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Digital Marketing Skills and Women's Economic Empowerment in Bangladesh: Employment, Barriers, and Global Digital Participation

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ABSTRACT

This paper discusses the relationship between digital marketing skills and the economic empowerment of women in Bangladesh in terms of digital employment and their inclusion in the digital world and also considers the obstacles that limit women involvement in digital markets. A quantitative cross-sectional survey was carried out among 510 adult women who utilized digital platforms to find jobs, freelance, become entrepreneurs, promote their business, sell online, or other income-earning activities. Partial least squares structural equation modelling was used to evaluate the proposed model. The results of measurement were satisfactory, providing indicator reliability, internal consistency, convergent, and discriminant validity, and acceptable collinearity. Digital marketing skills revealed positive and significant measures with digital employment results and global digital engagement. Mediators both were found to be positively related with economic empowerment of women, but barriers of digital participation showed significant negative relations. There were also significant indirect effects in terms of digital employment outcomes and international digital engagement that substantiated the two mediation hypotheses. The model accounted 45.2% of the variation in the economic empowerment of women and was found to have significant predictive ability. These results indicate that digital capability generates economic value both by providing job opportunities domestically and involvement in international digital markets. The paper shows that the key elements to enhance economic empowerment of women in Bangladesh include skills, quality infrastructure, access to payment, professional connections, and less risky online space.

INTRODUCTION

The digital work has presented an even more significant entry point into the employment, entrepreneurship, and market participation by women. The use of social media, online marketplaces, freelancing sites, e-commerce systems, and digital communication systems have diminished certain geographic constraints of economic activity. Women are able to market products, provide professional services, develop client relationships and reach the audience without being physically present at traditional working places (Zisan, 2021). Such opportunities are particularly applicable in areas where mobility issues, care-giving obligations, market segmentation and limited access to formal work can limit the participation in paid work. Opportunity to a digital platform does not necessarily generate adequate economic benefits. The potential to transform access into jobs and empowerment is based on useful skills and the circumstances in which digital labor is done.

Digital marketing skills prove especially crucial at the moment, as numerous types of digital work demand greater than merely using the internet. People should develop convincing messages, choose adequate channels, read engagement and conversion indicators, modify campaigns with the help of performance data, convey value propositions, and continue relationships with customers or clients (Zaman & Tasnim, 2021). Such capabilities may facilitate work on a salary, freelancing,

self-employment, entrepreneurship and social commerce. They can also enable women to compete with jobs outside of their immediate locality. The abilities of digital marketing can thus be efficient economic capabilities, and not just technical capabilities.

It is hard to imagine that these skills will have their empowerment consequences along one path. One of the pathways is based on the digital employment results (Yulianti *et al.*, 2022). When women are enabled to access digital capabilities to access work, diversify income-generating activities, enhance continuity of work, and enhance career prospects, they can be better financially independent, and feel more confident in their decision-making. There is a second channel that works based on international online involvement. Digital platforms would enable women to find international clients and audiences, open up to broader markets, and cross-border professional activity.

The material, institutional, social, and safety-related barriers are also limiting digital participation (Yadav, 2022). Lack of reliable internet, restricted access to devices and programs, challenges in making payments internationally, family issues, gender, constraining gender expectations, cyber bullying, poor professional networks can minimize the practical value of digital skills. A woman can be a good skilled person, but still not be able to convert these into stable income or increased economic agency when the environment in which she exists does not permit such

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action.

Bangladesh is a good location to study these mechanisms (Viollaz & Winkler, 2020). There has been an emergence of women in the field of online business, freelancing, content production, digital services, and commerce based on platforms. The participation is however heterogeneous. There are those women who are serving local markets and others are serving international clients. Others are self-trained and a number of them are formally trained. There are also differences in income levels, work experience, access to networks and exposure to barriers (Uddin, 2023). An analytic model that takes skills, employment, and global participation and barriers as a unified set can thus approach a more comprehensive explanation of digital economic empowerment.

Current discourse of women digital inclusivity usually focuses on access to technology, overall digital literacy or entrepreneurship performance (Tahsin *et al.*, 2022). The focus on the mechanism with the help of which particular digital marketing capabilities can be converted into the economic empowerment is less prominent. The line of distinction between the benefits of domestic employment and the involvement into digital markets of the globe is often indistinct. Barriers are usually considered as background conditions but not included in the structural explanation of empowerment. Such gaps restrict insights on the reasons behind various results of equal digital access among women.

This paper fills these gaps investigating the topic of digital marketing skills as the main ability, digital employment outcomes and global digital participation as the mediating factors, digital participation barriers as a negative predictor, and economic empowerment of women as a final outcome (Sicat *et al.*, 2020). It evaluates the presence of stronger skills related to improved employment and increased global engagement, the relationship between the mechanisms and empowerment, the relationship between the mechanism and barriers to empowerment, and the relevance of both the indirect pathways (Shah, 2022). The study combines the elements of capability, opportunity, international participation, and constraint into a single PLS-SEM model, thus providing a narrow explanation of how digital skills could be turned into an economical option by women in Bangladesh.

LITERATURE REVIEW

Digital Marketing Skills

Digital marketing skills are the applied skills of creating, communicating, assessing and enhancing market-oriented activities using digital platforms. These are content creation, platform choice, social media marketing, analysis of digital performance indicators, responsive marketing strategy based on data, persuading of the value propositions and relationship management (Seta *et al.*, 2023). These are competencies that are not confined to simple digital literacy since they are highly intertwined with market interaction and economic exchange. An individual might be in a position of utilizing the internet or the

social media but fail to convert them into employment, clientele, or profit. The competencies of digital marketing are thus a practical ability that has the capacity to enhance the business utility of digital engagement (Ripa *et al.*, 2023).

In the case of women, the skills may expand the scope of work arrangements possible. They can facilitate remote employment, freelancing, entrepreneurship, self-employment and selling online. They can also minimize their reliance on premises of physical business and local labour-market intermediaries (Rahayu *et al.*, 2023). The opportunity they create should however be used to determine the economic value of such skills. To this effect, this research paper does not presuppose that the only thing that makes one empowered is the skills. It approaches skills as a vertical ability that can help people obtain better jobs and increase their involvement in the digital economy around the world (Priyabadini, 2022).

Digital Employment Outcomes

Digital employment outcomes illustrate how digital potentials enhance access to jobs, expand income-generating opportunities, provide opportunities by digital means, enable self-earnings, enhance job persistence, and enhance career prospects (S. Noor & Hoque, 2021). The construct is based on realised or perceived benefits in the labour-market, but not on skill possession. The difference is significant since technically competent people might vary considerably in their capacity to turn skills into remunerated labor.

Digital jobs have the potential to lead to empowerment through greater control over income and a lesser reliance on money. It can also foster confidence in business and employment (A. Noor *et al.*, 2021). More secure or better diversified work can enhance a woman ability to fulfill personal needs, save, invest and contribute to household financial decision-making. The labour market is thus likely to align the digital marketing capacity to wider economic agency.

Global Digital Participation

Global digital participation is the capacity to reach out and access clients, customers, audiences and opportunities across the national borders on the digital platform (McAdam *et al.*, 2020). It entails reaching international customers, offering business competencies to global markets, contesting international offers, engaging in cross-border business communications, modifying offerings to meet international demands, and engaging in international business (M.N.N *et al.*, 2023).

This type of involvement is different in theory to overall digital work. A woman can get employment online and only serve the local customers (Lechman & Paradowski, 2021). International involvement expands market horizons and can lead to the increased exposure of employees and businesspeople to more opportunities. It may also promote the improvement of professional standards, established communication practices and flexibility

(Khalsiah, 2023). The availability of international demand could thus become another avenue where digital skills can be employed to empower economically.

Digital Participation Barriers

Limitations determine the virtues of the digital work. Online barriers to participation are unreliable or high-cost internet connectivity, lack of devices or programs, global transaction hardships, family commitments, constraining social norms, cyber-bullying or privacy concerns, and limited work connections (Kabeer *et al.*, 2021). The barriers function on varying levels. A few of them are infrastructural, some are institutional, and others are ingrained in household or social relations.

Their combined impact can limit the transformation of digital capabilities to economic results. Difficulties in paying can hinder successful cross-border transactions, even in cases of clients being available (Jamal *et al.*, 2020). The time spent at home may cut down on the amount of time to go out and work. The public visibility and platform participation may be dishearten by harassment. The access to information and referrals could be restricted by weak networks. On this basis, the model assumes stronger barriers as a direct negative predictor of economic empowerment of women (Islam & Inan, 2021).

Women's Economic Empowerment

The economic empowerment of women is considered as a multidimensional product (Hendricks & Olawale, 2022). It involves more control over personal income, greater involvement in household financial decision-making, less

financial dependency, self-confidence in employment/business decisions, better positioning to fulfill personal and career needs, better saving or investment ability, and more power in the household or community (Gazi *et al.*, 2020). This is not a strategy solely on the basis of income. The process of economic empowerment involves resources, and it entails agency and the capability to utilize resources in a manner that influences individual and household decisions.

Online work can promote this kind of empowerment as it generates lasting possibilities, earning, self-confidence, and expanded market opportunities (Faith & Banga, 2023). But empowerment is as strong as skills translate into meaningful economic participation. The conceptual model is thus concerned with the processes that relate capabilities and empowerment.

Conceptual Framework and Hypotheses

Conceptual frameworks Digital Marketing Skills is the key independent construct (David & Phillips, 2023). Digital Employment Outcomes and Global Digital Participation are parallel mediators. Digital Participation Barriers is a negative predictor, and Women Economic Empowerment is the last dependent construct. The framework presupposes that digital marketing capability will generate economic value in two mutually supportive channels (David, 2022). The former is better job and income earning capacity. The second is the wider involvement in global digital markets. Meanwhile, structural and social barriers can limit empowerment whenever women have pertinent capabilities.

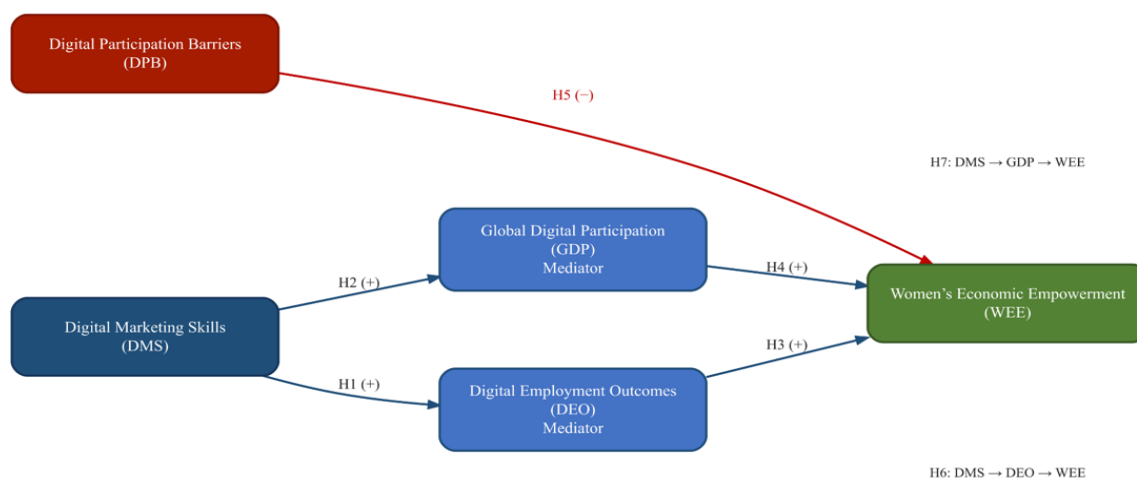


Figure 1: Conceptual framework and hypothesised relationships.

According to this framework, there are seven hypotheses: **H1:** There is a positive and significant relationship between digital marketing proficiency and digital employment among women in Bangladesh.

H2: There is a positive and significant relationship between digital marketing skills and global digital participation of women.

H3: Digital employment outcomes have a positive

and significant relationship with women's economic empowerment.

H4: There is a positive and significant relationship between global digital involvement and economic empowerment of women.

H5: There is a negative and important relationship between digital participation barriers and the economic empowerment of women.

H6: Digital employment outcomes mediate the relationship between digital marketing skills and women's economic empowerment.

H7: Global digital participation mediates the relationship between digital marketing skills and economic empowerment of women.

MATERIALS AND METHODS

Research Design and Participants

The research design was a cross-sectional survey, which is quantitative. This design was suitable as the research was to test the relationships among a number of latent constructs at a single point of time. The target population was selected as women aged 18 years or older and residing in Bangladesh and had pertinent exposure on digital platforms (Zhang & Chen, 2022). Qualified respondents were women who utilized digital resources to find employment, freelance, startup business, promote their business, sell online, or some other ways of generating income. Even women who had not already earned income but possessed digital skills or training that was not outdated were eligible since the research included emerging participation along with established digital work.

The main questionnaire was preceded by screening questions. The respondents affirmed that they are adult women and that they were presently residing in Bangladesh and that they have pertinent digital involvement or skills. Participation was voluntary (Thornhill & Gangestad, 2008). The questionnaire stated the academic intention of the research, and it was guaranteed that the answers will be left confidential. The ultimate dataset had 510 valid answers.

Instrument and Measurement

The questionnaire included demographics and professional questions and was ended up with construct measurement questions. Demographic variables included age, marriage, education, administrative division, residential area, occupational, primary digital work, digital work experience, training, monthly personal income, type of major client, and primary digital platform. These variables were applied to characterize the sample and give context on the structural analysis.

There were 33 items to reflect on five constructs. There were seven items in Digital Marketing Skills. There were six items in Digital Employment Outcomes. There were six items in Global Digital Participation. Seven items were included in Digital Participation Barriers, and seven were included in Women Economic Empowerment (Moura & Neves, 2025). The responses to the construct items were measured using a seven-point Likert scale with 1 being strongly disagree, and 7, strongly agree. The more scores, the higher was digital competencies, employment, global engagement, barriers, and economic empowerment according to the construct.

PLS-SEM was an appropriate tool to use in the research since the study conceptualization had multiple latent

variables, a number of indicators, parallel mediation, and a clear predictive goal. The strategy facilitated the estimation of the interrelationships between skills, employment, global participation, barriers, and empowerment concurrently. It was also able to measure quality of measurements prior to making conclusions on the structural paths. There were no indicators eliminated with the aim of enhancing model statistics (Moura & Neves, 2025). The reported loading and collinearity results were used to decide on retention.

The survey instrument was designed in such a way that the screening and background questions were followed by the attitudinal measures. This sequencing also minimized the burden of respondents and only qualified respondents would get to the main constructs (Ghisellini *et al.*, 2025). The seven point response scale was good enough to give different levels of agreement. The barrier construct had the reverse substantive interpretation of the other constructs: the higher the score, the stronger the constraints and not the more favourable state. This has been sustained in interpreting the model.

Analytical Procedure

Partial least squares structural equation modelling was used to assess the measurement and structural models. The analysis was conducted in a number of steps. Indicates: The descriptive statistics were analyzed on all indicators first. The means, standard deviations, minimum, maximum, skewness and kurtosis were checked to know the distribution of responses (Earley, 2023). Diagnostic tests were then determined to be full-collinearity variance inflation factors, which, based on common method bias, are diagnostic.

Outer loadings, indicator variance inflation factors, Cronbach, alpha, rho A, composite reliability, and average variance extracted were used to evaluate the reflective measurement model. The Fornell-Larcker criterion as well as the heterotrait-monotrait ratio of correlations were used to measure discriminant validity. It was based on these steps to determine whether the constructs were sufficiently reliable, convergently valid and empirically distinctive prior to interpretation of structural relationships.

The inner VIF values, coefficients of determination, predictive relevance statistics, effect sizes, and path coefficients were used to evaluate the structural model. The statistical significance of direct and indirect relationship was evaluated using bootstrapping. Five direct and two mediation hypotheses were tested through the analysis. Digital Employment Outcomes and Global Digital Participation has been modelled as parallel mediator of Digital Marketing Skills and Women Economic Empowerment (Chen, 2023). The Digital Participation Barriers were given as the negative predictor directly affecting the Economic Empowerment of Women.

An out-of-sample test was also used to determine predictive performance. Root mean squared error and

mean absolute error were compared to prediction errors of the PLS model and a benchmark of a linear model. The endogenous indicators were also checked on their predict values of Q2. The analysis was described in a gradual format to allow interpreting the sample characteristics,

quality of measurement, structural relationship, mediation, and predictive performance separately.

RESULTS AND DISCUSSION

Table 1: Respondents' Demographic and Professional Profile

Characteristic	Category	Frequency	Percentage
Age group	18–24 years	119	23.33
Age group	25–34 years	245	48.04
Age group	35–44 years	98	19.22
Age group	45–54 years	35	6.86
Age group	55 years or above	13	2.55
Marital status	Divorced or separated	20	3.92
Marital status	Married	273	53.53
Marital status	Prefer not to disclose	8	1.57
Marital status	Unmarried	197	38.63
Marital status	Widowed	12	2.35
Educational qualification	Bachelor's degree	195	38.24
Educational qualification	Diploma or professional qualification	52	10.2
Educational qualification	Higher secondary	73	14.31
Educational qualification	Master's degree	153	30
Educational qualification	MPhil or PhD	12	2.35
Educational qualification	Secondary or below	25	4.9
Administrative division	Barishal	29	5.69
Administrative division	Chattogram	87	17.06
Administrative division	Dhaka	178	34.9
Administrative division	Khulna	52	10.2
Administrative division	Mymensingh	26	5.1
Administrative division	Rajshahi	53	10.39
Administrative division	Rangpur	52	10.2
Administrative division	Sylhet	33	6.47
Residential location	Metropolitan city	176	34.51
Residential location	Other urban area	108	21.18
Residential location	Rural area	109	21.37
Residential location	Semi-urban area	117	22.94
Occupational status	Entrepreneur or business owner	104	20.39
Occupational status	Freelancer	142	27.84
Occupational status	Salaried employee	100	19.61
Occupational status	Self-employed professional	67	13.14
Occupational status	Student engaged in income-generating work	53	10.39
Occupational status	Unemployed but seeking digital work	44	8.63
Primary digital work	Affiliate or influencer marketing	23	4.51
Primary digital work	Content creation or copywriting	86	16.86
Primary digital work	Digital analytics	36	7.06
Primary digital work	E-commerce or social commerce	87	17.06
Primary digital work	Email marketing	25	4.9
Primary digital work	Graphic design or multimedia marketing	53	10.39
Primary digital work	Other digital service	11	2.16
Primary digital work	Paid digital advertising	34	6.67

Primary digital work	Search engine optimisation	44	8.63
Primary digital work	Social media marketing	111	21.76
Digital work experience	1–2 years	161	31.57
Digital work experience	3–5 years	170	33.33
Digital work experience	6–10 years	70	13.73
Digital work experience	Less than one year	85	16.67
Digital work experience	More than 10 years	24	4.71
Digital marketing training	Government programme	52	10.2
Digital marketing training	No training	14	2.75
Digital marketing training	Online platform	143	28.04
Digital marketing training	Private training organisation	114	22.35
Digital marketing training	Self-taught	150	29.41
Digital marketing training	University or academic institution	37	7.25
Monthly personal income	BDT 10,000–19,999	108	21.18
Monthly personal income	BDT 100,000 or above	26	5.1
Monthly personal income	BDT 20,000–39,999	128	25.1
Monthly personal income	BDT 40,000–59,999	93	18.24
Monthly personal income	BDT 60,000–99,999	38	7.45
Monthly personal income	Below BDT 10,000	73	14.31
Monthly personal income	No current income	44	8.63
Main client type	Both local and international	161	31.57
Main client type	International only	24	4.71
Main client type	Local only	80	15.69
Main client type	No current clients or customers	28	5.49
Main client type	Primarily international	73	14.31
Main client type	Primarily local	144	28.24
Primary digital platform	E-commerce marketplace	56	10.98
Primary digital platform	Facebook	130	25.49
Primary digital platform	Fiverr	56	10.98
Primary digital platform	Instagram	55	10.78
Primary digital platform	LinkedIn	49	9.61
Primary digital platform	Other	14	2.75
Primary digital platform	Personal or business website	21	4.12
Primary digital platform	TikTok	22	4.31
Primary digital platform	Upwork	66	12.94
Primary digital platform	YouTube	41	8.04

Explanation

The sample includes 510 women, who have different demographic and professional backgrounds. The largest age group is 25–34 years (48.04%), and 53.53% are married. The level of education is fairly high with 38.24% having a bachelor's degree and 30.00% master. Dhaka contributes 34.90 percentage of respondents with 34.51 in metropolitan areas. The biggest occupational group

(27.84%), is comprised of freelancers, then there are entrepreneurs or business owners (20.39%). The most typical area of digital work is social media marketing (21.76%). The majority of the respondents have one to five years of experience in digital work. The background of training is mixed, 29.41% of self-taught and 28.04% of online trained.

Table 2: Descriptive Statistics of Measurement Items

Construct	Item	Mean	SD	Minimum	Maximum	Skewness	Kurtosis
DMS	DMS1	4.22	1.833	1	7	-0.042	-1.087
DMS	DMS2	4.376	1.758	1	7	-0.141	-0.903

DMS	DMS3	4.359	1.791	1	7	-0.104	-0.984
DMS	DMS4	4.312	1.84	1	7	-0.108	-1.031
DMS	DMS5	4.355	1.76	1	7	-0.157	-0.917
DMS	DMS6	4.396	1.79	1	7	-0.249	-0.885
DMS	DMS7	4.259	1.767	1	7	-0.142	-0.917
DEO	DEO1	4.327	1.796	1	7	-0.163	-0.998
DEO	DEO2	4.425	1.811	1	7	-0.242	-0.95
DEO	DEO3	4.425	1.781	1	7	-0.134	-1.038
DEO	DEO4	4.304	1.833	1	7	-0.164	-1.01
DEO	DEO5	4.337	1.772	1	7	-0.141	-0.963
DEO	DEO6	4.459	1.779	1	7	-0.189	-0.933
GDP	GDP1	4.386	1.791	1	7	-0.12	-1.006
GDP	GDP2	4.386	1.762	1	7	-0.109	-0.958
GDP	GDP3	4.412	1.778	1	7	-0.201	-0.944
GDP	GDP4	4.302	1.803	1	7	-0.142	-1
GDP	GDP5	4.31	1.749	1	7	-0.054	-0.93
GDP	GDP6	4.414	1.794	1	7	-0.153	-1.061
DPB	DPB1	3.849	1.75	1	7	0.033	-0.975
DPB	DPB2	3.959	1.767	1	7	0.063	-0.98
DPB	DPB3	3.925	1.813	1	7	0.079	-1.007
DPB	DPB4	3.886	1.759	1	7	0.057	-0.897
DPB	DPB5	3.871	1.74	1	7	0.141	-0.847
DPB	DPB6	3.973	1.82	1	7	0.049	-1.005
DPB	DPB7	3.882	1.756	1	7	0.082	-0.968
WEE	WEE1	4.439	1.719	1	7	-0.17	-0.885
WEE	WEE2	4.467	1.769	1	7	-0.162	-0.971
WEE	WEE3	4.459	1.724	1	7	-0.178	-0.933
WEE	WEE4	4.333	1.693	1	7	-0.141	-0.866
WEE	WEE5	4.453	1.696	1	7	-0.124	-0.905
WEE	WEE6	4.461	1.691	1	7	-0.199	-0.822
WEE	WEE7	4.218	1.692	1	7	-0.044	-0.881

Explanation

There is generally an upward move of means above the middle of seven-point scale of DMS, DEO, GDP, and WEE. DMS items range from 4.220 to 4.396, DEO from 4.304 to 4.459, GDP from 4.302 to 4.414, and WEE from 4.218 to 4.467. DPB items are lower, ranging

from 3.849 to 3.973. There is a lot of variances in the standard deviations across respondents. The skewness is not extreme and the kurtosis is negative. The indicators distributions thus give sufficient variation to multivariate modelling.

Table 3: Assessment of Common Method Bias

Construct	Full-collinearity VIF	Threshold	Assessment
DMS	1.638	< 3.30	No serious common method bias
DEO	1.498	< 3.30	No serious common method bias
GDP	1.481	< 3.30	No serious common method bias
DPB	1.117	< 3.30	No serious common method bias
WEE	1.923	< 3.30	No serious common method bias

Explanation

The full-collinearity VIF scores can be seen as 1.117 to 1.923, which are smaller than the given 3.30. The outcomes thus do not give any sign of severe common

method bias on this diagnostic. This is significant as the major constructs were measured by the questionnaire at the same time.

Table 4: Indicator Reliability and Collinearity Assessment

Construct	Item	Outer Loading	Indicator VIF	Loading Decision	VIF Decision
DMS	DMS1	0.865	2.855	Retain	Acceptable
DMS	DMS2	0.792	2.063	Retain	Acceptable
DMS	DMS3	0.86	2.794	Retain	Acceptable
DMS	DMS4	0.79	2.1	Retain	Acceptable
DMS	DMS5	0.836	2.445	Retain	Acceptable
DMS	DMS6	0.803	2.183	Retain	Acceptable
DMS	DMS7	0.807	2.236	Retain	Acceptable
DEO	DEO1	0.874	2.907	Retain	Acceptable
DEO	DEO2	0.849	2.565	Retain	Acceptable
DEO	DEO3	0.822	2.212	Retain	Acceptable
DEO	DEO4	0.858	2.646	Retain	Acceptable
DEO	DEO5	0.805	2.062	Retain	Acceptable
DEO	DEO6	0.826	2.297	Retain	Acceptable
GDP	GDP1	0.873	2.969	Retain	Acceptable
GDP	GDP2	0.843	2.525	Retain	Acceptable
GDP	GDP3	0.871	2.842	Retain	Acceptable
GDP	GDP4	0.86	2.726	Retain	Acceptable
GDP	GDP5	0.82	2.245	Retain	Acceptable
GDP	GDP6	0.846	2.492	Retain	Acceptable
DPB	DPB1	0.809	2.189	Retain	Acceptable
DPB	DPB2	0.776	1.919	Retain	Acceptable
DPB	DPB3	0.845	2.44	Retain	Acceptable
DPB	DPB4	0.819	2.289	Retain	Acceptable
DPB	DPB5	0.823	2.277	Retain	Acceptable
DPB	DPB6	0.797	2.183	Retain	Acceptable
DPB	DPB7	0.799	2.152	Retain	Acceptable
WEE	WEE1	0.825	2.294	Retain	Acceptable
WEE	WEE2	0.821	2.298	Retain	Acceptable
WEE	WEE3	0.824	2.297	Retain	Acceptable
WEE	WEE4	0.754	1.823	Retain	Acceptable
WEE	WEE5	0.792	2.084	Retain	Acceptable
WEE	WEE6	0.791	1.993	Retain	Acceptable
WEE	WEE7	0.798	2.071	Retain	Acceptable

Explanation

The 33 indicators meet the reported measurement criteria. The outer loadings are 0.754 to 0.874 and all the items are retained. The values of the indicator VIF get between

1.823 and 2.969 and are all acceptable. The findings demonstrate that the indicators are highly correlated with their intended constructs with no troublesome indicator-level collinearity.

Table 5: Construct Reliability and Convergent Validity

Construct	Items	Cronbach's Alpha	rho_A	Composite Reliability	AVE	Assessment
DMS	7	0.92	0.922	0.936	0.677	Reliable and convergently valid
DEO	6	0.916	0.917	0.935	0.705	Reliable and convergently valid
GDP	6	0.925	0.926	0.941	0.726	Reliable and convergently valid
DPB	7	0.913	0.918	0.93	0.656	Reliable and convergently valid
WEE	7	0.907	0.908	0.926	0.641	Reliable and convergently valid

Explanation

Constructs all reveal great internal consistency and convergent validity. Cronbach's alpha ranges from 0.907 to 0.925, rho_A from 0.908 to 0.926, and composite

reliability from 0.926 to 0.941. AVE ranges from 0.641 for WEE to 0.726 for GDP. The measures thus give a valid ground of structural-model evaluation.

Table 6: Fornell-Larcker Criterion for Discriminant Validity

Construct	DMS	DEO	GDP	DPB	WEE
DMS	0.823	0.47	0.485	-0.122	0.52
DEO	0.47	0.839	0.28	-0.109	0.524
GDP	0.485	0.28	0.852	-0.182	0.502
DPB	-0.122	-0.109	-0.182	0.81	-0.313
WEE	0.52	0.524	0.502	-0.313	0.801

Explanation

The Fornell-Larcker outcomes help in the discriminatory validity. The AVE square root on the diagonal has the range of 0.801-0.852 and is greater than the inter-construct correlations. The highest positive relationship

exists between DEO and WEE (0.524) and DPB is correlated negatively with the enabling constructs and WEE. The trend is in line with the conceptual differences of the model.

Table 7: Heterotrait-Monotrait Ratio of Correlations

Construct	DMS	DEO	GDP	DPB	WEE
DMS	1	0.511	0.525	0.133	0.568
DEO	0.511	1	0.304	0.116	0.574
GDP	0.525	0.304	1	0.198	0.547
DPB	0.133	0.116	0.198	1	0.339
WEE	0.568	0.574	0.547	0.339	1

Explanation

Additional evidence HTMT values give of discriminant validity is. All values not on the diagonal are far less than typical conservative values. The best value is 0.574

between WEE and DEO. The constructs thus do not have any meanings and redundancies that can be arrived at.

Table 8: Structural Model Collinearity Assessment

Endogenous Construct	Predictor	Inner VIF	Assessment
DEO	DMS	1	Acceptable
GDP	DMS	1	Acceptable
WEE	DEO	1.089	Acceptable
WEE	GDP	1.113	Acceptable
WEE	DPB	1.038	Acceptable

Explanation

Structural collinearity is not an issue. The inner VIF values are 1.000 of the DMS predictors of DEO and

GDP, and 1.038 to 1.113 of the predictors of WEE. The path coefficients can so be interpreted without worrying that multicollinearity is distorting the estimates materially.

Table 9: Explanatory and Predictive Relevance of Endogenous Constructs

Endogenous Construct	R ²	Adjusted R ²	Q ²	R ² Interpretation	Q ² Interpretation
DEO	0.221	0.219	0.215	Very weak	Small predictive relevance
GDP	0.235	0.234	0.228	Very weak	Small predictive relevance
WEE	0.452	0.448	0.442	Weak	Medium predictive relevance

Explanation

DMS has an explanation of 22.1 % of the differences in DEO and 23.5 % in GDP. The test indicates both levels to be very weak with the Q² values of 0.215 and 0.228 indicating lower predictive relevance. For WEE, the

model explains 45.2% of the variance, with adjusted R² = 0.448 and Q² = 0.442. Therefore, the last empowerment model has a significantly greater explanatory and predictive relevance.

Table 10: Effect Size Assessment

Relationship	Effect Size (f^2)	Interpretation
DMS -> DEO	0.283	Medium
DMS -> GDP	0.308	Medium
DEO -> WEE	0.272	Medium
GDP -> WEE	0.203	Medium
DPB -> WEE	0.074	Small

Explanation

DMS has medium effects on DEO ($f^2 = 0.283$) and GDP ($f^2 = 0.308$). DEO ($f^2 = 0.272$) and GDP ($f^2 = 0.203$) also have medium effects on WEE. DPB has a smaller effect

($f^2 = 0.074$). The primary pathways enabling it are thus significant contributions to the model not solely because of statistical significance.

Table 11: Direct Effects and Hypothesis Testing

Hypothesis	Relationship	Path Coefficient (β)	t-value	p-value	Expected Direction	Decision
H1	DMS -> DEO	0.4699	13.8486	< .001	Positive	Supported
H2	DMS -> GDP	0.485	14.4635	< .001	Positive	Supported
H3	DEO -> WEE	0.4028	12.8389	< .001	Positive	Supported
H4	GDP -> WEE	0.3519	10.6506	< .001	Positive	Supported
H5	DPB -> WEE	-0.2048	6.2763	< .001	Negative	Supported

Explanation

Each of the five direct hypotheses are supported. DMS is positively related to DEO ($\beta = 0.4699$, $t = 13.8486$, $p < .001$) and GDP ($\beta = 0.4850$, $t = 14.4635$, $p < .001$). DEO

is positively related to WEE ($\beta = 0.4028$, $t = 12.8389$, $p < .001$), as is GDP ($\beta = 0.3519$, $t = 10.6506$, $p < .001$). DPB has the expected negative relationship with WEE ($\beta = -0.2048$, $t = 6.2763$, $p < .001$).

Table 12: Specific Indirect Effects and Mediation Analysis

Hypothesis	Indirect Relationship	Indirect Effect	t-value	p-value	Mediation Assessment	Decision
H6	DMS -> DEO -> WEE	0.1893	8.5271	< .001	Significant mediation	Supported
H7	DMS -> GDP -> WEE	0.1706	7.9394	< .001	Significant mediation	Supported

Explanation

Both hypotheses of mediation are accepted. The indirect effect through DEO is 0.1893 ($t = 8.5271$, $p < .001$), while the indirect effect through GDP is 0.1706 ($t = 7.9394$, $p < .001$). Digital marketing competencies are related to

empowerment hence in two ways: enhanced employment opportunities and engagement in the global digital markets. The DEO pathway is a little larger whereas both are meaningful.

Table 13: Out-of-Sample Predictive Assessment

Construct	Indicator	PLS RMSE	LM RMSE	PLS MAE	LM MAE	Q ² _predict	Assessment
DEO	DEO1	1.64	1.64	1.362	1.362	0.165	PLS prediction superior
DEO	DEO2	1.669	1.67	1.397	1.398	0.148	PLS prediction superior
DEO	DEO3	1.651	1.652	1.405	1.407	0.139	PLS prediction superior
DEO	DEO4	1.67	1.673	1.382	1.382	0.168	PLS prediction superior
DEO	DEO5	1.638	1.639	1.379	1.38	0.143	PLS prediction superior
DEO	DEO6	1.65	1.651	1.382	1.383	0.138	PLS prediction superior
GDP	GDP1	1.647	1.647	1.373	1.375	0.153	PLS prediction superior

GDP	GDP2	1.624	1.625	1.354	1.356	0.15	PLS prediction superior
GDP	GDP3	1.598	1.598	1.332	1.33	0.191	LM benchmark superior
GDP	GDP4	1.656	1.656	1.387	1.389	0.156	PLS prediction superior
GDP	GDP5	1.617	1.618	1.346	1.348	0.143	PLS prediction superior
GDP	GDP6	1.614	1.615	1.344	1.338	0.189	PLS prediction superior
WEE	WEE1	1.431	1.433	1.164	1.165	0.305	PLS prediction superior
WEE	WEE2	1.514	1.515	1.221	1.227	0.266	PLS prediction superior
WEE	WEE3	1.422	1.426	1.171	1.172	0.319	PLS prediction superior
WEE	WEE4	1.468	1.47	1.21	1.211	0.247	PLS prediction superior
WEE	WEE5	1.474	1.476	1.206	1.212	0.243	PLS prediction superior
WEE	WEE6	1.414	1.416	1.16	1.159	0.299	PLS prediction superior
WEE	WEE7	1.429	1.434	1.194	1.197	0.285	PLS prediction superior

Explanation

Q2 predict values reported are all positive. For most indicators, PLS prediction errors are equal to or slightly lower than those from the linear-model benchmark. The PLS prediction is rated as high on all the DEO indicators, five out of six GDP indicators and all the WEE indicators. TPV3 is the only indicator, the linear benchmark of which is evaluated as the best. In general, the model has the capacity to predict out-of-sample, especially with WEE.

Discussion

The results give a detailed account on the relationship between digital marketing capability and financial empowerment of women in Bangladesh. The initial significant finding is that there is a strong positive correlation between digital marketing skills and digital employment outcomes (Basak & Das, 2022). Women with higher scores in content creation, platform choice, social media marketing, performance interpretation, strategic adaptation, value communication and digital relationship management also had higher access to jobs and income earning opportunities. The medium effect size is indicative that this relationship is substantively significant.

Global digital participation is also highly correlated with digital marketing skills. The coefficient of DMS to GDP path is a little higher compared to the coefficient of the outcome of digital employment. The international visibility is possible through digital platforms, yet successful involvement depends on the possibility to introduce services and convey the value and adapt the content and engage with the clients or customers in markets in a particular manner. Skills are thus seen to serve as a mediator of digital access and cross-border opportunity (Zisan, 2021).

The model has a positive correlation between the outcomes of digital employment and the economic empowerment of women. The strongest direct positive coefficient of the predictors of empowerment relates to employment outcomes. This implies that the economic definition of digital capability is conditional upon its

generation of useful labour-market returns. The greater access to opportunities, better employment continuity, and the opportunity to earn can empower income control and lessen economic reliance (Zaman & Tasnim, 2021). They are also able to enhance trust in the business and employment decisions.

Digital engagement all over the world is also a factor in economic empowerment of women. International interactions, audience and cross-border opportunities are independent of empowerment in the presence of employment outcomes and barriers (Yulianti *et al.*, 2022). The involvement in international activities can have advantages that are not entirely reflected in general digital employment since it opens up a wider market to women and can decrease their reliance on local client-based companies.

The fact that digital participation barriers are negatively related to empowerment is a confirmation that capability is not enough. Females with greater impediments show reduced economic empowerment. The effect size is lower than that of employment and global participation but the relationship is statistically significant (Viollaz & Winkler, 2020). The economic payoff on digital participation by skills can be low due to internet issues, device constraints, restriction to payment, household burdens, constraining social norms, harassment, and ineffective networks.

These findings are collected in the mediation findings. Digital marketing competencies are associated with empowerment, both regarding the digital employment results and worldwide digital engagement. The employment effect is slightly stronger, but either of the two routes is considerable. Skills are important since they increase the range of what women are capable of doing in terms of economics (Uddin, 2023). The skills are translated into a source of income through employment and the global engagement expands the market upon which these skills can be applied.

The model defines 45.2 % of the variation in the economic empowerment of women and has a medium predictive value. Most indicators are also favourable when it comes to out-of-sample prediction. The framework thus contains variables that are significantly related to

the disparities in empowerment (Tahsin *et al.*, 2022). The remaining unexplained variance also shows that economic empowerment is wider than a digital work and most probably influenced by financial, household, institutional and social conditions beyond the current model.

The difference between access and productive participation is also shed light on in the findings. Availability of platforms is just the beginning. When the women are designed to transform digital access into recognised market capability, achieve opportunities and retain relationships across both local and international settings, the chances of becoming economically empowered are enhanced (Sicat *et al.*, 2020). The difference is significant to the research and the design of interventions since it can change the focus of the simple connectivity to definition of quality, continuity and economic utility of participation.

Theoretical, Practical, and Policy Implications

The theoretical contribution of the study is that it breaks down the concept of digital capability and the ways in which the ability can be economically relevant. Digital marketing skills are defined as a resource that is placed up the ladder and not as empowerment itself. The way that resource is transformed into economic agency can be found through digital employment outcomes and global digital participation (Shah, 2022). This difference can be used in explaining why not all women would enjoy equal empowerment benefits due to access to technology or general skills in using digital technology. The model directly reflects the participation barriers, and it reveals that opportunity creation and structural constraint co-exist.

The implications of the findings are evident in the practices of training providers, employers, platform-based business, and organisations that support female entrepreneurship. The training can no longer afford to be simply introductory digital literacy. Market-facing skills (content strategy, platform selection, analytics, campaign adjustment, client communication, and relationship management) should be developed with the help of programmes. Practical preparation to work internationally, such as professional communication, service positioning, portfolio presentation and adapting to the global client expectation should also be incorporated in training. Since a big number of the respondents are self-educated or trained on the internet, modular and readily available upskilling chances can come in handy (Seta *et al.*, 2023). The barriers to the economic return to skills ought to be dealt with through policy interventions. Connectivity is very essential, particularly in a reliable and affordable manner, however, infrastructure is not enough on its own. Women should also have access to appropriate equipment and programs, safe and convenient international payment for transactions, professional networks, mentoring, and tools to address online bullying. Childcare and home services can also be given, which can further enhance the time to do digital work. More integrated strategies,

involving combined skills with facilitating infrastructure and safer conditions of participation are thus likely to make the women economically empowered than single training programs.

Another implication is related to programme evaluation. The level of success in terms of women completing the training should not be considered only. More relevant signals would be whether participants find customers, earn recurring business, venture abroad, gain greater power over profits, and develop a savings or investment potential (Ripa *et al.*, 2023). The support organisations have to hence relate training to access to markets, mentoring, portfolio creation and payment solutions. Platform providers can also play a role by enhancing reporting mechanisms, identity protection, dispute and guidance of cross-border transactions. Such actions would contribute to making the digital participation more sustainable and economically significant.

Limitations and Future Research

There are a few limitations of the study. To begin with, cross-sectional design can only determine structural relationships but cannot determine the temporal order with the same level of confidence as longitudinal research. Second, the scales are self-reported and can be based on the perceptions of respondents and the objective economic conditions (Rahayu *et al.*, 2023). Third, every participant is a woman who has various occupations, platforms, geographic locations, and experience, and this factor enhances breadth but can mask subgroup variations. The future research might provide comparisons of the freelancers, entrepreneurs, salaried workers, and emerging digital workers individually. The longitudinal studies would be able to study the transformation of skills, international participation, and empowerment with time. Other objective measures of income growth, platform income, client retention or savings could also be included in the further research. The moderating variables that could further explain the time when digital skills yield higher economic returns include household support, English proficiency, access to finance, and urban-rural location.

CONCLUSION

This paper analyzes the nature of the relationship between digital marketing skills and economic empowerment of women in Bangladesh using a model that combines the outcome of employment, international digital participation, and barriers to participation. The findings demonstrate that more developed digital marketing capabilities are related to improved digital job performance and more involvement in global digital economies. The two mechanisms have positive relationships with economic empowerment and barriers to participation have a very strong negative correlation with empowerment. The two important indirect impacts affirm that employment and global participation play central roles as ways through which skills are connected

to the larger economic agency.

The results show that digital empowerment of women cannot be perceived merely as access to technology or use of the online platforms. When women have the market-relevant capabilities and are able to translate them into consistent work, economic opportunities and broader market access, economic value is created. It is also found that structural and social barriers still curtail this process. Successful interventions should thus be a mix of high-level digital marketing education and proper infrastructure, availability of payment systems, professional networks and safer environment of online participation.

The paper as a whole offers a cohesive analysis of the idea of digital economic empowerment among Bangladesh women. It brings out the significance of capability development as well as the environment that the capabilities are applied. Empowerment of the two dimensions will increase the involvement of women in digital jobs, global economies, and domestic and individual economies.

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