growth irregularities. Developmental assessment in children is very important so that if there is a suspicion of irregularities can be done immediately stimulation and early intervention before abnormalities occur. Early detection can be done every three months in children aged 0-12 months and every six months in children aged 12-72 months and can be done at all levels of health services (Haryanti et al., 2018; Roykhana et al., 2018; Sugeng et al., 2019). Fine motor delay involves finely regulated movements. Disorders of fine motor development usually cause children to have learning difficulties. Another impact of the disruption of fine motor development is that children become less creative because what should be needed by children cannot be fulfilled, so the ideas they put out are monotonous and they will be the next generation left behind (Warlenda et al., 2019; Kusumaningtyas et al., 2016).

The incidence of child developmental disorders around the world is still relatively high. The World Health Organization (WHO) reports preschool-age children to suffer from 5-25% minor brain dysfunction, including subtle motor developmental disorders. According to Global Statistics, about 5 to 16% of children have developmental abnormalities. About 30-50% of these disorders are not identified until school age. In Indonesia itself the number of toddlers 0-2 years as much as 14,333,515 people (Health Profile of Indonesia in 2016), while the interval of 1-4 years of age amounted to 19,189,866 people. The results of motor development research in children under the age of five in Indonesia showed a delay in motor development as much as 49%, due to poor maternal knowledge and occurred in developing countries (Katharina, 2018; Yaghini et al., 2015; Ministry of Health, Republic of Indonesia, 2016; Jurana, 2017).

Institutions have a very big role in the level of student knowledge so that student competencies can be achieved following the competencies determined by the profession, various efforts are made by study programs including compiling curricula (Mushawwir et al., 2020), developing learning methods (Ahmar et al., 2020) and learning media (Budi et al., 2020). The use of learning media affects student activity and learning outcomes (Basniati et al., 2020). So that researchers are interested in conducting research related to the use of Learning Media Applications. Based on that description, research will be conducted with the influence of learning media of infant midwifery care about the development of android-based fine motor in improving the skills of midwifery students. This study aims to improve the skills of midwifery students in early detection of fine motor development aged 6-12 months**.**

Research Methods

This research uses one group pre-test and post-test design conducted at Akbid Tahirah Al Baeti Bulukumba in October 2020. By using the application of learning media of infant midwifery care about the development of android-based fine motor and Checklist.Teknik sampling Non Probability Sampling with Purposive Sampling technique. A sampling of data sources with certain considerations following the criteria of inclusion, exclusion, and resignation. Analysis of respondents' skill data using Non-Parametric Statistic Test with Mc Nemer formula to test

the difference of two samples paired between pre-test score and post-test with decision making basis If probability (Asymp.Sig) < 0.05 then there is a difference, If probability (Asymp.Sig) > 0.05 then there is no difference.

Results

The influence of learning media of infant midwifery care about fine motor development aged 6-12 months on student skills before and after the use of GoMent application using pre-experimental research design (one group pretest and post-test design). In the first stage, pre-test the skills of midwifery students before being given a learning media application about the development of fine motor age 6-12 months based on android. After the next pre-test will be given an application and continued with the provision of post-test skills of midwifery students about the development of the fine motor (Hussain et al., 2018; Milosevic et al., 2017).

This research was conducted at the Campus of The Academy of Midwifery Tahirah Al Baeti Bulukumba in November. After obtaining a letter of recommendation for research approval by the ethics committee of the Faculty of Public Health, Hasanuddin University Makassar with the number 8307/UN4.14.1/TP.02.02/2020 with protocol number 12102009229.

Obtained data on fine motor development skills research age 6-12 months obtained the average pretest value of students There was an increase in skills by 90.32%, it was seen that there were 28 unskilled midwifery students and 3 skilled midwifery students from 31 the number of midwifery students before being given learning media, but after being given learning media there was an increase of 31 total number of skilled midwifery students (Dabbagh & Kitsantas, 2012; Gikas & Grant, 2013; Suarsana et al., 2018). The results showed that H_0 was rejected which means there is an influence of the use of the learning media of midwifery care toddlers about the development of fine motor age 6-12 months based on android to the skills of midwifery students. To find out the improvement of pre-test and post-test can be tested using McNemar test.

Table 1
Differences in Infant Midwifery Care Skills on Fine Motor Development Age 6-12 Months In Midwifery Students Before And After Provision of Learning Media (N=31).

Skill *Pre Test*	Skill *Post Test*		***p-value****
	Not Skilled (%)	Skilled (%)	
Not Skilled	0 (0,0)	28 (90,32)	
Skilled	0 (0.0)	3 (9,68)	<0.000
Total	0 (0,0)	31 (100)	

Test Mcnemar

Statistical test results in table 1 showed significant differences in respondents' skills before and after the use of learning media ($p<\alpha$). There was a 90.32% increase in skills, it was seen that there were 28 unkilled midwifery students and 3 skilled midwifery students from 31 the number of midwifery students before being given the learning media, after being given learning media there was an increase of 31 total number of midwifery students declared skilled. The results showed that H_0 was rejected which means there is an influence used learning media of midwifery care toddlers about the development of fine motor age 6-12 months based on android to the skills of midwifery students.

Discussion

The skills of Midwifery Academy student Tahirah Al Baeti Bulukumba about early detection of fine motor development aged 6-12 months showed an improvement after being given an android-based infant midwifery learning media from an unkilled category into a skilled category. Based on the data obtained proves that the skills of students before being given intervention/treatment there are 28 unskilled midwifery students and 3 skilled midwifery students from 31 number of midwifery students before being given the learning media (Lendahls & Oscarsson, 2017; Hastie, 2018). After the intervention, there was an excellent increase, from 31 total midwifery students of midwifery students were declared skilled.

This study found that differences in early detection skills of fine motor development aged 6-12 months based on android before and after being given a learning media of midwifery care toddlers about the development of fine motor age 6-12 months there was an increase with p-value< 0.000, so it can be concluded that learning methods using android-based learning media are very effective in improving the skills of midwifery students in detecting early fine motor development aged 6-12 months.

This research is in line with research conducted by Georgia Karabatzaki et al. (2018) which has the potential to improve many aspects of both daily life, namely using Technology, including learning it is proven to increase student involvement in learning which includes the concept of learning more effectively, encouraging more participation, increasing learning satisfaction and developing student skills (Karabatzaki et al., 2018). The results of this study are in line with research conducted by Marwasariaty et al. (2016), which discusses the influence of health education by using applications to family independence in monitoring growth very well in intervention groups compared to families who are not given interventions. Learning media that use android application is very influential in improving family skills in monitoring. With android-based learning, media can increase knowledge so that skills by themselves will increase (Marwasariaty et al., 2016).

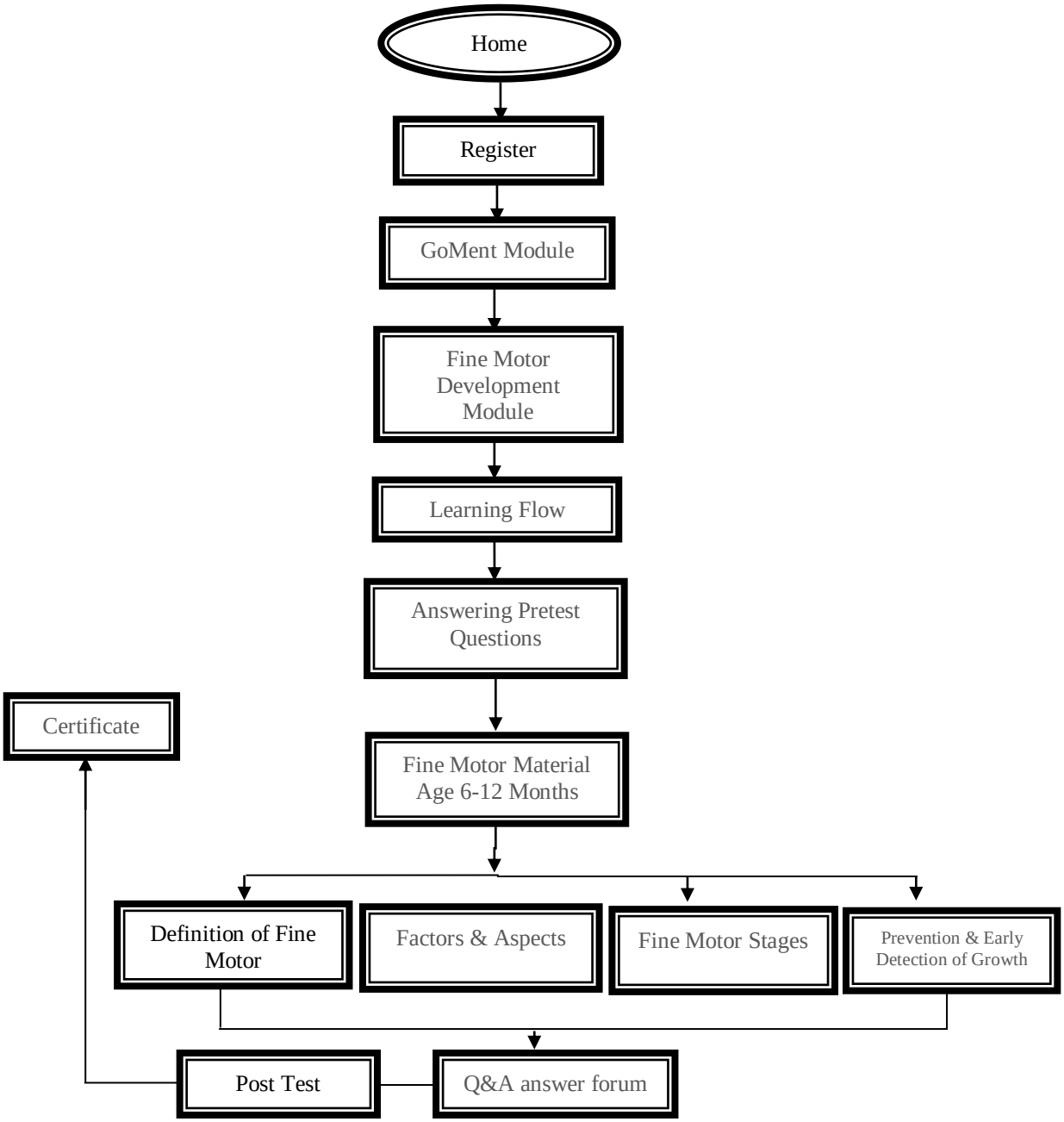

Figure 1. The Flow of Use of Android-Based Infant Midwifery Learning Media (GoMent)

Conclusion

Based on the results of the analysis obtained that the application of android-based midwifery learning media has a significant influence on improving students' skills on early detection of fine motor development aged 6 - 12 months.

Advice

It is expected that this android-based learning media (GoMent application) can be used and used as an alternative to practicum learning in the laboratory as an effort to improve students' skills in detecting early fine motor development so that students are more skilled in detecting early deviations in infants and toddlers.

Acknowledgments
We thank the mentors who have taken their time in the preparation of this research and to our parents who always pray for the researchers to finish. We also thank the Tahirah Al Baeti Bulukumba Midwifery Academy Campus for the support and assistance of the equipment and materials provided during our research and special appreciation to all study participants who volunteered for this research.

References

Ahmar, H., Budi, P., Ahmad, M., Mushawwir, A., & Khaidir, Z. (2020). Penerapan Model Pembelajaran Problem Based Learning: Literature Review. *Jurnal Keperawatan Muhammadiyah*, *5*(2).

Basniati, A., Ramadany, S., Tamar, M., Ahmar, H., & Astuti, F. (2020). Pengaruh Video Learning Multimedia terhadap Pengetahaun, Sikap dan Perilaku Menstrual Hygiene pada Remaja Putri. *Oksitosin: Jurnal Ilmiah Kebidanan*, *7*(2), 108-119.

Budi, P., Ahmad, M., Mushawwir, A., & Ahmar, H. (2020). Pengaruh Pemberian Modul Asuhan Persalinan Kala II Terhadap Keterampilan Mahasiswa DIII Kebidanan. *Jurnal Keperawatan Muhammadiyah*, *5*(2).

Dabbagh, N., & Kitsantas, A. (2012). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and higher education*, *15*(1), 3-8. https://doi.org/10.1016/j.iheduc.2011.06.002

Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones & social media. *The Internet and Higher Education*, *19*, 18-26. https://doi.org/10.1016/j.iheduc.2013.06.002

Handayana, S., Zuhairi, Z., & Hakim, N. (2019). Efforts to Improve Fine Motor Skills for Early Childhood in Pekon Negeri Ratu 2, West Coast through Painting Collage Techniques. *DEDICATION: Journal of Community Service*, *1* (1), 56-63.

Haryanti, D., Ashom, K., Aeni, Q., & Ners, P. S. (2018). A Picture Of Parental Behavior In Stimulation In Children Experiencing Developmental Delays Aged 0-6 Years Identified the Behavior Of Parents In Stimulating Children Aged 0-6 Years. *6*(6), 64-70.

Hastie, C. R. (2018). 'TeamUP': An approach to developing teamwork skills in undergraduate midwifery students. *Midwifery*, *58*, 93-95. https://doi.org/10.1016/j.midw.2017.12.026

Hussain, M., Zaidan, A. A., Zidan, B. B., Iqbal, S., Ahmed, M. M., Albahri, O. S., & Albahri, A. S. (2018). Conceptual framework for the security of mobile health applications on android platform. *Telematics and Informatics*, *35*(5), 1335-1354. https://doi.org/10.1016/j.tele.2018.03.005

Indraswari, L. (2012). Improvement of Fine Motor Development of Early Childhood Melalaui Mosaic Activities In Kindergarten Pembina Agam. Jurnal Pesona PAUD, *1*(1-13), 1-13.

Jurana. (2017). Rough and Smooth Motor Development in Children Aged 1-3 Years. Journal of Scientific Medicine, *4*(3), 47-63.

Karabatzaki, Z., Stathopoulou, A., Kokkalia, G., Dimitriou, E., Loukeri, P. I., Economou, A., & Drigas, A. (2018). Mobile Application Tools for Students in Secondary Education. An Evaluation Study. *International Journal of Interactive Mobile Technologies (iJIM)*, *12*(2), 142-161.

Katharina, T., & Iit, K. (2018). The Relationship Between Mother's Knowledge and Attitudes Toward Growth and Development of Children Aged 0-24 Months. *Journal of Midwifery* , *7*(2), 265351.

Kusumaningtyas, Kharisma; Wahyanti, S. (2016). Income Factor And Family Education To The Fine Motor Development Of Children Aged 3-4 Years. VII(2011), 52-59.

Lendahls, L., & Oscarsson, M. G. (2017). Midwifery students' experiences of simulation-and skills training. *Nurse education today*, *50*, 12-16. https://doi.org/10.1016/j.nedt.2016.12.005

Marwasariaty, M., Sutini, T., & Sulaeman, S. (2019). Health Education Using Booklet Media + SDIDTK Application Effectively Increases Family Independence in Monitoring Toddler Development. *Journal of Telenursing (JOTING)* , *1*(2), 236-245.

Milosevic, N., Dehghantanha, A., & Choo, K. K. R. (2017). Machine learning aided Android malware classification. *Computers & Electrical Engineering*, *61*, 266-274. https://doi.org/10.1016/j.compeleceng.2017.02.013

Ministry of Health of the Republic of Indonesia. (2016). Guidelines for The Implementation of Stimulation, Detection and Early Intervention of Child Development." Summary ForPolicymakers: 1-30.

Mushawwir, A., Tahir, T., Kadar, K., & Saragih, S. L. (2020). Evaluate the Implementation of Educational Curriculum and Lecturer's Knowledge About the Blueprint to the UKNI's Graduation Rate in South Sulawesi. *Int. J. Psychosoc. Rehabil*, *24*(08), 14709-14719.

Roykhana, D., Nur, N., Husodo, B. T., & Priyadi, N. (2018). Faktor-Faktor yang Berhubungan dengan Evaluasi di Taman Posyandu Puskesmas Lamongan. *Jurnal Kesehatan Masyarakat*, *6*(1), 724-733.

Sinno, D., Tamim, H., Faytrouni, F., Mikati, M. A., & Charafeddine, L. (2018). Factors affecting child development assessed by the Ages and Stages Questionnaire (ASQ) in an Arabic speaking population. *Early human development*, *120*, 61.

Suarsana, I. M., Mahayukti, G. A., Sudarma, I. K., & Yoga, I. N. B. A. (2018). Development of interactive mathematics learning media on statistics topic for hearing-impaired student. *International research journal of engineering, IT & scientific research*, *4*(6), 55-66.

Sugeng, Hapsari Maharani, Rodman Tarigan, and Nur Melani Sari. "An overview of child development in the golden period of 0-24 months at the Posyandu, Jatinangor District." *Journal of Health Systems* 4, no. 3 (2019).

Warlenda, SV, Maharani, R., & Widodo, MD (2019). Factors Related To The Implementation Of Toilet Training In 3-5 Years Old Children In Paud In Pekanbaru City In 2017. *Menara Ilmu* , *13* (1).

Yaghini, O., Kelishadi, R., Keikha, M., Niknam, N., Sadeghi, S., Najafpour, E., & Ghazavi, M. (2015). Prevalence of developmental delay in apparently normal preschool children in Isfahan, Central Iran. *Iranian journal of child neurology*, *9*(3), 17.