



## COMPARATIVE EFFECTS OF MATERNAL EDUCATIONAL ATTAINMENT AND INSTRUCTIONAL SCAFFOLDING ON A CHILD'S EDUCATIONAL OUTCOMES IN CAMEROON

**Nubonyin Hilda Fokong**

Department of Curriculum and Pedagogy, University of Bamenda, Cameroon

Email: hfokong@gmail.com

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**ABSTRACT:** *This study investigates the comparative effects of married and single mothers' educational attainment and instructional scaffolding on a child's educational outcomes in Cameroon. The demographic survey data used is collected from the Cameroon National Institute of Statistics database. Employing the instrumental variable (IV) probit estimation technique, the study shows that an additional year of married mothers' education as opposed to single mothers has positive and statistically significant effects on children's educational outcomes. Using the analysis of variance estimation technique, the study reveals that married and single mothers' utilization of instructional scaffolding has positive and statistically significant effects on children's educational outcomes. Moreover, the findings indicate that Piaget and Vygotsky's framework of instructional scaffolding is applicable in the Cameroonian economy. The study therefore recommends that the Cameroon government can improve early childhood education by creating a capacity building workshop where married and single parents will be educated on the value of attaining higher levels of education, how to adapt the culture of using one-on-one scaffolding technique as well as prompt questioning technique to scaffold a child. The study further recommends that married and single mothers should use innovative scaffolding techniques, provide appropriate explanations and give spaces for children's voices and feedback throughout the instructional scaffolding process.*

**KEYWORDS:** Comparative Effects, Maternal Educational Attainment, Instructional Scaffolding, Child Educational Outcomes, Cameroon.



## INTRODUCTION

A mother is at all times ready to support the child (San Jose, Rigor-San Jose & Robles-Concepcion, 2021). The support of married and single mothers to the child is better understood in all stages in the child's cognitive development. With the advent of the Coronavirus pandemic in 2019, both married and single mothers are increasingly responsible for the smooth running of a home as well as the scaffolding and learning outcomes of a child. Today, almost all mothers enjoy scaffolding or going through this process that enables their child to solve a problem, carry out a task or achieve a goal which would be beyond his or her unassisted efforts. Perhaps, to give a child a round education, that is, helping him or her to develop mentally, socially, physically, morally and emotionally, almost all mothers would enjoy scaffolding their children.

Interestingly, scaffolding is quite a broad concept and many writers refer to it as a situation when a more knowledgeable person (teacher or mother) temporarily helps a learner (child or novice) to succeed in tasks that would be otherwise beyond his or her reach (Wood, Bruner & Ross, 1976; Gibbons, 2002). From the definition, it should be noted that scaffolding is an essential tool to support a child during instruction. In the context of Sub Saharan Africa, 57% of Cameroonian women aged 15 to 49 are currently married or living together and one third of them are single mothers (National Institute of Statistics & ICF, 2020) whose ultimate aim is to equip their children with numeracy, literacy and wider skills that they need to realize their potential. Therefore, to fully understand how married or single mothers can support a child effectively during instruction, it is necessary to focus on instructional scaffolding.

According to Margaret (2005), instructional scaffolding is a learning process especially designed to promote a deeper level of learning and understanding. Instructional scaffolding also refers to activities concerned with either a teacher or mother with the teacher engaging the learner by directing their interest in the task; simplifying the task; maintaining direction toward the goals of the task; marking critical features; controlling frustration; and modeling the preferred procedures by demonstrating, so that the learner can imitate it back (Wood, Bruner & Ross, 1976). The effective implementation of these activities depends on the instructional scaffolding techniques used by the mother.

According to Hogan and Pressley (1997), a mother uses instructional scaffolding techniques like: modeling of desired behaviours, offering explanations, inviting learner participation, verifying and clarifying learner understandings, and inviting learner to contribute clues. For example, married or single mothers may model by reading a book aloud, moving her lips or running her fingers along the lines of the text as she reads, dancing as she sings a song, offering thorough explanations as she tells a story or smiling at a funny part of the story, and asking for clues or ideas as she plays and strolls out with a child. Specifically, mothers are expected to use different types of modeling, such as think-aloud modeling, talk-aloud modeling and performance modeling (Hogan & Pressley, 1997). From the foregoing discussions, it is obvious that a married or single mother who attains some level of education would be able to use the different types of modeling. However, the level of educational attainment for married or single mothers in Cameroon is somewhat low. For example, only 70% of Cameroonian women are literate and only 8% of them have gone beyond secondary school (National Institute of Statistics (NIS) & ICF, 2020).



In most regions of Cameroon, many mothers have still not been able to complete either primary education or secondary first and second cycle of education; thus, they are involved in early marriages or have their first child at an early age (NIS & ICF, 2020). In order to take care of these children from zero to five years, these married and single mothers are expected to be present at home (Fokong, 2022) and increasingly engaged in using different instructional scaffolding techniques (Asana & Nukuna, 2009). However, one would wonder whether these married and single mothers actually spend time at home with their children, understand the strength and weaknesses of their children and/or have attained a certain level of education to enable them effectively and efficiently use the different instructional scaffolding techniques.

Theoretically, instructional scaffolding techniques differ from other instructional support techniques in terms of what learners are intended to get out of it, the timing of the support, and the form of the support (Bruner, 1983; Shepard, 2005). For instance, rather than asking a child to participate directly, the mother's goal in employing scaffolding techniques is offering just enough assistance to guide the child toward independence and self-regulation (Hogan & Pressley, 1997). Unfortunately, it is indecisive whether Cameroonian married and single mothers have the opportunities to offer just enough assistance to guide the child toward independence and self-regulation.

In the educational setting, the instructional scaffolding techniques are either integrated or one-to-one. Married or single mothers would prefer to use the one-on-one technique. This is because the technique employs modeling, questioning, explaining, giving hints, and providing feedback (Van de Pol et al., 2010). Moreover, the use of it tends to lead to the highest effect sizes. For instance, VanLehn (2011) found that one-to-one scaffolding leads to an average effect size of 0.79. Similarly, Tchombe (2011) observed that one-to-one scaffolding enhances early childhood achievement in literacy and numeracy when members of a household engage in storytelling, singing, conversations, doing house chores, cooking, working in farms and taking care of younger children. This implies that one-to-one scaffolding by Cameroonian married and single mothers in 2011 might have several implications for teaching practices.

However, contemporary scaffolding techniques might differ due to the increase in the use of technology in the teaching-learning process. Most recently, the Coronavirus pandemic has brought about innovation in teaching practices. Cameroonian married and single mothers are in fact obliged to use new innovations like blended learning to support their child to learn. Perhaps, married and single mothers in Cameroon presently integrate blended learning to one-to-one instructional scaffolding technique. Few children of these married or single mothers might not develop literacy and numeracy after being scaffolded. This is because of the decreasing trend in maternal school completion (Fokong, 2022). If mothers' effective use of contemporary scaffolding is judged by their level of educational attainment, then the effect of married or single mothers' use of one-to-one instructional scaffolding technique on a child's educational outcome remains uncertain. Thus, the purpose of this study is to provide answers to the following research questions:

- What are the effects of married and single mothers' educational attainment on a child's educational outcome in Cameroon?
- How can married and single mothers' instructional scaffolding affect a child's educational outcome in Cameroon?



The following hypotheses were formulated and tested at  $p < .05$

$H_{01}$  : There are no significant effects of married and single mothers' educational attainment on a child's educational outcome in Cameroon

$H_{02}$  : There are no significant effects of married and single mothers' instructional scaffolding on a child's educational outcome in Cameroon.

## LITERATURE REVIEW

The concept of instructional scaffolding dates back to the birth of the theory of child development, when Piaget viewed a child as an active learner (Bruner, 1966). To Piaget, learning is based on one-on-one coaching of toddlers, when the teacher provides the child with different kinds of support, like hints, encouragement, cognitive structures and reminders during the learning process (Wood, Bruner & Ross, 1976). Vygotsky took the Piagetian idea further, putting emphasis on the role of social interaction in a child's learning and development.

According to Bruner (1966), the theory of instructional scaffolding states that when learners first approach a new skill or subject matter, they are able to accomplish much more with support. Vygotsky's theory of social constructionism assumes that learning occurs at the zone of proximal development (Bruner, 1983). The theory further assumes that scaffolding is temporarily provided and it is gradually removed bit by bit as the learner becomes more competent independently (Shepard, 2005). In the framework of the theory, Vygotsky identifies four phases of instructional scaffolding; they include modeling by the teacher, imitation by the learner, removing the scaffolding and finally performing the task individually by the learner with an expert level of mastery (Byrnes, 2007). Vygotsky's theory is of value to this paper because it explains the difference between what a child (or learner) can do without help and what he or she does with help from a married or single mother (or teacher).

Bowlby's ethological theory of attachment posits that a child forms a bond with their primary caregiver (like mother or father), which influences the child's learning outcome and development into adulthood and parenthood (Bowlby, 1988; 1982). The theory assumes that attachment is developed when a caregiver's behaviour includes touching, smiling, eye contact, positive interaction and sensitivity to a child's needs (Levy & Orlans, 1998). The theory also holds that the experience that a child has from birth to three years and above has an impact on his personality development (Berk, 2000).

The framework of the theory describes four phases (the pre attachment phase, attachment-in-making phase, clear-cut attachment phase and formation of a reciprocal relationship phase) through which a child creates secure, anxious resistant, anxious avoidant and disorganized/disoriented attachments (Morton & Browne, 1998). According to Levy and Orlans (1998), a child who is securely attached does well (over time) in the following areas: self-esteem, independence and autonomy; long-term relationships with caregivers; behavioural performance; and academic success in school, among others. Attachment theory is very useful and relevant to this paper because it explains the quality of relationships that a child has with a caregiver (like a married or single mother) and the effects that this has on his or her development and well-being.



Several studies find that the levels of educational attainment have either positive or negative effects on children's learning outcomes. On the one hand, Lavigueur's (2021) logistic regression and chi square results showed that girls with mothers who did not complete high school were marginally more likely to have fine motor delay as opposed to girls with mothers that completed high school. However, the study was limited because the database strictly used only two attributes of maternal education; hence, more comparison could not be made due to the limited range of education levels.

Keizer, van Lissa, Tiemeier and Lucassen (2020) used the structural equation modeling with weighted least square estimation and found a positive effect of both parents' educational attainment on their children's cognitive development. Using data from 2,027 Dutch families, Keizer et al. (2020) noticed that the more mothers and fathers are equally engaged in activities like playing and/or reading with a child, helping a child to acquire skills and adding to the child's knowledge, the higher the child's verbal intelligence (or vocabulary comprehension) and nonverbal intelligence (or spatial visualization and abstract reasoning abilities).

Andrabi, Das and Khwaja (2012) used the instrumental variables approach and argued that children of mothers with some education spend 72 more minutes per day on educational activities at home. They further observed that mothers with low levels of education do enhance their children's learning outcome. Similar to the results of Andrabi et al. (2012), the findings of Ermisch and Pronzato (2010), as well as those of Behrman and Rosenzweig (2002), indicate that an additional year of either mother's or father's education increases their children's education. To them, the reason for the smaller maternal effect was due to the fact that better educated mothers worked more in paid employment and spend less time interacting with their children. Holistically, the use of instructional scaffolding leads to an improvement in a child's learning outcomes (Puntambekar & Hübscher, 2005; Chevalier; 2004). In summary, this paper intends to attest whether there is a positive or negative effect of maternal level of educational attainment and instructional scaffolding on children's educational outcome in Cameroon.

## METHODOLOGY

The study employed the Demographic Health Survey (DHS), (2011) dataset. The study was carried out in all the ten regions of Cameroon. The survey research design was used. The target population of the study comprised 15,060 households. Since the target population was large, the accessible population was selected using clusters that were a smaller representation of the population being assessed with similar characteristics. To determine the sample population, the stratified sampling technique was utilized. The households were divided into subgroups by place of residence, level of educational attainment, and household socioeconomic status, among others. A disproportionate number of married mothers and single mothers from each group was randomly selected. The stratified sampling technique was deemed appropriate because the study sought to explain the existing relationship and differences across the subgroups. The instruments used for data collection were questionnaires and interviews. It is worthy of note that all men and women aged 15–49 were eligible for an interview. The data collected provided detailed information on individual and household characteristics like marital status, mother's level of educational attainment, father's level of educational attainment, father's presence in the house, age, household size, mother's participation in the labour market, household socioeconomic status, and place of residence, among others.





## RESULTS

The effects of mothers' educational attainment on a child's educational outcome are presented in Table 1.

**Table 1: Effect of maternal educational attainment on a child's education by marital status**

Variable	Marital Status	
	Married	Single
Mother's Educational Attainment	0.349*** (9.13)	-0.329*** (-9.15)
Mother's Age	0.009 (0.25)	0.234*** (4.09)
Mother's Age Squared	-0.000 (-0.42)	-0.004*** (-4.07)
Father's Present in the House (1=present, 0 otherwise)	0.168*** (3.41)	n/a
Mother's Participation in the Labour Market (1=mother participated, 0 otherwise)	-0.088* (-1.80)	-0.069 (-0.27)
Household Size	0.001 (0.22)	-0.001 (-0.08)
Father's Education in complete years	-0.034 (-0.79)	n/a
Father's Education Squared	-0.006*** (-6.25)	n/a
Father's Age	0.046*** (3.74)	n/a
Father's Age Squared	-0.000*** (-3.11)	n/a
Number of Children Below the Age of 5	0.084*** (3.63)	-0.050 (-0.78)
Household Socio-Economic Status (1=rich, 0 otherwise)	-0.472*** (-3.49)	0.439*** (3.78)
Urban Areas	0.087 (1.21)	0.500** (2.50)
Constant	-3.254*** (-3.13)	-1.385 (-0.82)
LR chi2/F <sup>2</sup> : Prob > chi2	3042.31 [13, 0.0000]	736.85 [8, 0.0000]
Log likelihood	-21162.744	-2211.0339
Wald test of exogeneity	8.89 [0.0029]	1.98 [0.1598]
<b>Number of observation</b>	<b>8056</b>	<b>827</b>

\* indicates statistical significance at the 10% level, \*\* at the 5% level, and \*\*\* at the 1% level.



The IV probit estimate shows that mothers' education is statistically very important in predicting children's learning outcomes. In Cameroon, while an additional year of education increases the probability of children's education in married mothers by 0.349, it reduces the probability of education of children whose mothers are unmarried by 0.329 and children whose fathers are married by 0.006. Furthermore, the presence of husbands of married mothers at home significantly increases the probability of children's education by 0.168 for the married mothers compared to their unmarried counterparts. Variables which contribute to increase probability of education of children whose mothers are unmarried include the mother's age and place of residence that have the expected positive signs.

This result further depicts that an additional hour of work reduces the probability of children's education by 0.088 for married mothers. The presence of children under the age of five years in the household increases the probability of children's education in married mothers by 0.084 while it reduces the probability of education of children whose mothers are unmarried by 0.050. One possible explanation for this could be that married mothers have larger family size; as such, they spend more time on child care responsibilities as compared to single mothers. This assertion supports the findings of this study that household size increases the probability of children's education in married mothers by 0.001, whereas it reduces the probability of education of children whose mothers are unmarried by 0.001. Household socioeconomic status reduces the probability of children's education in married mothers by 0.472 while it increases the probability of education of children whose mothers are unmarried by 0.439.

The effects of instructional scaffolding on a child's educational outcome by marital status are presented in Table 2.

**Table 2: The effects of instructional scaffolding on a child's educational outcome by marital status**

Instructional Scaffolding Variables	Marital Status				Difference		Child Educational Outcome
	Married		Single		Marital Status		
	Yes (%)	No (%)	Yes (%)	No (%)	Married (%)	Single (%)	
Mother read books with child	7.28	84.47	0.58	7.41	-77.19	-6.83	child can cite at least a letter of the alphabet child can read at least 4 common words child can cite figures from 1 to 10 child can follow simple instructions child agrees well with others child can do a task independently
Mother tell stories to child	16.12	75.87	0.93	7.07	-59.75	-6.14	
Mother sing songs to child	23.23	68.76	1.16	6.84	-45.53	-5.68	
Mother stroll with child	20.57	71.42	1.01	7.00	-50.85	-5.99	
Mother play with child	21.98	70.01	0.83	7.18	-48.03	-6.35	
Mother spend time with child	25.91	66.07	1.04	6.98	-40.16	-5.76	





Table 2 shows the responses that married and single mothers gave regarding the effects of instructional scaffolding on children's learning outcomes. The findings indicated that the scaffolding technique which married mothers frequently used was spending time with the child (25.91%) whereas single mothers (1.16%) frequently sang songs to the child; as compared to single mothers, more than 23.23% of the married mothers supported the child by singing a song to them. 84.47% of the married mothers did not scaffold the child by reading books to them as opposed to 7.41% of single mothers. Nevertheless, 7.28% of married mothers and 0.58% of single mothers did support their child by reading to them. Moreover, 21.98% of married mothers as compared to 0.83% of single mothers used the play scaffolding technique. Generally, comparison of married and single mothers who used scaffolding techniques with those who did not revealed that 59.75% of married mothers and 6.41% of single mothers did not scaffold their child to learn by telling stories to them. 50.85% of married mothers and 5.99% of single mothers did not support their child's learning by strolling with them.

Verification of hypotheses on the effects of instructional scaffolding on a child's ability to cite at least a letter of the alphabet, read at least four common words, cite figures from one to ten, follow simple instructions, agree well with others and do a task independently are presented in Tables 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 and 14 respectively.

**Table 3: Effects of instructional scaffolding on a child's ability to cite at least a letter of the alphabet by marital status**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.007	.021		.314	.754
Read books with child	.377	.031	.361	12.307	.000
Tell stories to child	.181	.033	.171	5.538	.000
Sing songs to child	.105	.037	.098	2.823	.005
Stroll out of the house with child	.049	.034	.046	1.442	.150
Play with child	.125	.034	.117	3.664	.000
Spend time with child	.068	.025	.065	2.678	.007

Table 3 indicates that an increase in a child's ability to cite at least a letter of the alphabet is as a result of married and single mothers' use of modeling techniques like reading of books (.377), telling of stories (.181), singing of songs (.105), strolling (.049), playing (.125) and spending time (.068) with the child. Considering the t-value of a child's ability to cite at least a letter of the alphabet, the results are significant.



**Table 4: ANOVA results of effects of instructional scaffolding on a child's ability to cite a letter of the alphabet**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6835.680	6	1139.280	1150.425	.000 <sup>b</sup>
	Residual	3163.058	3194	.990		
	Total	9998.737	3200			

To reaffirm the results presented in Table 3, Table 4 reveals that married and single mothers' use of instructional scaffolding enhances a child's ability to cite at least a letter of the alphabet ( $F = 1150.425$ ,  $df=6$ ,  $P=0.000$ ). The p-value is 0.000 which is less than 0.05. Thus, the null hypothesis which states that there are no significant effects of married and single mothers' instructional scaffolding on a child's educational outcome in Cameroon is rejected.

**Table 5: Effects of instructional scaffolding on a child's ability to read at least four common words by marital status**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.125	.017		-7.308	.000
	Read books with child	.302	.025	.304	12.097	.000
	Tell stories to child	.191	.027	.191	7.192	.000
	Sing songs to child	.113	.030	.110	3.712	.000
	Stroll out of the house with child	.094	.028	.093	3.389	.001
	Play with child	.131	.028	.129	4.714	.000
	Spend time with child	.083	.021	.084	4.035	.000

Table 5 shows that an increase in a child's ability to read at least four common words is as a result of married and single mothers' use of modeling techniques like reading of books (.302), telling of stories (.191), singing of songs (.113), strolling (.094), playing (.131) and spending time (.083) with the child. Considering the t-value of a child's ability to read at least four common words, the results are significant at 5% one tail test.

**Table 6: ANOVA results of effects of instructional scaffolding on a child's ability to read at least four common words**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6910.471	6	1151.745	1754.331	.000 <sup>b</sup>
	Residual	2096.909	3194	.657		
	Total	9007.380	3200			



Table 6 indicates that married and single mothers' use of instructional scaffolding improves a child's ability to read at least four common words ( $F = 1754.331$ ,  $df=6$ ,  $P=0.000$ ). The p-value is 0.000 which is less than 0.05. Hence, the null hypothesis is rejected.

**Table 7: Effects of instructional scaffolding on a child's ability to cite figures from 1 to 10 by marital status**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.033	.023		1.452	.146
1 Read books with child	.315	.033	.295	9.484	.000
Tell stories to child	.185	.035	.171	5.219	.000
Sing songs to child	.108	.041	.098	2.668	.008
Stroll out of the house with child	.098	.037	.090	2.653	.008
Play with child	.136	.037	.125	3.682	.000
Spend time with child	.059	.027	.055	2.137	.033

Table 7 depicts that an increase in a child's ability to cite figures from 1 to 10 is as a result of married and single mothers' use of modeling techniques like reading of books (.315), telling of stories (.185), singing of songs (.108), strolling (.098), playing (.136) and spending time (.059) with the child. Considering the t-value of a child's ability to cite figures from 1 to 10, the results are significant.

**Table 8: ANOVA results of effects of instructional scaffolding on a child's ability to cite figures from 1 to 10**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	6741.982	6	1123.664	962.876	.000 <sup>b</sup>
Residual	3727.357	3194	1.167		
Total	10469.339	3200			

Table 8 illustrates that married and single mothers' use of instructional scaffolding increases a child's ability to cite figures from 1 to 10 ( $F = 962.876$ ,  $df=6$ ,  $P=0.000$ ). The p-value is 0.000 which is less than 0.05. Thus, the null hypothesis is rejected.

**Table 9: Effects of instructional scaffolding on a child's ability to follow simple instructions by marital status**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.584	.019		29.971	.000
Read books with child	.202	.028	.209	7.120	.000
Tell stories to child	.165	.030	.169	5.467	.000
Sing songs to child	.125	.035	.125	3.609	.000
Stroll out of the house with child	.158	.031	.160	5.018	.000
Play with child	.114	.031	.116	3.617	.000
Spend time with child	.076	.023	.079	3.252	.001

Table 9 reveals that an increase in a child's ability to follow simple instructions is as a result of married and single mothers' use of modeling techniques like reading of books (.202), telling of stories (.165), singing of songs (.125), strolling (.158), playing (.114) and spending time (.076) with the child. Considering the t-value of a child's ability to follow simple instructions, the results are significant at 5% one tail test.

**Table 10: ANOVA results of effects of instructional scaffolding on a child's ability to follow simple instructions**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	5802.829	6	967.138	1141.179	.000 <sup>b</sup>
Residual	2706.885	3194	.847		
Total	8509.714	3200			

Table 10 indicates that married and single mothers' use of instructional scaffolding increases a child's ability to follow simple instructions ( $F = 1141.179$ ,  $df=6$ ,  $P=0.000$ ). The p-value is 0.000 which is less than 0.05, meaning that the alternative hypothesis is retained and the null rejected.

**Table 11: Effects of instructional scaffolding on a child's ability to agree well with others by marital status**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.701	.021		34.083	.000
Read books with child	.182	.030	.185	6.067	.000
Tell stories to child	.089	.032	.090	2.793	.005
Sing songs to child	.139	.036	.137	3.805	.000



Stroll out of the house with child	-.002	.033	-.002	-.055	.956
Play with child	.347	.033	.347	10.440	.000
Spend time with child	.079	.025	.081	3.210	.001

Table 11 indicates that an increase in a child's ability to agree well with others is as a result of married and single mothers' use of modeling techniques like reading of books (.182), telling of stories (.089), singing of songs (.139), playing (.347) and spending time (.079) with the child. Considering the t-value of a child's ability to agree well with others, the results are significant.

**Table 12: ANOVA results of effects of instructional scaffolding on a child's ability to agree well with others**

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	5757.562	6	959.594	1014.981	.000 <sup>b</sup>
Residual	3019.705	3194	.945		
Total	8777.267	3200			

Table 12 depicts that married and single mothers' use of instructional scaffolding increases a child's ability to agree well with others ( $F = 1014.981$ ,  $df=6$ ,  $P=0.000$ ). The p-value is 0.000 which is less than 0.05. As such, the null hypothesis is rejected.

**Table 13: Effects of instructional scaffolding on a child's ability to do a task independently by marital status**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.481	.018		26.341	.000
1 Read books with child	.172	.027	.178	6.474	.000
Tell stories to child	.130	.028	.133	4.592	.000
Sing songs to child	.049	.032	.049	1.520	.129
Stroll out of the house with child	.073	.029	.074	2.466	.014
Play with child	.402	.030	.408	13.622	.000
Spend time with child	.034	.022	.035	1.534	.125

Table 13 shows that an increase in a child's ability to do a task independently is as a result of married and single mothers' use of modeling techniques like reading of books (.172), telling of stories (.130), singing of songs (.049), strolling (.073), playing (.402) and spending time (.034) with the child. Considering the t-value of a child's ability to do a task independently, the results are significant.



**Table 14: ANOVA results of effects of instructional scaffolding on a child's ability to do a task independently**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	6139.672	6	1023.279	1373.881	.000 <sup>b</sup>
	Residual	2378.919	3194	.745		
	Total	8518.591	3200			

Table 14 reveals that married and single mothers' use of instructional scaffolding improves a child ability to do a task independently ( $F = 1373.881$ ,  $df=6$ ,  $P=0.000$ ). The p-value is 0.000 which is less than 0.05. Thus, the null hypothesis is rejected.

## DISCUSSION OF RESULTS AND IMPLICATIONS FOR INNOVATIONS IN EDUCATION

The results obtained from the effects of married and single mothers' educational attainment on a child's educational outcome in Cameroon suggests that fathers complement mothers in the provision of children's educational needs whereas single mothers have more pressure in satisfying their children's educational aspirations. This result is in line with the findings of Keizer et al. (2020) who revealed that an increase in the level of education for both father and mother may result in an increase in children's cognitive development. However, the results show that mother's schooling has a larger effect than father's schooling on the achievement of their children. This is reflected in the negative and insignificant coefficient of father's educational attainment as opposed to mother's educational attainment. Generally, the findings are in line with Behrman and Rosenzweig (2002) who had previously explained that each parent's education increases a child's learning outcome but mothers with some education spend more time helping their children with school work as opposed to fathers.

Interestingly, an additional hour of work reduces the probability of children's education for married mothers in Cameroon as opposed to single mothers. This finding is consistent with evidence from other studies in this domain. For example, Andrabi et al. (2012) and Ermisch and Pronzato (2010) reported that the basis for this negative effect arises mainly from the substitution of better educated and working mothers' time from interacting with their children for work related activities. It is worthy to note that the quality of instructional scaffolding may offset this negative effect.

In Cameroon, both married and single mothers use a variety of instructional scaffolding techniques. This result is justified by the fact that when married and single mothers attain one additional year of education, they are more likely to spend time with the child, sing songs to the child, read books to them, play, narrate stories and stroll out of the house with them. This implies that these educated mothers lift up their heads and smile while reading or narrating stories in order to keep eye contact with the child and to sustain the child's interest during the teaching-learning process. Certainly, using these instructional scaffolding techniques increases the child's learning outcome. This is because the child is able to imitate what their mother did and eventually perform the task individually. These results are reaffirmed by the findings of Bruner (1966), Shepard (2005) and Byrnes (2007) that the use of instructional scaffolding by



the teacher and removing the scaffolding leaves the learner with an expert level of mastery. The findings further confirm the assertion by Bowlby (1982), Levy and Orlans (1998) as well as Berk (2000) that mothers' positive interaction like keeping an eye contact with the child, touching and smiling with the child and being sensitive to the child's needs increases the child's learning outcomes.

The results from the effects of instructional scaffolding on a child's educational outcome by marital status further indicates that Cameroonian married and single mothers who attain one additional year of education are more likely to spend quality time with their child. This is seen as most mothers model by pronouncing each letter of the alphabet or syllables and word aloud when reading books and telling stories to a child. After reading and storytelling, most of these Cameroonian mothers invite their child to cite letters of the alphabet and four common words. This interactive process enables mothers to verify and clarify the child's understanding. This instructional scaffolding techniques used by mothers are in agreement with the findings of Puntambekar and Hübscher (2005), Chevalier (2004) and Keizer et al. (2020) that educated mothers mostly use activities like reading and playing with a child, which enhances the child's learning outcome as compared to uneducated mothers.

Married and single mothers who complete one additional year of education are more likely to use performance modeling to enhance their child's learning outcome. This is justified by the fact that these mothers touch and count objects from 1 to 10 when they play with the child. These mothers dance as they sing songs and provide explanations of what they see as they stroll out of the house with their child. These instructional scaffolding techniques help the child to develop both literacy and numerical skills. The findings are in line with the conclusion of Lavigueur (2021) that girls with mothers who completed high school were more likely in an early age to imitate activities that required them to use their eyes, hands, fingers, lips and waist to learn as opposed to girls with mothers that never completed high school.

The findings also reiterated that while playing, singing and strolling with the child, mothers offer thorough explanations and ask the child to contribute ideas. Notably, when married and single mothers integrate this talk-aloud and think-aloud modeling, the child's development in terms of literacy and numeracy increases. These findings are in congruence with those of Waters et al. (2002) in which they explained that higher education levels among parents led to higher educational and academic outcomes for their children.

Apart from mothers using one-on-one instructional scaffolding techniques that enable the child to cite at least a letter of the alphabet, read at least four common words and cite figures from one to ten, children are able to follow simple instructions, agree well with others and do a task independently when their mothers spend time with them. Undeniably, as mothers gradually reduce the time they spend reading books with the child, singing songs with the child, telling stories and listening to the child's stories, playing and strolling out of the house with the child, the child's learning outcome still continues to increase. This is as a result of the secure and excellent relationship between the mother and the child. These results for Cameroon have been confirmed by the attachment theory which found that a child who is securely attached develops self-esteem, self-support and agrees well with mothers or caregivers (Morton & Browne, 1998; Levy & Orlans, 1998).



In the light of the above findings and discussions, innovation in early childhood education must nurture children's minds in early learning through the use of culturally responsive scaffolding techniques like talk-aloud, think-aloud and performance modeling. Given that only few children aged 0 to 5 years from married and single mothers have access to high quality instructional scaffolding in Cameroon, provision of continuous capacity building workshops should be organized by the government via women empowerment centers and ministries of education to train both married and single parents on the following: (1) adapting a culture of reading to children and using prompting questioning techniques to scaffold children's thinking; (2) adapting a culture of telling children stories that are rooted in the child's sociocultural context and reflects traditional knowledge that supports children's development; (3) adapting a culture of introducing unique cultural values and experiences through singing of songs that develops children's fine motor skills; (4) adapting a culture of strolling out of the house with a child and providing appropriate explanation of the natural environment that support children's identity and cognitive development; (5) adapting the culture of using purposeful play like mathematical games and science experiments that supports children's creativity and imagination; and (6) adapting a culture of spending time with a child, giving space for children's voices and feedback to secure an interactive relationship and improve children's learning outcomes.

## CONCLUSION

High level of educational attainment is needed for any mother who wishes to employ instructional scaffolding techniques to enhance the child's learning outcome. From the findings, married mothers who had attained one additional year of education were more likely to increase their child's learning outcomes as compared to single mothers. In terms of assessing the use of instructional scaffolding, married and single mothers seldom read, told stories, sang songs, played, strolled and spent time with the child. This conclusion was drawn from the fact that the differences between married and single mothers who used scaffolding techniques and those who did not had negative signs. Based on this hypothesis, married and single mothers used one-on-one instructional scaffolding techniques which improved their child's ability to cite at least a letter of the alphabet, read at least four common words, cite figures from one to ten, follow simple instructions, agree well with others and do a task independently.

From the findings, therefore, there is a need to educate married and single mothers through seminars, posters and social media on the value of attaining higher levels of education. Married and single mothers should not cling to one particular scaffolding technique but they should endeavor to use a variety of instructional scaffolding techniques, taking cognizance of the learning outcomes and the needs of their child. Mothers and fathers should use innovative techniques of teaching since it will make learning more interesting and thereby improve their child's learning outcomes.





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