

Adoption of Growing Up Wild Curriculum by Formal and Non Formal Educators in West Virginia

Growing Up WILD: Exploring Nature with Young Children (G UW) is an early childhood curriculum developed by the Council for Environmental Education. G UW builds on children's sense of wonder about nature and invites them to explore wildlife and the world that surrounds them. Through a wide range of activities and experiences, *Growing Up WILD* provides an early foundation for developing positive impressions about the natural world and lifelong social and academic skills.

The activity guide, *Growing Up WILD: Exploring Nature with Young Children* is designed for children between the ages of three and seven. The series includes 27 hands on, nature-based activities for the children. These activities include outdoor explorations, scientific inquiry, art projects, music and movement, conservation activities, reading and math connections. G UW involves learning in many different areas which helps develop and involve social, emotional, and physical, language, and cognitive domains. Using *Growing Up Wild*, provides an appropriate level of learning at the individual, social, and culture levels for each child enrolled in the program.

In implementing STEM education, providing a robust professional development opportunity that is sustained is often most effective. (Sanders, 2009). In a 2012 evaluation of G UW performed by Joe E. Heimlich, Ph.D. and Renae Youngs, MA, participants completing professional development courses viewed the program very favorably. Respondents liked the hands-on nature of the workshops and "doing the activities to help understand them better" before leading them with their students. Also, a number of individuals connected the fun they had in the workshops with their excitement to share what they learned with others.

Bruning, Schraw, Norby, and Ronning (2004) identified the following set of cognitive themes that resonate with integrative STEM education:

- Learning is a constructive, not a receptive, process.
- Motivation and beliefs are integral to cognition.
- Social interaction is fundamental to cognitive development.
- Knowledge, strategies, and expertise are contextual.

G UW delivery method supported Bruning et.al. and Sanders themes for adaption of STEM curriculum as it allows for social interaction between the participants as they learn the activities of the guide in a constructive and experiential process. The general purpose of curriculum is based upon decisions about what is the most worthwhile knowledge for students to learn. It is based on why they should learn it, and how they should learn it. Stockton (2009). Since 2011, the curriculum has been offered by the West Virginia Department of Natural Resources to educators through half day or one day training program. This study identifies how teachers have reacted to *Growing Up Wild* Curriculum and how they perceive it impacting on the children that they have taught.

Goal and Objectives

The research was to evaluate the adoption of curriculum by educators both formal and informal; including which activities were most used by educators and which activities did young children find most interesting; and to what extent did the educators observed young children's knowledge gain.

Methods

In 2011 and 2012 a total of 32 G UW workshops were provided in 19 counties in West Virginia providing curriculum and instruction to 854 educators. Of those, 402 emails were available for this research survey. An electronic survey was developed then reviewed by an outside evaluation specialist and research was approved by West Virginia University's Office of Research prior to the survey being sent electronically to the 402 emails. The questions sought to identify the number of trained educators that have used G UW, where they have used it, what particular lesson plans they have used, and how did the children respond to the curriculum. Three separate electronic invitations were sent to the emails requesting a response to the electronic survey.

The results were gathered and analyzed for the development of this report.

Results

Out of the 402 emails sent, 66 responded which is a response rate of 16%. Respondents identified themselves working in 19 different counties with the majority responding from Kanawha County (16) and Berkley County (12). In other words, a representative of each county where the trainings were held provided a survey response.

Educators Information

90% of the respondents indicated that they have used GUW since attending the workshop. One educator commented, "Love this curriculum! It goes wonderful with anything!"

Of the 10% that have not used the curriculum, the majority indicated that they planned to use GUW in the future. When asked the reason why they have not implemented the curriculum, barriers that hinder or delayed the implementation included inclement weather and lack of funding to purchase needed supplies. Only three respondents indicated that they only took the training because it was a job requirement or that they have moved to other employment where they do not educate children.

Over 66% of survey participants classified themselves as pre-school and Head Start educators while 13% of respondents indicated they were a pre-school or head start classroom aide. 2% were special education teachers, 6% were kindergarten teachers or classroom aides and 13% informal educators.

57% indicated they work for a public school system; 16% in non-profit organizations; 11% government agencies; 9% in higher educator; and 7% in private schools.

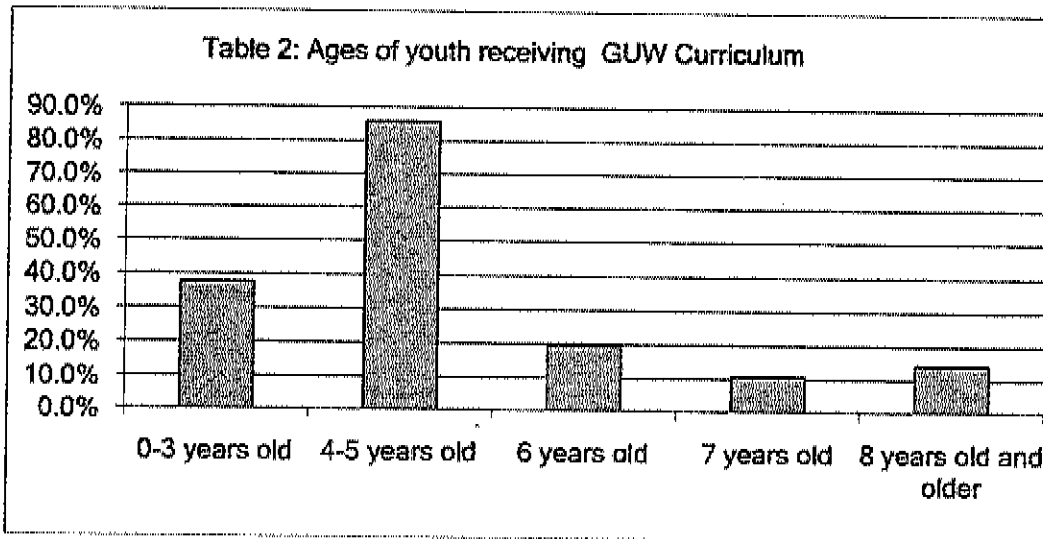
The top reasons why they attended the workshops included work requirements and STARS credit, but more indicated a desire to have more science and nature based activities for their students as shown on Table 1.

Table 1: Why did you take the Growing Up Wild workshop?

Answer Options	Response Percent	Response Count
STARS credit	33.3%	20
Work requirement	36.7%	22
Continuing education credits	15.0%	9
Wanted to work with children	0.0%	0
Wanted more science-based educational activities	43.3%	26
Wanted more nature-based educational activities	45.0%	27
Wanted more outside educational activities	26.7%	16
Other (please specify)		5
<i>answered question</i>		60

Curriculum implemented

88.5% indicated that the curriculum was implemented in a school setting. The majority of students were preschool aged youth as indicated in Table 2. The remaining results indicate GUW being used at afterschool, day camp, or community organization or park event. Two thirds of respondents indicated that the curriculum was integrated into daily lesson plans of other materials such as the "Creative Curriculum", a preschool curriculum. The other third use GUW as the main curriculum for their program while adding additional educational resources such as books, posters, gardening activities, Project Wet, 4-H Curriculum, Video, and tours.



Number of lessons used

While all of the 27 lessons provided in G UW were reported to be used by the respondents, the two lessons used most by educators were: *Looking at Leaves*, and *Wiggling Worms*.

Table 3 lists lessons in order of the number of educators using the lesson.

Table 3: Curriculum Lessons taught:

Answer Options	Response Percent	Response Count
Looking at Leaves	56.6%	30
Wiggling Worms	56.6%	30
Who Lives in a Tree?	45.3%	24
Tracks!	43.4%	23
Spider Web Wonders	39.6%	21
Seed Need	37.7%	20
Lunch for a Bear	35.8%	19
Terrific Turkeys	35.8%	19
Ants on Parade	34.0%	18
What's Wild?	28.3%	15
Wildlife is Everywhere!	28.3%	15
Oh, Deer!	28.3%	15
Fishing Fun!	24.5%	13
First Impressions	20.8%	11
The Deep Blue Sea	20.8%	11
Hiding in Plain Sight	18.9%	10
Grow As We Go	18.9%	10
In a Grasshopper's World	17.0%	9
Bird Beak Buffet	17.0%	9
Field Study Fun	17.0%	9
Wildlife as Symbols	17.0%	9
Show Me the Energy!	11.3%	6

Less is More	11.3%	6
Wildlife Water Safari	9.4%	5
Aqua Charades	7.5%	4
Owl Pellets	5.7%	3
Backbone Bonanza	3.8%	2

answered question answered question 53

In each lesson there are specific lesson components. Surveyed educators were asked to indicate the components of most value to them in teaching their class G UW using a Likert scale. The most valued components were the *Main Lesson, Take Me Outside, and Resources, Centers and Extensions, and Music and Movement* with rates of over 4.30 on a 5.0 likert scale. All components were ranked 3.49 or higher indicating that all components were of value to the respondents.

Each lesson has a variety of components and educational tools. Using a scale with 1 being least important and 5 being most important, please identify the extent to which lesson component is of value.

Answer Options	Average	Response Count
Main lesson	4.45	47
Take Me Outside	4.32	44
Resources	4.30	46
Mighty Math	4.15	46
Centers and extensions	4.13	45
Music and movement	4.09	46
Art projects	3.98	46
Healthy Me	3.96	45
Standards and correlations	3.89	46
Helping Hands	3.89	46
Home Connection	3.89	44
Snack	3.49	47
answered question		47
skipped question		16

Students Knowledge Gain

Educators were asked to identify which lessons they believed produced learning from youth and how they observed this transfer of knowledge. When educators were asked if the children learned from the lessons, all educators implementing G UW indicated that they observed youth actions that indicated youth learned from the lessons completed. *Seed Need, Wiggling Worms, Lunch for a Bear, and Hiding in Plain Sight* indicated to be the top four lessons indicated by educators where youth were observed to have learned the most. While *The Deep Blue Sea, Aqua Charade, Wildlife Water Safari and Backbone Bonanza* were identified where more children learned somewhat but not learned a lot.

Table 4: Teacher response to students learning using a Likert scale of 1 to 3

Lessons	did not learn (1)	learned somewhat (2)	learned a lot (3)	Rating Average
Seed Need	0	2	18	2.90
Wiggling Worms	0	6	28	2.82
Lunch for a Bear	0	5	14	2.74
Hiding in Plain Sight	0	3	8	2.73
Terrific Turkeys	0	5	13	2.72
In a Grasshopper's World	0	4	10	2.71
Wildlife is Everywhere!	0	6	13	2.68
Wildlife as Symbols	0	4	8	2.67
Tracks!	0	8	15	2.65
Grow As We Go	0	4	7	2.64
What's Wild?	0	7	11	2.61
Spider Web Wonders	0	9	14	2.61
Fishing Fun!	0	6	9	2.60
Field Study Fun	0	4	6	2.60
Oh, Deer!	0	7	10	2.59
Who Lives in a Tree?	0	10	14	2.58
Bird Beak Buffet	0	5	7	2.58
Ants on Parade	0	9	12	2.57
First Impressions	0	6	8	2.57
Owl Pellets	0	3	4	2.57
Looking at Leaves	0	13	17	2.57
Show Me the Energy!	0	4	4	2.50
Less is More	0	4	4	2.50
The Deep Blue Sea	0	7	5	2.42
Aqua Charades	0	5	3	2.38
Wildlife Water Safari	0	7	3	2.30
Backbone Bonanza	0	5	2	2.29
<i>answered question</i>				<i>47</i>
<i>skipped question</i>				<i>16</i>

Children's behaviors (Primarily PreK) were observed to change as they received G UW instruction. 85% of responses indicated that the children went outside more when engaged in the G UW curriculum. Over 50% of survey respondents indicated that children drew pictures (55%) about the lesson or participated in dramatic play (53%) regarding the G UW lessons. Other observations included children seeking additional information about the lesson, went outdoors more or parent commented on how the child wanted to be outside more or wanted to learn about nature. 15% of the educators indicated that no behavior change was observed.

Conclusions

The survey results indicate curriculum delivery method of this program has led to educators adopting this curriculum and integrating it into their programs and classrooms. If the survey response is suggestive of the user rate, then 90% of those that have completed the training workshop and received the curriculum are using G UW. Of those that completed the survey, the majority have integrated the curriculum into the classroom and are teaching three, four and five year olds at public pre-K or Head Start programs in 18 counties. G UW is being used mostly as a supplement with the required state pre-K curriculum. The respondents have indicated the curriculum is useful and plan to continue to integrate it into their teaching. As one educator indicated, "I really like this curriculum! I will use more next year as this was my first year in Pre-k." Educators are using all aspects of the curriculum and find that the main lesson, Take Me Outside and resources components, contain the most value to them in providing this curriculum to young children.

The curriculum, as indicated by educators, resulted in children going outside more than they previously had but as a way to complete lessons and explore the natural world. One survey respondent commented on the subject of how G UW was use in the classroom, "We wrote a daily diary of things we learned and drew pictures of eco systems. We also had an ant farm. We also participated with a local farm and had a Farmers Market every Thursday and Friday when children got hands on experience on marketing and sales and profits. They would often tell customers about our *Growing Up Wild* lessons." Interestingly, the most popular lessons taught were not the top lessons that were indicated by educators where the students learned the most. This does not mean that the young children did not enjoy the curriculum for one comment indicated the opposite," They've enjoyed everything we've used from this curriculum."

The overwhelming response points to students learning from this curriculum. Observations by adult educators indicated that learning by the young child occurred through young children acting out in play the lessons learned, drawing pictures about the lessons, by requesting to be outside more, by seeking wanting additional information or from parents commenting about their child talking about G UW lesson.

The research evaluation of the adoption of curriculum by educators both formal and non-formal indicate that educators overwhelmingly used the curriculum. The resources used by West Virginia Department of Natural Resources resulted in more young children learning about nature in a formal educational environment and in being outside more. Additionally, G UW was found to engage young children's interest and increased children's knowledge of the natural world in West Virginia.

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