

Digital Skills as a Mediator Between Inclusion and Financial Wellbeing of Gig Workers

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Research Article

Keywords: Digital Inclusion, Digital Skills, Financial Wellbeing, Gig Economy, Structural Equation Modeling

Posted Date: August 31st, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-9503364/v1>

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Additional Declarations: No competing interests reported.

Abstract

The study examines the effects of digital inclusion on the financial stability of gig workers as a result of the digital skills development process. The article involves structural equation modeling to examine the relationship among various constructs using the primary data gathered among gig workers. The findings indicate that digital inclusion has a positive effect on digital skills growth and financial well-being measurement. Development of digital skills has a direct impact on the financial well-being besides potentially becoming a key connection between digital inclusion and financial well-being measurement. The results show that people need both digital technology access and essential digital platform operation skills to achieve better financial results. The study shows how capability development affects digital inequality and gig economy employment through its research findings. The study results provide policymakers and platform providers with information to create specific programs that will improve digital skills for gig workers while supporting their ability to earn money through various work opportunities.

Introduction

The nature of the modern labor market is that people have created the core aspect of their digital platforms finding short-term flexible employment that constitutes the gig economy. The digital platforms that work based on ride-sharing services and freelance marketplaces and delivery applications have developed novel employment models that rely on digital technology and algorithm-managed management systems (De Stefano, 2016; Wood et al., 2019). The gig economy helps workers to determine their work hours but results in issues since individuals are required to earn money in the present and save their future income.

Digital inclusion has become a central concept in understanding participation in technology-driven labor markets. The concept describes two aspects which include digital infrastructure and internet access and which permit users to access digital platforms and online resources (van Dijk, 2020). Digital inclusion in gig work environments enables workers to access job openings and interact with clients and process digital payments. Digital access remains unfairly distributed because people in developing nations and disadvantaged groups face obstacles which prevent them from participating equally in the gig economy (Robinson et al., 2020).

Financial wellbeing represents an individual's ability to meet current financial commitments, feel secure about their economic future, and make informed financial decisions (Consumer Financial Protection Bureau, 2015). The financial wellbeing of gig workers suffers because they experience unpredictable income levels and lose access to social benefits and face difficulties in finding work (Kalleberg & Dunn, 2016). The income potential provided by digital platforms creates financial challenges for workers because their work in the gig economy maintains unpredictable income patterns.

Digital skills have been identified as a crucial determinant of success in the digital economy. The skills required for this task involve using digital tools and navigating online platforms and using digital media for communication and staying current with new technology (OECD 2019). Workers in gig work environments who possess advanced digital skills can better use platforms to find valuable tasks and pursue ongoing educational development (Autor et al., 2020). The development of digital skills establishes a type of human capital which enables individuals to improve their work performance and increase their income potential.

Digital inclusion requires additional digital skills development for successful economic progress according to earlier research findings (van Laar et al., 2017). People need digital skills to operate technology because they need those skills to use digital tools effectively. Platform-based markets require workers to possess digital skills because workers without those skills will face difficulties competing and will earn less money while experiencing decreased financial security. People who possess advanced digital skills will use their technology access to improve their work productivity which will result in better financial results.

The research community now studies gig work and digital labor but researchers have not yet investigated how digital inclusion affects financial wellbeing through its operational mechanisms. The research needs to examine digital skills as a critical intermediary that impacts social development outcomes in developing nations where digital access remains limited. The relationship between these two factors requires understanding because it helps create policies and programs which will enable equal access to gig economy work opportunities.

The research proposes that digital skills function as a mediator between digital inclusion and financial wellbeing for gig workers according to human capital theory (Becker, 1993) and the digital divide framework (van Dijk, 2020). Human capital theory explains that skill acquisition leads to better economic results while the digital divide theory shows how differences in internet access and digital proficiency create economic disparities. The current research uses two theoretical frameworks to study how digital inclusion affects financial wellbeing through the acquisition of digital skills.

The study aims to study how digital inclusion affects financial wellbeing and how digital inclusion contributes to digital skills development and how digital skills creation affects financial results for gig workers. The research will use structural equation modeling techniques and quantitative methods to establish strong empirical support for the connections between technological access and skill development and economic wellbeing.

This study will add to existing research about digital labor and inclusion by demonstrating how digital capacity building establishes sustainable employment opportunities in the gig economy. The study provides practical recommendations for policymakers and platform operators and educational institutions by showing how inclusive digital infrastructure and specific skill development programs help gig workers improve their financial situation.

OBJECTIVE OF THE STUDY

- To analyse the impact of digital inclusion on the financial wellbeing of gig workers.
- Question: To examine how digital inclusion affects the acquisition of digital skills by gig workers.
- To explore the mediating effect of digital skills in the association between digital inclusion and financial wellbeing of gig workers.

Hypothesis of the Study

- H1: The financial wellbeing of gig workers is positively affected by digital inclusion to a significant degree.
- H2: Digital inclusion produces a substantial positive impact on digital skills of gig workers.
- H3: Digital skills positively influence the financial wellbeing of gig workers significantly.
- H4: Digital skills play an important role in mediating the connection between digital inclusion and financial wellbeing of gig workers.

Literature Review

• Digital Inclusion in the Gig Economy

Digital inclusion describes the fair distribution of digital technology access together with internet connectivity and online platforms which allow people to engage in social and economic activities (van Dijk, 2020). Digital inclusion stands as an essential requirement for the gig economy because workers use digital platforms to receive their work assignments while they stay in contact with each other and track their job progress and receive their salaries. People need digital infrastructure access because without it they cannot join platform-based work markets (Robinson et al., 2020).

The research studies discovered that different people from various income groups and geographic areas and educational backgrounds still experience digital access problems. These barriers prevent marginalized groups from accessing digital

job opportunities and modern technological advancements (Hilbert, 2016). Developing countries face three main obstacles which include unreliable internet service and expensive data access and restricted availability of digital devices that keep people from entering the gig economy (UNDP, 2021).

Research evidence shows that better digital inclusion leads to increased workforce participation and better income potential for workers (Zhao et al., 2020). Scholars demonstrate that access by itself does not produce good economic results because it must come together with required skills and abilities (van Dijk, 2020). The research demands that researchers investigate how financial outcomes connect to inclusion through intermediate processes.

- **Digital Skills and Human Capital Development**

Digital skills encompass a broad range of competencies which include operating digital devices and navigating online platforms and communicating through digital means and assessing information and learning to use new technological tools (OECD 2019). Digital economy skills serve as essential human capital which impacts three work-related factors: employee hireability and job performance and salary growth (Becker 1993).

In gig work environments digital skills help workers to handle platform systems and create client connections and manage their work schedules and find better paying job opportunities (Autor et al 2020). Workers who possess advanced digital competencies can better handle platform algorithm updates and market demands which results in better economic outcomes (Graham et al 2017).

Research shows that digital inclusion plays a crucial role in skill development because it provides people with access to technological tools and online educational materials (van Laar et al 2017). People with better digital access tend to learn independently which leads to skill development that boosts their ability to compete in digital job markets.

- **Financial Wellbeing of Gig Workers**

People who are not afraid of financial problems due to their financial stability in being able to afford their financial requirements and deal with economic uncertainties and their own finances. Gig work has a fundamental character compared with regular employees since it generates irregular sources of income without offering employees employment benefits or employment security (Kalleberg and Dunn, 2016).

The study indicates that gig workers experience financial instability due to the inability to forecast their income and lack of access to the basic social protection benefits such as health insurance and retirement plans (Wood et al., 2019). The study reveals that high-skilled gig workers have a chance to earn high incomes whereas low-skilled platform workers experience the problem of earning a regular income (Berg et al., 2018).

The aspects that give workers financial wellbeing in their gig work are the work options and the ability to earn money when using digital platforms. The engagement into the gig economy, as well as the digital capabilities that employees have, both defines their economic outcomes.

- **Digital Inclusion and Financial Wellbeing**

The research establishes a positive link between digital access and economic participation for its findings. Digital financial services (Zhao et al., 2020) provide users with job information and online marketplace access through their increased connectivity. Digital inclusion in the gig economy enables workers to access platforms while receiving work offers and handling digital payments through their online activities. The research shows that digital inclusion does not automatically improve financial well-being for users. The research shows that access to resources increases participation but users experience unequal income growth because of existing skill gaps and market competition (Hilbert, 2016). The research demonstrates that digital skills act as an intermediary factor which affects how financial results relate to inclusion in financial systems.

Mediating Role of Digital Skills

The mediating role of skills between technological access and economic outcomes has been emphasized in digital divide research. The authors van Laar et al. (2017) present their argument that digital competencies serve as essential skills which enable users to obtain actual benefits from their digital resources. Workers who use digital technologies at their highest level of proficiency achieve better job market results according to Autor et al. (2020) research findings. Digital skills enable gig workers to discover lucrative work opportunities which they use to improve their service delivery process while sustaining their work activities. The process creates better income protection which leads to improved financial security for the individual. Digital skills serve as the fundamental pathway through which digital inclusion creates changes in financial performance according to established expectations.

The existing research has not provided enough support for the theoretical framework which proposes digital skills function as a mediator in the gig economy research studies. Most existing research has focused on either access issues or income volatility separately. Researchers need to study digital inclusion together with skill development because it creates a gap in financial wellbeing understanding for developing countries.

DATA ANALYSIS

Table 1. Demographic Profile of Gig Workers

Gender		
	Frequency	Percent
Male	137	45.7
Female	136	45.3
Prefer not to say	27	9.0
Age Group		
Below 25 years	51	17.0
25–34 years	91	30.3
35–44 years	74	24.7
45–54 years	45	15.0
55 years and above	39	13.0
Highest Educational Qualification		
Secondary school or below	47	15.7
Diploma	56	18.7
Bachelor's degree	85	28.3
Master's degree	95	31.7
Doctorate	17	5.7
Type of Gig Work		
Ride-sharing/transport services	64	21.3
Food delivery/logistics	62	20.7
Online freelancing	54	18.0
E-commerce or online selling	60	20.0
Other	60	20.0
Years of Experience in Gig Work		
Less than 1 year	75	25.0
1–3 years	71	23.7
4–6 years	96	32.0
More than 6 years	58	19.3
Average Monthly Income from Gig Work		
Less than ₹15,000	62	20.7
15,000 – 30,000	79	26.3
30,001 – 50,000	85	28.3
Above 50,000	74	24.7

The above table 1 demographic description reveals that there were some equal representations of both sexes among the respondents who participated in the study. The age distribution indicates that the majority of the participants are in the age category of 25 years to 34 years which implies that young adults enjoy working in gig jobs. Most of the workers are well educated as a high percentage of them are holders of Bachelor and Master degrees which indicates that skilled laborers prefer gig employment.

The different types of gig work attract workers from various employment sectors who participate in the activities. The majority of respondents possess 4–6 years of experience which demonstrates their knowledge about gig platforms. The income distribution shows a moderate pattern because most respondents earn between ₹30,001–50,000 which demonstrates the potential earnings available through gig work. The sample contains a range of experienced gig workers who represent different backgrounds.

Table 2. Reliability Statistics

Reliability Statistics	
Cronbach's Alpha	N of Items
.917	18

The above table 2 reliability test indicates that the scale has high internal consistency due to its 18 items that give Cronbachs Alpha value of 0.917. Hair et al. (2019) and Nunnally and Bernstein (1994) posit that a Cronbachs Alpha coefficient of above 0.70 indicates acceptable reliability and of above 0.90 indicates extraordinary reliability. The received value indicates that the items utilized in the research are very consistent in the measurement of the underlying constructs along with good inter-item correlations. The measurement tool has shown a good performance that can be used in future statistical analysis that involves factor analysis and structural equation modeling.

Table 3. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.952
Bartlett's Test of Sphericity	2766.273	2877.718
	Df	153
	Sig.	.000

The above table 3 shows the research team used two assessment techniques to check the sample size requirements to perform both exploratory factor analysis (EFA) assessment that involved both the Kaiser Meyer Olkin KMO sampling adequacy measure and Bartletts Test of Sphericity measure. The KMO value was found to be 0.952 that is above the recommended minimum of 0.60 and lies within the range of value of excellent category (Kaiser 1974). The high value of KMO signifies that the relationships between variables are tight enough and the relationship patterns are appropriate in extracting the factors. The size of the sample along with the data format gives a great testimony that the researchers are capable of conducting the factor analysis on the basis of the standardized criteria.

The outcomes of the Bartletts Test of Sphericity were statistically significant (2877.718 df = 153 p < 0.001) indicating that the correlation matrix was not an identity matrix. The outcome is that there are several variables that sustain meaningful associations that sets the stage of conducting factor analysis (Hair et al. 2019). The strong Bartletts test indicates that the correlations observed are strong enough to indicate the latent variables that are hidden but present in the data.

The dataset is also appropriate to conduct an exploratory factor analysis since the combination of high KMO value and the great Bartlett's Test outcomes present substantial empirical evidence. The correlation table shows factorability that prompted the application of EFA and confirmatory factor analysis to measure the construct validity of the measurement scales.

Table 4. Communalities

Communalities		
	Initial	Extraction
DI1	1.000	.581
DI2	1.000	.656
DI3	1.000	.665
DI4	1.000	.658
DI5	1.000	.636
DI6	1.000	.700
DS1	1.000	.666
DS2	1.000	.600
DS3	1.000	.628
DS4	1.000	.541
DS5	1.000	.590
DS6	1.000	.640
FW1	1.000	.586
FW2	1.000	.606
FW3	1.000	.625
FW4	1.000	.591
FW5	1.000	.597
FW6	1.000	.669

The communalities table 4 shows how much of each observed variable's total variance is accounted for by the Principal Component Analysis (PCA) extracted factors. The extraction process results in communalities which show how well each item matches the fundamental factor structure of the research. According to multivariate research guidelines extraction values above 0.50 should be considered acceptable because they demonstrate that an item has significant contribution to the factor solution (Hair et al., 2019; Field, 2018).

The present study shows that all items for Digital Inclusion (DI) Digital Skills (DS) and Financial Wellbeing (FW) measurement display extraction communalities which range from 0.541 to 0.700. The Digital Inclusion items show strong communalities with values between 0.581 and 0.700 which indicate that the extracted components account for a substantial portion of variance in these indicators. The factor structure successfully represents the digital inclusion construct through its measurement system.

The Digital Skills items show satisfactory communalities which range from 0.541 to 0.666. DS4 shows the lowest extraction value which equals 0.541 but it still meets the required minimum standard, which proves that all digital skills indicators successfully describe the underlying construct.

The Financial Wellbeing items show acceptable communalities because their extraction values range from 0.586 to 0.669. The results show that the extracted factors successfully measured all shared variance which exists between financial well-being indicators, thus establishing the construct as suitable for advanced multivariate assessment.

The communalities results show that every item has sufficient shared variance, so there is no need to eliminate any indicator at this point. The satisfactory

Table 5. Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.264	45.911	45.911	8.264	45.911	45.911	4.014	22.302	22.302
2	1.793	9.959	55.870	1.793	9.959	55.870	3.741	20.782	43.084
3	1.179	6.551	62.421	1.179	6.551	62.421	3.481	19.337	62.421
4	.650	3.608	66.029						
5	.609	3.384	69.414						
6	.548	3.044	72.458						
7	.521	2.897	75.355						
8	.515	2.860	78.215						
9	.488	2.712	80.927						
10	.470	2.608	83.535						
11	.445	2.472	86.007						
12	.417	2.318	88.326						
13	.401	2.225	90.551						
14	.372	2.065	92.616						
15	.370	2.054	94.670						
16	.341	1.892	96.562						
17	.331	1.840	98.403						
18	.288	1.597	100.000						

Table 5 of Total Variance Explained indicates the contribution of various elements of Principal Component Analysis (PCA) to the overall variance of data. The eigenvalues that are above 1.0 are used by researchers since this figure indicates that a factor explains more variation than an observed variable (Kaiser, 1960; Hair et al., 2019). The study found three components which exceed the eigenvalue limit of 1.0. The eigenvalue of the first component is 8.264 and it explains

45.91% of the total variance in the dataset implying that it is the most dominant underlying construct in the dataset. The second component describes another 9.96% of the variance with an eigenvalue of 1.793 and the third component describes 6.55% of the variance with an eigenvalue of 1.179. The three elements contribute 62.42 percent of total variance that exceeds the 60 percent minimum requirement that a social science study requires as per (Hair et al., 2019; Tabachnick and Fidell, 2019). The sums of squared loading extracted are the same as the preliminary eigenvalues and this indicates that the extracted solution of three factors maintains the same level of explanations. The measure of factor structure extracted demonstrates specific stability with high measurement skills. Following the Varimax rotation, the three factors now allocate the variance in the following manner: the rotated factors have 22.30 percent and 20.78 percent and 19.34 percent of the total variance. The variance redistribution is due to the fact that it enhances the interpretability and preserves the entire explained variance (Field, 2018).

The remaining components all exhibit eigenvalues below 1.0 and individually explain less than 4% of the variance. The solution required components because their explanatory power was too weak for final inclusion. The results show three-factor structure which exists as a valid theoretical construct and works for further research. The measurement items demonstrate their effectiveness at measuring underlying constructs because they explain substantial cumulative variance which creates a solid base for upcoming confirmatory factor analysis and structural equation modeling.

Table 6. Rotated Component Matrix

Rotated Component Matrix^a			
	Component		
	1	2	3
DI6	.790		
DI4	.745		
DI2	.744		
DI5	.737		
DI3	.732		
DI1	.704		
FW6		.778	
FW3		.752	
FW5		.717	
FW4		.716	
FW2		.687	
FW1		.676	
DS1			.750
DS6			.731
DS3			.705
DS5			.645
DS2			.639
DS4			.625

Table 6 Rotated Component Matrix shows the factor loadings of the observed variables after performing Varimax rotation which uses Kaiser standardization. The process of rotation enables researchers to create a factor structure which researchers can easily interpret by using their method of increasing primary loadings while decreasing secondary loadings across different components (Kaiser, 1958; Field, 2018). Hair et al. (2019) state that factor loadings which exceed 0.60 demonstrate a strong connection between an item and its base factor.

The results show a three-component structure which results in strong item relationships with each factor and shows no major cross-loadings. This shows that the exploratory stage achieves both construct clarity and discriminant validity.

Component 1 includes six Digital Inclusion (DI) items which have loadings between 0.704 and 0.790. The strong and consistent loadings of DI1 to DI6 show that these items together form one unified construct which measures access to digital platforms and user participation. The lack of cross-loadings shows that digital inclusion exists as a separate construct which researchers can measure independently from other constructs.

Component 2 consists of six items which assess Financial Wellbeing (FW) and their factor loadings range from 0.676 to 0.778. The financial wellbeing indicators demonstrate high common variance which allows the extracted factor to explain their relationship to one another. The financial wellbeing construct shows unidimensionality because all FW items group together to form one component.

Component 3 includes six items associated with Digital Skills (DS), which show loadings that range from 0.625 to 0.750. The component loadings show more variation than other components yet all measurements achieve more than the minimum acceptable value which enables proper evaluation of digital skills measurement. The indicators enable assessment of digital tool and technology usage competencies that individuals possess. The rotation process reached its final point after completing six total iterations, which proved the solution to be statistically stable. The rotated factor structure exists as a theoretically relevant and empirically strong result which allows researchers to keep all measurement items for their future assessment. The measurement model displays strong loadings with distinct factor separation which makes it appropriate for confirmatory factor analysis and structural equation modeling because it establishes the study's construct validity.

- To examine the effect of digital inclusion on the financial wellbeing of gig workers.

Table 7: Model Fit Indices of the Structural Equation Model (AMOS)

Fit Index	Recommended Threshold	Obtained Value	Model Fit
χ^2 (Chi-square)	Non-significant desirable	41.217	—
Degrees of Freedom (df)	—	53	—
χ^2/df (CMIN/DF)	< 3.00	0.778	Excellent
Probability (p-value)	0.05 desirable	0.880	Excellent
GFI (Goodness-of-Fit Index)	≥ 0.90	0.978	Excellent
AGFI (Adjusted GFI)	≥ 0.90	0.967	Excellent
RMR (Root Mean Residual)	≤ 0.08	0.009	Excellent
NFI (Normed Fit Index)	≥ 0.90	0.977	Excellent
IFI (Incremental Fit Index)	≥ 0.90	1.007	Excellent
TLI (Tucker–Lewis Index)	≥ 0.90	1.009	Excellent
CFI (Comparative Fit Index)	≥ 0.90	1.000	Excellent
RMSEA	≤ 0.08 (≤ 0.05 ideal)	0.000	Excellent
RMSEA PCLOSE	0.05	1.000	Excellent
PNFI	≥ 0.50	0.784	Acceptable
PCFI	≥ 0.50	0.803	Acceptable
Hoelter (0.05)	≥ 200	516	Adequate
Hoelter (0.01)	≥ 200	580	Adequate

The results of Table 7 and Figure 1 indicate that the proposed measurement model demonstrates an excellent overall fit to the data. The chi-square statistic shows no significant results because its value reaches 0.880, and the χ^2/df ratio maintains levels that stay below the 3.0 threshold which shows how closely actual and predicted covariance matrices match each other. Absolute fit indices GFI and AGFI and RMR exceed their recommended thresholds which establishes that the model demonstrates strong performance. The incremental fit indices NFI and IFI and TLI and CFI all show values above 0.95 which proves that the model shows good progress. The RMSEA value of 0.000 with PCLOSE = 1.000 demonstrates that the model presents a highly accurate and detailed representation of the data. The model achieves a proper balance between fit and simplicity because its parsimony indices PNFI and PCFI exceed the minimum acceptable level. The Hoelter critical N values demonstrate that researchers obtained sufficient sample size to conduct structural equation modeling analysis.

- **H1: Digital inclusion has a significant positive effect on the financial wellbeing of gig workers.**

Table 8: Regression Weights

	Estimate	S.E.	C.R.	P
F_W <--- D_I	.492	.057	8.657	***
DI6 <--- D_I	1.000			
DI5 <--- D_I	.899	.066	13.685	***
DI4 <--- D_I	.921	.065	14.117	***
DI3 <--- D_I	.969	.067	14.390	***
DI2 <--- D_I	.977	.070	13.908	***
DI1 <--- D_I	.859	.068	12.583	***
FW1 <--- F_W	1.000			
FW2 <--- F_W	1.121	.093	12.119	***
FW3 <--- F_W	1.042	.089	11.727	***
FW4 <--- F_W	.962	.085	11.376	***
FW5 <--- F_W	.940	.081	11.654	***
FW6 <--- F_W	1.112	.089	12.437	***

Table 8 shows that the researchers used structural equation modeling to study how Digital Inclusion impacts the financial well-being of gig workers because they wanted to find out how Digital Inclusion affects their financial well-being. The regression results provide strong empirical support for the proposed hypothesis. The path coefficient from Digital Inclusion (D_I) to Financial Wellbeing (F_W) is positive and statistically significant ($\beta = 0.492$, S.E. = 0.057, C.R. = 8.657, $p < 0.001$). The critical ratio substantial exceeds the recommended threshold of 196 which demonstrates that digital inclusion has a strong effect on financial wellbeing. The research demonstrates that greater access to digital platforms which people use creates better financial results for workers who engage in gig work therefore validating Hypothesis H1. The measurement model further demonstrates strong indicator reliability for both latent constructs. All observed indicators of Digital Inclusion (DI1–DI6) show high factor loadings which reach statistical significance with values between 0.859 and 0.977 ($p < 0.001$). Electronic devices to access digital content The results show that all indicators successfully measure the digital inclusion concept. The Financial Wellbeing indicators (FW1–FW6) show strong standardized loadings which range from 0.940 to 1.121 and reach statistical significance at the 0.001 level. The loadings exhibit a considerable value which proves the financial wellbeing construct holds both internal consistency and convergent validity. The results from regression analysis demonstrate that digital inclusion functions as the main factor which helps gig workers achieve better financial wellbeing. The system enables users to access digital labor platforms and financial services and opportunities to generate income.

- To analyze the influence of digital inclusion on the development of digital skills among gig workers.

Table 9: Model Fit Indices of the Structural Equation Model (AMOS)

Fit Index	Recommended Threshold	Obtained Value	Model Fit
χ^2 (Chi-square)	Non-significant desirable	66.420	—
Degrees of Freedom (df)	—	53	—
χ^2/df (CMIN/DF)	< 3.00	1.253	Excellent
Probability (p-value)	0.05 desirable	0.102	Acceptable
GFI (Goodness-of-Fit Index)	≥ 0.90	0.965	Excellent
AGFI (Adjusted GFI)	≥ 0.90	0.949	Excellent
RMR (Root Mean Residual)	≤ 0.08	0.012	Good
NFI (Normed Fit Index)	≥ 0.90	0.964	Excellent
IFI (Incremental Fit Index)	≥ 0.90	0.993	Excellent
TLI (Tucker–Lewis Index)	≥ 0.90	0.991	Excellent
CFI (Comparative Fit Index)	≥ 0.90	0.993	Excellent
RMSEA	≤ 0.08 (≤ 0.05 ideal)	0.029	Excellent
RMSEA PCLOSE	0.05	0.957	Excellent
PNFI	≥ 0.50	0.774	Acceptable
PCFI	≥ 0.50	0.797	Acceptable
Hoelter (0.05)	≥ 200	320	Adequate
Hoelter (0.01)	≥ 200	360	Adequate

The above table 9 and figure 2 show goodness of fit indices in general show that the given model of measurement fits the observed data incredibly well. The empirical covariance matrix does not differ significantly with the model-implied covariance matrix based on the chi-square test whose value is not significant ($\chi^2 = 66.420$, $p = 0.102$). The 1.253 value of the χ^2/df ratio is not greater than the 3.0 level and means that the model is not only simple but also correctly designed (Kline, 2016).

Absolute fit indices including the Goodness-of-Fit Index (GFI = 0.965) and Adjusted Goodness-of-Fit Index (AGFI = 0.949) are over 0.90, which is the recommended cutoff of the Goodness-of-Fit Index. The Root Mean Residual (RMR = 0.012) is quite low compared to the acceptable value, which also indicates a good fit between the offered model and the data.

There are also strong evidences of model adequacy in incremental fit indices. All three (NFI 0.964, IFI 0.993, TLI 0.991, CFI 0.993) are greater than the recommended value of 0.90, which means that the proposed model is significantly better than the null (independence) model. The RMSEA of 0.029 along with the PCLOSE of 0.957 indicates that there is a good fit of the model according to the best practice standards of structural equation modelling (Hu & Bentler, 1999).

The parsimony-adjusted indices (PNFI = 0.774; PCFI = 0.797) have achieved acceptable standards which demonstrate that the model maintains an effective balance between goodness of fit and model simplicity. The Hoelter critical N values prove that the sample size includes enough data to estimate model parameters with trustworthy accuracy. The measurement model shows statistical strength which supports its use in testing hypotheses and analyzing structural models.

- **H2: Digital inclusion has a significant positive effect on the digital skills of gig workers.**

Table 10: Regression Weights

	Estimate	S.E.	C.R.	P
D_S <--- D_I	.668	.064	10.453	***
DI6 <--- D_I	1.000			
DI5 <--- D_I	.907	.067	13.568	***
DI4 <--- D_I	.928	.066	13.981	***
DI3 <--- D_I	.984	.068	14.371	***
DI2 <--- D_I	.994	.071	13.930	***
DI1 <--- D_I	.873	.069	12.582	***
DS1 <--- D_S	1.000			
DS2 <--- D_S	.987	.080	12.327	***
DS3 <--- D_S	1.034	.084	12.373	***
DS4 <--- D_S	.889	.078	11.404	***
DS5 <--- D_S	.954	.080	11.882	***
DS6 <--- D_S	1.012	.083	12.176	***

Table 10 shows that the researchers used structural equation modeling analysis to study how Digital Inclusion affects Digital Skills development for gig workers. The regression analysis results offer robust evidence which supports the proposed relationship between two variables. The direct connection between Digital Inclusion (D_I) and Digital Skills (D_S) shows positive results with a statistical significance level of ($\beta = 0.668$, S.E. = 0.064, C.R. = 10.453, $p < 0.001$). The critical ratio shows a value which surpasses the cutoff point of ± 1.96 to demonstrate a strong and important impact. The findings demonstrate that gig workers develop their digital skills through increased digital inclusion access to digital infrastructure and platforms and online resources. The measurement model establishes strong indicator reliability for both measurement constructs. The Digital Inclusion indicators (DI1–DI6) show high factor loadings which reach statistical significance at the 0.001 level and range from 0.873 to 0.994, thus proving that these variables accurately measure the underlying digital inclusion construct. The Digital Skills indicators (DS1–DS6) show strong standardized loadings which range from 0.889 to 1.034 and all results reached 0.001 significance, thus confirming high internal consistency and convergent validity for the digital skills construct.

The research establishes that digital inclusion functions as an essential element which empowers gig workers to develop their required digital competencies for using different digital tools and platforms. The digital resources enable people to participate in the gig economy while they gain new skills and become more adaptable to work in environments that use digital technology. The structural path exhibits strong strength together with high importance because it proves the theoretical basis which states that digital inclusion functions as a vital factor for developing digital skills.

- To investigate the mediating role of digital skills in the relationship between digital inclusion and financial wellbeing of gig workers.

Table 11: Model Fit Indices of the Structural Equation Model (AMOS)

Fit Index	Recommended Threshold	Obtained Value	Model Fit
χ^2 (Chi-square)	Non-significant desirable	130.894	—
Degrees of Freedom (df)	—	133	—
χ^2/df (CMIN/DF)	< 3.00	0.984	Excellent
Probability (p-value)	0.05 desirable	0.535	Excellent
GFI (Goodness-of-Fit Index)	≥ 0.90	0.953	Excellent
AGFI (Adjusted GFI)	≥ 0.90	0.940	Excellent
RMR (Root Mean Residual)	≤ 0.08	0.012	Good
NFI (Normed Fit Index)	≥ 0.90	0.954	Excellent
IFI (Incremental Fit Index)	≥ 0.90	1.001	Excellent
TLI (Tucker–Lewis Index)	≥ 0.90	1.001	Excellent
CFI (Comparative Fit Index)	≥ 0.90	1.000	Excellent
RMSEA	≤ 0.08 (≤ 0.05 ideal)	0.000	Excellent
RMSEA PCLOSE	0.05	1.000	Excellent
PNFI	≥ 0.50	0.829	Acceptable
PCFI	≥ 0.50	0.869	Acceptable
Hoelter (0.05)	≥ 200	368	Adequate
Hoelter (0.01)	≥ 200	398	Adequate

Figure 3 and Table 11 show that the goodness-of-fit statistics in general show that the given model fits the observed data excellently. The chi-square value does not have any significant number ($\chi^2 = 130.894$, $p = 0.535$) indicating that there is no significant difference between the covariance matrix of the sample and the covariance matrix forecasted by the model. The 0.984, χ^2/df ratio indicates that this is much lower than the acceptable value of 3.0 that indicates that the model is able to provide both high explanatory power and accurate specification (Kline, 2016).

The absolute fit measures (GFI 0.953 and AGFI 0.940) are above the recommended cutoff value; this indicates that there is a strong overall adequacy of the model. The value of RMR 0.012 is less than the acceptable limit that assists in developing a close fit between the proposed model and the observed data.

The model is robust in terms of incremental fit indices. The NFI (0.954) and IFI (1.001) and TLI (1.001) and CFI (1.000) are higher than the necessary minimum of 0.90 indicating that the proposed model is better performing than the independence model. The values of RMSEA and PCLOSE are 0.000 and 1.000 respectively, indicating that the model is close to the data and it adheres to the principles of structural equation modeling (Hu and Bentler, 1999).

The indices of parsimony and adjusted fit (PNFI = 0.829; PCFI = 0.869) indicate that the model has set the right equilibrium between its power to describe results and the requirement of straightforward modeling. The Hoelter critical N values are used to ensure that the sample size is acceptable since it is greater than 200 that can be relied on to estimate model parameters. The model proposed demonstrates statistical validity that makes it be able to facilitate hypothesis testing and structural analysis.

- **H3:** Digital skills positively influence the financial wellbeing of gig workers significantly.
- **H4:** Digital skills mediate the association between digital inclusion and financial wellbeing of gig workers significantly.

Table 12: Regression Weights

	Estimate	S.E.	C.R.	P
D_S <--- D_I	.674	.064	10.606	***
F_W <--- D_S	.683	.069	9.826	***
DI6 <--- D_I	1.000			
DI5 <--- D_I	.907	.067	13.591	***
DI4 <--- D_I	.929	.066	14.009	***
DI3 <--- D_I	.984	.068	14.389	***
DI2 <--- D_I	.993	.071	13.927	***
DI1 <--- D_I	.872	.069	12.588	***
DS1 <--- D_S	1.000			
DS2 <--- D_S	.999	.080	12.520	***
DS3 <--- D_S	1.033	.083	12.398	***
DS4 <--- D_S	.897	.078	11.540	***
DS5 <--- D_S	.947	.080	11.812	***
DS6 <--- D_S	1.012	.083	12.212	***
FW1 <--- F_W	1.000			
FW2 <--- F_W	1.123	.091	12.276	***
FW3 <--- F_W	1.039	.088	11.827	***
FW4 <--- F_W	.968	.084	11.566	***
FW5 <--- F_W	.937	.080	11.739	***
FW6 <--- F_W	1.097	.088	12.421	***

Table 12 shows that the researchers used structural modeling to evaluate how digital skills function as an intermediary between digital inclusion and financial wellbeing of gig workers. The regression results provide strong empirical support for both the direct and indirect relationships proposed in the study. The first finding shows that digital inclusion creates a strong positive impact on digital skills development ($\beta = 0.674$, C.R. = 10.606, $p < 0.001$). The research shows that greater digital infrastructure access together with platform access and digital resource access leads to better digital skills development for gig workers. The relationship maintains high stability because of strong critical ratio values together with low standard error values which indicate that digital inclusion functions as the fundamental basis for developing workers' digital abilities. Digital skills create a strong positive impact on financial wellbeing ($\beta = 0.683$, C.R. = 9.826, $p < 0.001$). The results support Hypothesis H3 which states that gig workers who possess advanced digital skills have better capacity to find work opportunities and handle digital financial tools and achieve greater economic stability. The standardized coefficient size demonstrates a major impact which shows that digital skills serve as a key factor that determines financial wellbeing in platform-based work environments.

The results demonstrate that they support the scientific explanation which Hypothesis H4 proposed as its mediating mechanism. The research shows that digital inclusion improves financial wellbeing through its impact on digital skills which it develops. The relationship between digital inclusion and digital skills and the link between digital skills and financial wellbeing both show positive results which reach statistical significance, thus, digital skills function as an

essential mediator that connects these two variables. The finding supports mediation logic of structural equation modeling, which shows that when indirect paths exist between two variables, this allows exogenous factors to reach outcome variables by way of a mediator (Baron & Kenny, 1986; Hair et al., 2019).

The measurement model further supports these conclusions, as all observed indicators load significantly on their respective latent constructs ($p < 0.001$), confirming the reliability and validity of the constructs used. The research demonstrates that digital inclusion does not lead to financial wellbeing improvement because digital skills must be developed through digital inclusion to achieve this outcome. The digital skills function as the main factor which helps to explain how digital access affects the economic results of gig workers.

Discussion

The study results establish strong evidence which confirms the anticipated connections between digital inclusion and digital skills and financial wellbeing for gig workers. The research results show that digital inclusion positively impacts both digital skills and financial wellbeing. The researchers found that digital skills functioned as a mediator which links digital inclusion with financial wellbeing because they serve as essential elements that transform access into economic benefits. The positive relationship between digital inclusion and digital skills suggests that access to digital infrastructure, platforms, and resources enables gig workers to develop competencies necessary for navigating the digital economy. The finding supports the common view that people require both access to digital technology and skills to use it effectively (van Dijk, 2020). Digital skills become essential in the gig economy because workers need them to obtain work, interact with customers, and handle online business operations. The important connection between financial wellbeing and digital skills demonstrates that workers who learn new skills will become more effective in their work and better at handling money. Gig workers who possess advanced digital skills can secure superior job prospects while establishing multiple income streams and decreasing their income fluctuations. The finding supports the assertion that digital skills serve as a fundamental factor which determines whether workers can access employment opportunities in remote work digital markets.

The study demonstrates a mediation effect which reveals how digital inclusion connects to financial wellbeing through its operational mechanism. Digital inclusion enables better financial results but its benefits multiply when people develop digital skills to use their skills effectively. The statement shows that organizations need to provide people with digital resources but the outcome will depend on their ability to use those resources properly. Previous research found that developing skills helps people overcome the digital divide which leads to better social and economic results (van Deursen & van Dijk, 2014). The study demonstrates that digital inclusion together with digital skills development affects financial wellbeing for workers in the gig economy according to existing research about the digital economy. The research demonstrates that organizations need to create capacity-building programs which will help people participate in economic activities while organizations need to create access programs.

Conclusion

The research study investigated how digital inclusion and digital skills interact with each other to affect the financial wellbeing of gig workers while using digital skills as a mediating factor. The results establish that digital inclusion results in higher digital skills which lead to better financial wellbeing outcomes. The research discovered that digital skills functioned as an important mediating factor because they operate as the main pathway through which digital inclusion leads to better financial results. The research results show that digital inclusion fails to deliver financial benefits because people need essential skills to operate digital technologies correctly. Digital competencies have become necessary for success in the gig economy because digital platforms now control access to work opportunities. The research study shows how digital inclusion and skill development work together to create a complete framework for gig workers to achieve better financial outcomes. The study presents both theoretical and practical findings which demonstrate that capability development is necessary for digital era inclusive growth.

Practical Implications

Findings from the study suggest that there are indeed several implications that can influence the practice of the gig economy especially from the viewpoint of the bureaucracies involved in policy interventions, setting the platform, and various intermediaries in the gig economy.

1. Policy-Level Implications

Governments require digital infrastructure expansion to proceed with their current mission which includes establishing digital skill training programs. Digital literacy training programs together with vocational education and skill development workshops enable gig workers to successfully operate digital platforms while boosting their income opportunities.

2. Platform-Based Implications

Digital platforms (e.g., ride-sharing, freelancing, and delivery services) should invest in training and onboarding programs that enhance workers' digital competencies. The delivery of tutorials together with skill development modules and user-friendly interfaces will enable workers to achieve better performance results while experiencing higher job satisfaction.

3. Financial Inclusion Strategies

Financial institutions and fintech companies need to create digital financial tools which all users can access together with training programs that demonstrate how to use these tools. The implementation of this solution will help gig workers to enhance their income management skills together with their savings capabilities and their financial planning abilities, which will lead to better financial results.

4. Skill Development Institutions

Educational institutions and training centers should create digital skill development programs which match the requirements of gig economy workers. The program covers platform navigation skills together with digital communication abilities and online marketing expertise and financial management competencies.

5. Bridging the Digital Divide

Efforts to reduce inequality should focus not only on access but also on capability enhancement, which enables marginalized groups to acquire the skills necessary for their effective participation in the digital economy.

Declarations

Ethics Declaration

Not applicable.

Consent to Participate

Informed consent was obtained from all participants prior to their participation in the study. Respondents were informed about the objectives of the research, the voluntary nature of participation, the confidentiality of their responses, and their right to withdraw from the study at any stage without any consequences. Only participants who provided consent were included in the survey.

Consent for Publication

Not applicable.

Competing Interests

The author declares no competing interests.

Funding Declaration

The Research did not receive any funding.

Author Contribution

Vibhuti Gupta did introduction part, Anurag Sinha did the Review of Literature, Dr Shekhar did Methodology and Data analysis, Aseel Smerat did finding, conclusion, and future implementation part.

Data Availability

The datasets generated and analyzed during the current study are not publicly available due to participant confidentiality and privacy considerations but are available from the corresponding author on reasonable request.

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Figures

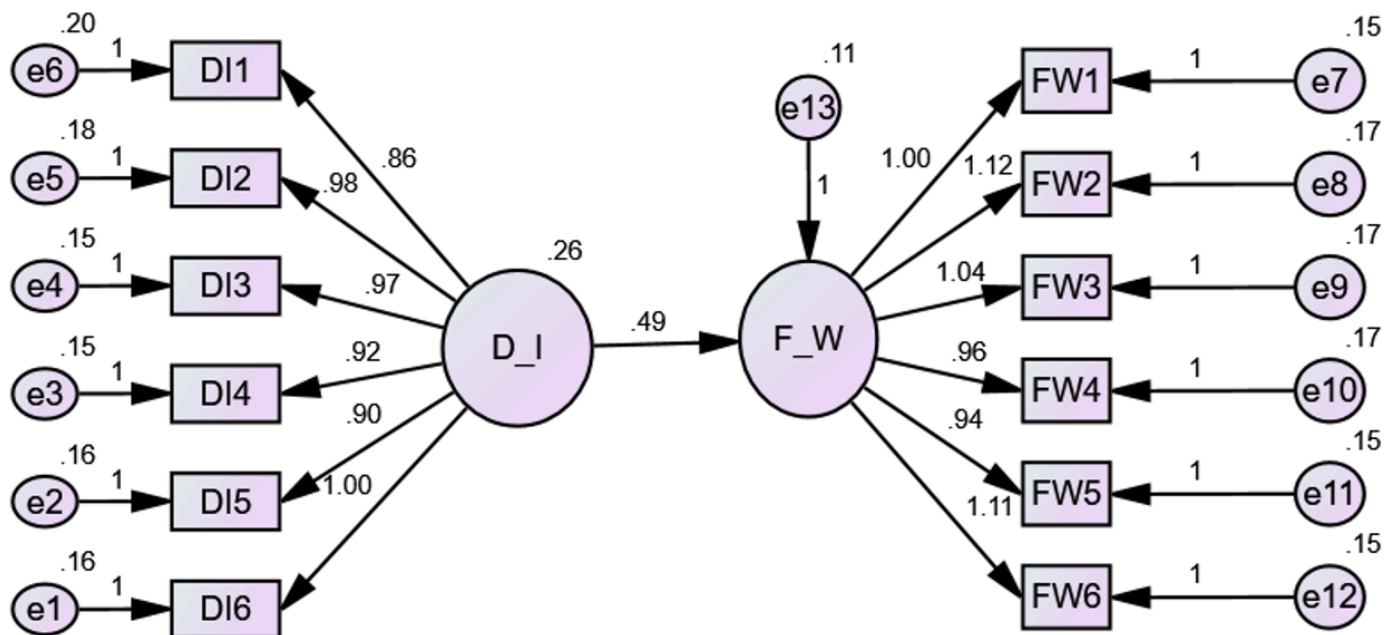


Figure 1

Path model of between Digital Inclusion and financial wellbeing

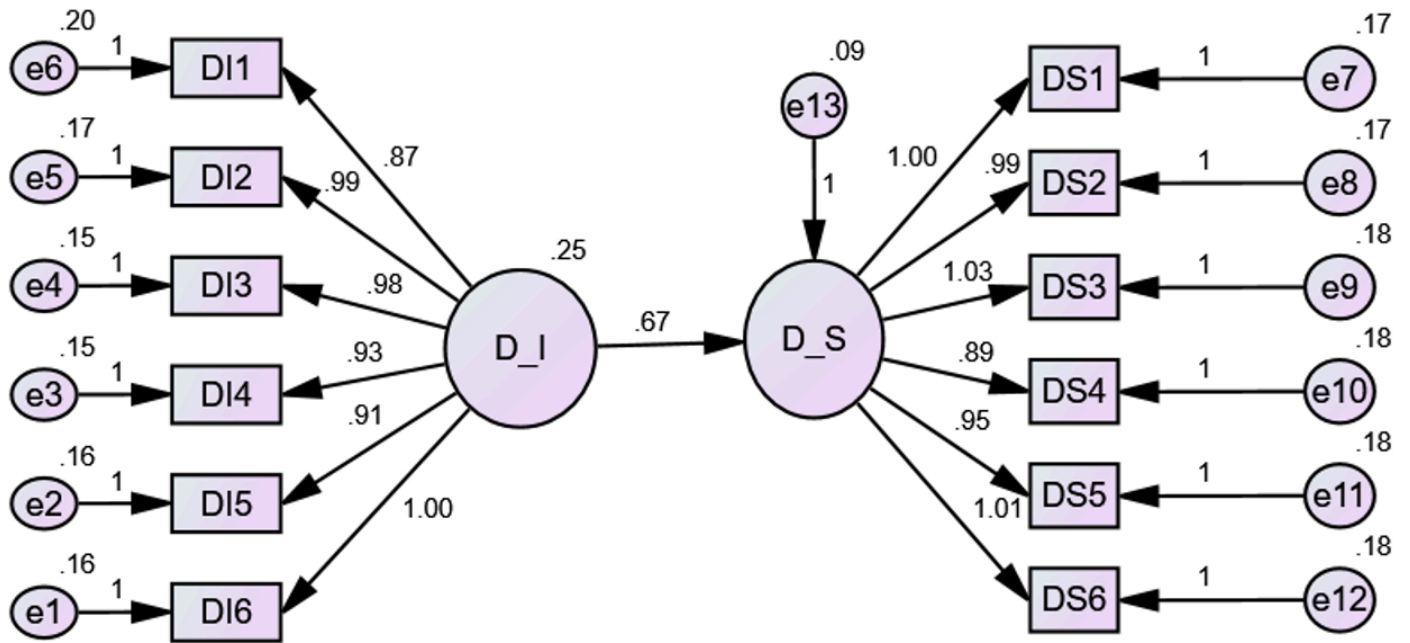


Figure 2

Path model of between Digital Inclusion and digital skills

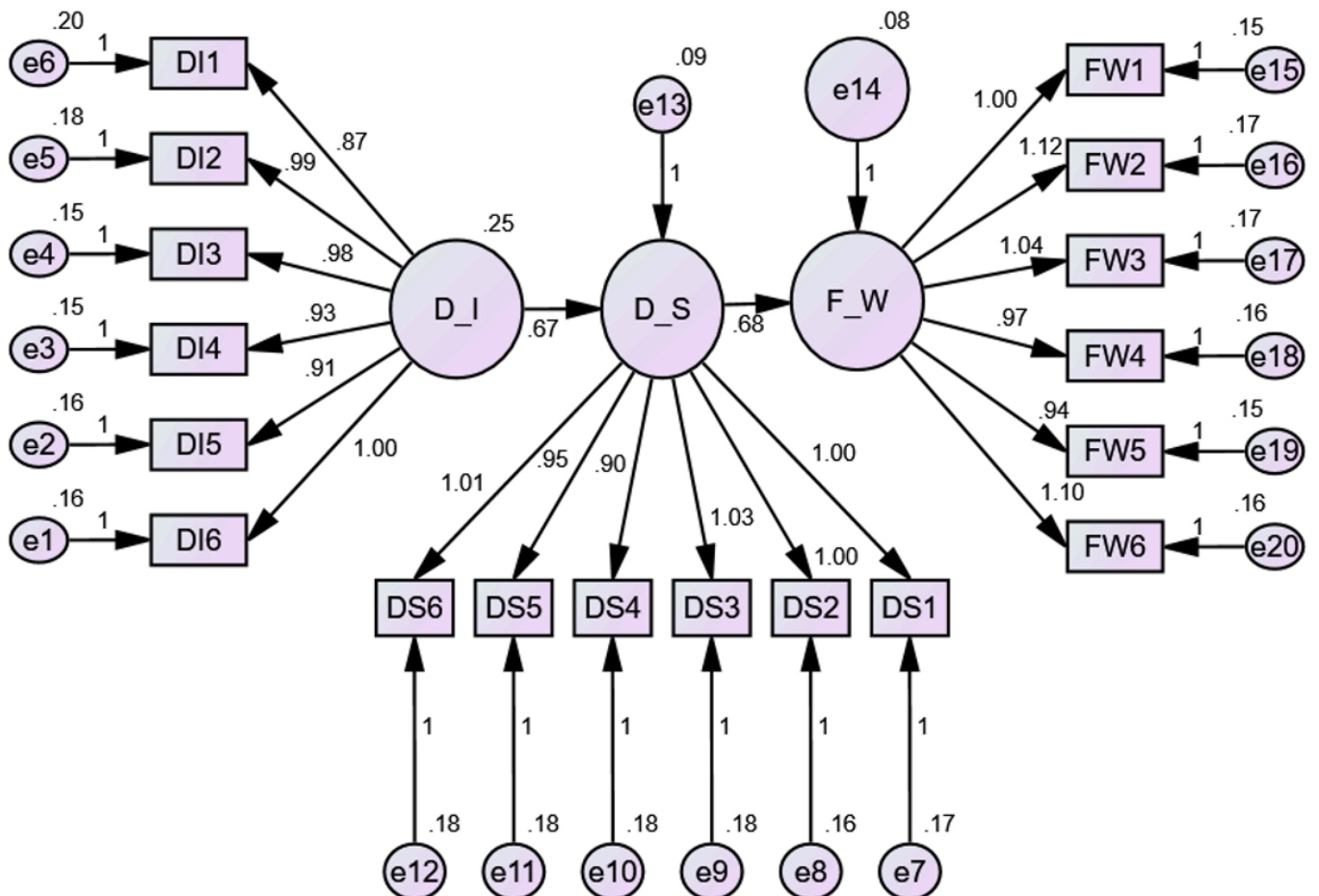


Figure 3

Path model of mediating role of digital skills in the relationship between digital inclusion and financial wellbeing

