

Effects of Yangsaeng Behavior and Physical Activity Enjoyment on School Life Adaptation in High School Girl Dance Class Participation

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Appropriate behavior for physical health is an effective predictor for physical development during adolescent school life. This study examined the predictable relationship among Yangsaeng behavior, physical activity enjoyment and school life adaptation. Data was collected from 708 high school girls who participate in school based dance classes. Multiple regression analysis was applied to data and the results show that Yangsaeng behavior accounted for school life adaptation of 36% with the Yangsaeng morality factor ($\beta=.356$); physical activity enjoyment accounted for school life adaptation of 45% in relationship with confidence and friendship and health and beauty factors ($\beta=.046$, $\beta=.157$). Yangsaeng behavior accounted for physical activity enjoyment of 56% in morality, mind cultivation and Yangsaeng exercise factors ($\beta=.396$, $\beta=.206$, $\beta=.202$). In conclusion, Yangsaeng behavior and physical activity enjoyment predicts school life adaptation and physical activity enjoyment predicts Yangsaeng behavior in the context of school based dance classes. Consequently, Yangsaeng behavior and physical activities are effective programs that positively influence adolescent physical and mental health.

Key words: *Yangsaeng behavior, Physical activity enjoyment, School life adaptation, High school girl, Dance class participant.*

Introduction

High school students who are preparing for the university entrance exam in Korea are exposed to physical, mental and psychological stress as they spend most of their time studying. During this time, it is necessary for these students to solve the emerging conflicts and stress in many ways to harmonize with the school environment. Generally, students learn about human relationships, norms and rules through school life. If they have difficulties in adapting to school life, they will have negative attitudes toward learning achievement, interpersonal relationships, self-esteem and self-expression, which can also lead to depression and inferiority (Lim & Kim, 2007). Therefore, it is very important to develop incentives and strategies that facilitate adaption to high school life, as school life potentially enhances emotions, social skills and academic performance and thus affects individual and social development (Oh & Kang, 2014). Since appropriate school life adaptation has a positive effect on motivation and strategies for high school period it also improves emotional and social life and learning competency, consequently influencing individual and societal development (Oh & Kang, 2014). To support student appropriate school life adaptation, physical activity should aim to improve physical and mental health (Lubans et al., 2016) and the higher the frequency of participation in these programs, (Eime et al., 2013) the greater the increased psychological well-being (Moljord et al., 2011).

However, Korean high school students are not able to perform physical activities (Korean Educational Statistics Service, 2016) due to recommendation (WHO, 2018) and thus the relative proportion of physical and health study time among OECD countries has gradually decreased in middle and high school and allocation exercise time duration in physical education classes has decreased to less than 1 hour per week (Korean Educational Statistics Service, 2016). The decrease of physical activity is a concern with regard to general fitness deterioration (Nelson et al., 2006; Thiangthung, 2016). Increasing participation in physical activities, such as in a dance class is recommended for the positive effects related to enhancing emotional intelligence and social relationships and the alleviation stress in the context of school life (Jo & Moon, 2017; Teik Ee, & Aman, 2015). Physical education and dance are universally practiced in school education. Dance is an example of preferred physical activity for girls through participation in dance classes, positive effects can be expected when physical activity and art education are engaged with simultaneously. Art education has been reinforced in countries such as the United States, Britain, Canada, Germany, France and Finland (Segyeilbo, 2018) as essential to foster creativity and sensitivity (Ministry of Education, 2018; Ambikai, & Ishan, 2016).

Research reports that dance improves student expression and sociability, promotes behavioral performance in community life and leads to positive emotional development and personality formation obtained through expression activities (Lee, 2010). A further study showed that

dance can improve emotional consensus about physical activity experience more than physical or sports class (Maljak et al., 2014; Rerkklang, 2017), so dance which incorporates art elements and physical activity is a necessary element that assists in adaptation to school life. Thus, to improve the effectiveness of school physical activity participation for school life adaptation this research proposed Yangsaeng (Kim, 2004; Maulana, 2017), which is designed as a way to improve health care based on traditional Korean thoughts within Oriental philosophy. Yangsaeng is defined as a traditional health care concept comprising appropriate food, exercise, emotion and life and has been reported to maintain health through Korean tradition supported by the oriental historical philosophy (Park & Kim, 2010; Oetomo, Satrio, & Lestariningsih, 2016).

In Korea then, Yangsaeng means a traditional health management method is being studied and applied in various aspects for objective and positive effects. Further, (Kim, 2004) Yangsaeng can be interpreted as a strategy "to preserve life" and promote physical and mental health to maintain a healthy life. Yangsaeng includes a sense of well-being including subjective meaning (Pender, 1999; Sadik, 2016) and can be demonstrated through the pursuit of a high quality contemporary life (Kim, 2008). If it can be proved that Yangsaeng cultivates and preserves the body and life as one adapts according to environmental changes (An, Shin, & Gu, 2000; Tsai, & Tsai, 2017), then it is a way to enhance students participation in appropriate school life and physical activity. Therefore, in this study, Yandsaeng is identified as an influence on high school girls' school life adaptation and physical activity enjoyment that fosters student traditional health behavior and promotes active participation in school physical activity and routine life.

Method

Subject and data collection

The subject sampling method for eligible female adolescents was carried out using purposive non-probability sampling and a study set of 743 high school students were extracted from a private girls' boarding school in Seoul. The study proceedings began in May 16, 2018 and continued until May 23, 2018. The final data used was collated from 712 student questionnaire responses (age $17.8 \pm .82$, grade 1st=314, 2nd=206, 3rd=188) of the 743 self-administered student questionnaires to determine findings about school dance class as physical activity. The data sample was selected by higher 210 based on $\alpha=.05$, $1-\beta=.95$, Effect Size .3 or higher for statistical power with *G*power* (2007) for the two-tailed test.

Measurement tools

The Yangaseng behavior measurement scale comprises moral discipline, mind cultivation, dietary Yangsaeng, activity & relaxation Yangsaeng, exercise Yangsaeng, sleeping Yangsaeng

and seasonal Yangsaeng which was measured using 28 items developed by Ae Jung Kim (2004). The physical activity enjoyment measurement scale comprises confidence, friendship, fun, creativity and health and beauty and was measured using 35 items previously developed by Park & Shin (2002) and applied for the enjoyment of physical activity assessment (Woo Kyung Kim, 2017). The school life adaptation measurement scale comprises friend adaptation, class adaptation and teacher adaptation and was measured using 18 items developed by Jung et al. (2016). A 5-point Likert scale was used.

Validity and reliability

For the construct validity of the study model Exploratory Factor Analysis (EFA) was used reducing the data to a smaller set of factor loading, to explore the underlying structure of the Yangsaeng behavior, physical activity enjoyment and school life adaptation and assess construct validity. To identify underlying dimensions of factors that were theoretically meaningful, reduction of items using the Maximum Likelihood Estimation method on Oblique rotation of Promax was applied. The pattern matrix for the items contained in factors along with factor eigenvalues and variance is explained.

Results of EFA, factor loading critical value was set higher at .50 in Yangsaeng behavior scale, and determined morality (1, 2, 3, 4, 5), mind cultivation (6, 7, 8, 9), dietary Yangsaeng (10, 11, 12), activity and relaxation Yangsaeng (14, 15, 16, 17), exercise Yangsaeng (19, 20, 21), sleeping Yangsaeng (22, 23, 24) and seasonal Yangsaeng (26, 27, 28). Of 7 factors in 25 items 3 items were deleted (13, 18, 25). The Kaiser-Meyer-Olkin Sampling Adequacy (KMO) measure of sampling adequacy was .933 and Bartlett's test of Sphericity revealed an approximate=10926.099, $\chi^2(203)=572020, p=.001$.

In physical activity enjoyment scale determined confidence and friendship (1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 12, 13, 14, 15, 16), fun item (17, 18, 21, 22, 27), creativity (20, 23, 25, 26, 35), health and beauty (30, 31, 32, 33, 34) of 4 factors in 30 items 5 items were deleted (10, 19, 24, 29, 34). KMO was .892 and Bartlett's Sphericity revealed an approximate=3170.531, $\chi^2(102)=380.072, p=.001$. School life adaptation scale was determined from friend adaptation (1, 2, 3, 4, 5), class adaptation (7, 8, 9, 10, 11) and teacher adaptation (13, 14, 15, 16, 17, 18) and of 3 factors in 16 items 2 items were deleted (6, 12). KMO=.973, Bartlett Sphericity revealed an approximate=22197.799, $\chi^2(430)=1859.769, p=.001$. Full reliability of 3 measurement scale Cronbach's Alpha α was used to measure the internal consistency of total item reliability $\alpha=.919$. In Yangsaeng behavior scale $\alpha=.857$ and Intra class coefficient; ICC (absolute agreement)=.822 appeared α in morality (.913), mind cultivation (.911), dietary Yangsaeng (.915), activity & relaxation Yangsaeng (.913), exercise Yangsaeng (.915), sleeping Yangsaeng (.916) and seasonal Yangsaeng (.924). In physical activity enjoyment scale $\alpha=.926$ and ICC=.909 showed α in confidence and friendship (.908), fun (.909), creativity (.910) and health

and beauty (.908). In the school life adaptation scale $\alpha=.728$ and ICC=.616 appeared α in friend adaptation (.915), class adaptation (.919) and teacher adaptation (.915). These results indicate a reasonably high level of consistency between 3 scales of 81 items as represented in Table 1 below.

Table 1: Item-total reliability

Factor	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted	Chronbach α	
Morality	.690	.913	.857	
Mind cultivation	.729	.911		
Dietary Yangsaeng	.614	.915		
Activity&relaxation Yangsaeng	.655	.913		
Exercise Yangsaeng	.638	.915		
Seasonal	.396	.924		
Sleep Yangsaeng	.576	.916		
Confidence & friendship	.818	.908	.926	.919
Fun	.765	.909		
Creativity	.743	.910		
Health & beauty	.793	.908		
friend adaptation	.623	.915	.728	
Class adaptation	.462	.919		
Teacher adaptation	.604	.915		

Data processing

Data was analyzed using I-STATistics 2.0.1(Kim & Baker, 2014), MS-Excel and SPSS ver. 20(IBM Co., Armonk, NY, USA). For subjects, general characters were analyzed by frequency analysis and descriptive statistics. Test reliability was conducted to Cronbach α and Intra Class Correlation Coefficient and Pearson r was used to verify multi-collinearity of the model. Construct validity evidence was confirmed by EFA. Correlations among Yangsaeng behavior, physical activity enjoyment and school life adaptation were analyzed by standard multiple regression analysis to calculate predictable variables of the research model. The statistical power of the significance level $\alpha=.05$ and $1-\beta=.95$ were set with two tail test.

Results

Descriptive analysis & correlation

The result of the descriptive analysis verification was normal distribution of selected items, the Skewness to determine by the absolute value >1 and Kurtosis to determine >7 for normality were assumed. All data have a distribution satisfying more than 200 sample cases and Kurtosis was satisfied with total item score and Skewness of slightly items >1 . $M\pm SD$ of 3 variables'

total scores were Yangsaeng behavior (3.4±1.2), physical activity enjoyment (3.6±1.1) and school life adaptation (3.7±1.0) as presented in Table 2 below.

Table 2: Descriptive analysis and distribution

i	Yangsaeng behavior				Physical activity enjoyment				School life adaptation			
	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis	M	SD	Skewness	Kurtosis
1	4.1	.9	-.84	.42	3.6	1.0	-.37	-.46	4.3	.9	-1.30	1.20
2	4.0	.9	-.77	-.43	3.8	1.1	-.64	-.22	4.2	1.0	-1.30	1.20
3	3.9	1.0	-.67	-.09	3.6	1.1	-.42	-.46	4.3	.8	-.95	.42
4	4.0	.9	-.66	.22	3.8	1.0	-.70	.19	4.0	.9	-.55	-.29
5	4.0	.9	-.73	.17	3.8	1.2	-.55	-.26	3.4	1.2	-.29	-.79
6	3.3	1.3	-.16	-1.07	3.7	1.1	-.47	-.33	3.0	1.1	-.02	-.72
7	3.6	1.1	-.34	-.67	3.8	1.0	-.69	.13	3.7	.9	-.62	.31
8	3.3	1.2	-.14	-.95	3.8	1.0	-.54	-.32	2.6	1.2	.29	-.70
9	3.3	1.1	-.21	-.75	4.0	.9	-.73	.38	3.4	1.1	-.36	-.58
10	3.6	1.1	-.43	-.61	3.1	1.2	-.01	-.85	3.1	1.2	-.20	-.91
11	3.5	1.1	-.40	-.56	3.7	1.0	-.52	-.19	3.9	1.0	-.48	-.41
12	3.5	1.2	-.42	-.66	3.6	1.1	-.49	-.35	4.1	.9	-.98	.77
14	3.3	1.2	-.23	-.80	3.7	1.0	-.54	.07	4.2	.8	-.94	.86
15	2.9	1.3	.15	-1.03	3.6	1.1	-.42	-.32	3.9	1.0	-.73	.11
16	3.2	1.2	-.06	-.81	3.6	1.1	-.43	-.35	3.6	1.1	-.46	-.55
17	3.2	1.2	-.14	-.83	3.8	1.1	-.68	-.04	3.9	1.0	-.70	.36
19	3.0	1.3	.01	-1.2	3.9	1.0	-.72	.20				
20	3.2	1.3	-.15	-.97	3.3	1.2	-.23	-.78				
21	3.0	1.3	.05	-1.1	3.6	1.2	-.50	-.54				
22	3.1	1.3	-.07	-1.1	3.8	1.1	-.74	-.12				
23	3.9	1.1	-.80	-.01	3.2	1.2	-.11	-.78				
24	3.4	1.2	-.30	-.81	3.3	1.2	-.23	-.72				
26	2.8	1.3	.09	-.91	3.2	1.2	-.11	-.84				
27	2.6	1.2	.25	-.83	3.8	1.1	-.79	.08				
28	2.8	1.3	.21	-.91	3.5	1.1	-.33	-.55				
29					3.7	1.1	-.50	-.19				
30					3.1	1.2	-.01	-.91				
31					3.5	1.1	-.41	-.55				
32					3.7	1.1	-.62	-.27				
33					3.7	1.1	-.57	-.21				
35					3.1	1.3	-.02	-.93				

Pearson *r* was used to compute correlation with 81 items and Yangsaeng behavior items reported significance level $p<.05$, $p<.01$ and physical activity enjoyment and school life adaptation items showed significance level $p<.01$ statistically. 14 factors were used to measure correlation $p<.01$ level statistical significance as represented in Table 3 below.

Table 3: Correlation analysis between 14 factors

f1	f2	f3	f4	f5	f6	f7	f8	f9	f10	f11	f12	f13	f14
f2	.607 **												
f3	.500 **	.508 **											
f4	.424 **	.585 **	.532 **										
f5	.368 **	.500 **	.456 **	.569 **									
f6	.192 **	.339 **	.314 **	.489 **	.494 **								
f7	.481 **	.536 **	.413 **	.570 **	.498 **	.399 **							
f8	.624 **	.608 **	.452 **	.450 **	.471 **	.292 **	.479 **						
f9	.583 **	.449 **	.407 **	.344 **	.432 **	.223 **	.362 **	.783 **					
f10	.489 **	.548 **	.412 **	.395 **	.494 **	.325 **	.378 **	.730 **	.766 **				
f11	.609 **	.578 **	.486 **	.431 **	.488 **	.278 **	.478 **	.733 **	.742 **	.776 **			
f12	.471 **	.460 **	.307 **	.317 **	.326 **	.141 **	.402 **	.600 **	.485 **	.467 **	.533 **		
f13	.264 **	.309 **	.286 **	.368 **	.315 **	.189 **	.177 **	.390 **	.343 **	.338 **	.340 **	.347 **	
f14	.484 **	.364 **	.311 **	.363 **	.244 **	.179 **	.309 **	.609 **	.559 **	.463 **	.522 **	.582 **	

f1: morality f2: mind cultivation f3: dietary Yangsaeng f4: activity & relaxation Yangsaeng f5: exercise Yangsaeng
f6: seasonal Yangsaeng f7: sleep Yangsaeng f8 : confidence & friendship f9: fun f10: creativity 11: health & beauty
f12: friend adaptation f13: class adaptation f14: teacher adaptation

$p < .05^*$ $p < .01^{**}$

Regression analysis between Yangsaeng behavior, physical activity enjoyment and school life adaptation

In this study, the standard regression analysis method all variables are input was applied and the more independent of the residuals was closer to 2 using Dubin-Watson, indicating this as the most suitable regression model for analysis. An analysis of the effects of Yangsaeng behavior on school life adaptation confirmed that Dubin-Watson=2.119, $F(7,310)=25.154$, $p=.001$. In the morality sub-factor of Yangsaeng behavior was a significant predictive factor of dependent variable school life adaptation ($\beta=.356$, $p=.001$). Also, 6 sub-factors of mind cultivation ($\beta=.117$, $p=0.080$), dietary Yangsaeng ($\beta=.062$, $p=.285$), activity & relaxation Yangsaeng ($\beta=.064$, $p=.332$), exercise Yangsaeng ($\beta=1.000$; $p=.097$), seasonal Yangsaeng ($\beta=.033$, $p=.523$) and sleep Yangsaeng ($\beta=.040$, $p=.348$) were found to be not significant. This regression model ($R=.602$, $R^2=.362$, adjusted $R^2=.348$) probably accounted for determination as a predictor variable for school adaptation by 36% as shown in Table 4 below.

An analysis of the effects of physical activity enjoyment on school life adaptation was confirmed by $Dubin-Watson=1.963$, $F(5,307)=52.089$, $p=.001$. In the confidence & friendship sub-factor of physical activity enjoyment ($\beta=.046$, $p=.001$) health & beauty ($\beta=.157$, $p=.056$) were significant predictive factors of dependent variable school life adaptation statistically. 2 sub-factors of fun ($\beta=.086$, $p=.342$) and creativity ($\beta=.004$, $p=.958$) did not show significance. Therefore this regression model ($R=.669$, $R^2=.448$, adjusted $R^2=.441$) accounted for determining a probable predictor variable for school adaptation by 45% as reflected in Table 4 below.

An analysis of the effects of Yangsaeng behavior on physical activity enjoyment was confirmed $Dubin-Watson=2.015$, $F(7,618)=99.682$, $p=.001$. In the case of morality ($\beta=.396$, $p=.001$), mind cultivation ($\beta=.206$, $p=.001$) and exercise Yangsaeng ($\beta=.202$, $p=.001$), sub-factors of Yangsaeng behavior were confirmed as significant predictive factors of dependent variable physical activity enjoyment. 4 sub-factors of dietary Yangsaeng ($\beta=.064$, $p=.075$), activity & relaxation Yangsaeng ($\beta=.050$, $p=.207$), seasonal Yangsaeng ($\beta=.026$, $p=.427$) and sleep Yangsaeng ($\beta=.050$, $p=.167$) were not statistically significant. Thereby, this regression model correlation ($R=.745$, $R^2=.555$, adjusted $R^2=.550$) accounted for the determinant as a predictor variable for physical activity enjoyment by 56% significantly as presented in Table 4.

Table 4: Multiple Regression Analysis results

Yangsaeng behavior accounted for school life adaptation										
Model	B	Sd. Er	β	t	p	95.0% C I		Partial Correlation	Collinearity	
						Lower	Upper		Tolerance	VIF
(Constant)	1.691	.168				1.360	2.022			
Morality	.291	.050	.356	5.800	.001	.192	.389	.313	.546	1.832
Mind cultivation	.072	.041	.117	1.756	.080	-.009	.152	.099	.463	2.162
Dietary Yangsaeng	.039	.037	.062	1.070	.285	-.033	.111	.061	.619	1.615
Activity & relaxation Yangsaeng	.039	.040	.064	.972	.332	-.040	.119	.055	.474	2.111
Exercise Yangsaeng	.055	.033	.100	1.665	.097	-.010	.119	.094	.565	1.771
Seasonal Yangsaeng	.019	.030	.034	.639	.523	-.040	.078	.036	.734	1.362
Sleep Yangsaeng	.028	.040	.040	.701	.484	-.051	.107	.040	.621	1.611
Yangsaeng behavior accounted for physical activity enjoyment										
(Constant)	.553	.124		4.449	.001	.309	.797			
Morality	.417	.038	.396	10.835	.001	.341	.492	.399	.538	1.858

Mind cultivation	.194	.032	.238	6.057	.001	.131	.257	.236	.464	2.154
Dietary Yangsaeng	.054	.031	.064	1.782	.075	-.006	.114	.071	.560	1.787
Activity & relaxation Yangsaeng	-.042	.033	-.050	-1.263	.207	-.107	.023	-.051	.453	2.210
Exercise Yangsaeng	.145	.026	.202	5.536	.001	.094	.197	.217	.537	1.864
Seasonal Yangsaeng	.020	.025	.026	.795	.427	-.030	.070	.032	.671	1.490
Sleep Yangsaeng	.044	.032	.050	1.384	.167	-.018	.107	.055	.554	1.804
physical activity enjoyment accounted for school life adaptation										
(Constant)	1.864	.121		15.390	.001	1.626	2.103			
Confidence & friendship	.333	.060	.461	5.582	.001	.216	.450	.301	.260	3.848
Fun	.055	.058	.086	.951	.342	-.059	.169	.054	.219	4.577
Creativity	.002	.047	.004	.052	.958	-.091	.096	.003	.294	3.398
Health & beauty	.102	.053	.157	1.916	.056	-.003	.208	.108	.264	3.786

Discussion

In this study, the effects of Yangsaeng behavior on school life adaptation and physical activity enjoyment and in relation to physical activity enjoyment and school life adaptation were examined by factors that predicted appropriate school life for high school girls. This study shows that a statistically significant correlation between the two factors was found ($p < .01$). This is particular among the sub-factors of Yangsaeng behavior and morality Yangsaeng which accounted for school life adaptation significantly. To interpret this result, morality is a positive factor in maintaining a state of psychological stability such as 'I always want to live right.', 'I have a fair and impartial mind.', 'Be positive for everything.', 'I give a person a good hand.', 'I try to keep my mind happy all the time.', and these statements have meaning in terms of self-esteem and self-efficacy, even for items that measure psychological variables.

To support this interpretation this research aimed to investigate how Yangsaeng potentially affects self-esteem, perceived health status and self-efficacy in terms of relationship with physical adaptation (Park et al., 2011), self-concept adaptation, role function adaptation and inter-dependent adaptation as positively correlated to morality Yangsaeng, mind Yangsaeng and activity and relaxation Yangsaeng (Park & Kim (2011). In Kim's (2010) study, mind and diet Yangsaeng had a significant positive correlation with quality of life. Moreover, Yangsaeng oriental health care regimen was found to potentially lower stress and heighten subjective happiness. Therefore, Yangsaeng could be recommended as a feasible means of promoting health and subjective happiness in further studies.

A further result of Yangsaeng behavior accounted for physical activity enjoyment in morality, mind, cultivation and exercise Yangsaeng. This result means that related Yangsaeng behavior can predict student psychological and physical activity factors in the education field. A result for older adults found the importance of physical education to promote daily living and physical function activity (Wang, 2010). This study interpreted the effect of adoption of an appropriate health care regimen on physical activity during ordinary life for student and others.

It was also found that physical activity enjoyment behavior accounted for school life adaptation in confidence & friendship and health & beauty significantly. Participation in dance class with a confidence factor in physical activity enjoyment can have a positive effect on school life adaptation (Cho & Chung, 2018). The student physical activity variables examined were health-related outcome variables (Standage et al., 2012) and thus, to decrease maladjustment in school life, physical activity should start as early as possible in adolescent life (Twisk, 2001). Schools may play an important role by identifying and promoting positive health behaviors (F. B Ortega et al., 2008) and physical education and school sport (Richard Bailey et al., 2009) contribute to enjoyment and growth (Wankel & Berger, 1999). Furthermore, school-based physical activity, sports and academic performance do not hinder student academic achievement and hence physical education should be provided to enhance student health promotion (Trudeau & Shephard, 2008).

Conclusion

The purpose of this study was to verify the effects of Yangsaeng behavior on school life adaptation and physical activity enjoyment for girls in a boarding school. In conclusion, Yangsaeng behavior is an effective health care regimen on school life adaptation, Yangsaeng behavior is an effective health care regimen on physical activity enjoyment and physical activity enjoyment is an effective means of physical activity facilitated by the school dance program. Therefore, it has been confirmed that Yangsaeng behavior can have an important role in school-based dance physical activity participation and provides the foundation for an appropriate and healthy high school life and is a necessary inclusion in the school curriculum for girls.

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