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EXPLORING THE CONTRIBUTION OF NON-FORMAL VOCATIONAL EDUCATION TO HUMAN CAPITAL FORMATION IN PAKISTAN

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Abstract:
Nine heavily populated developing nations, collectively known as the E-9 (Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria, and Pakistan), grapple with formidable challenges in the realm of primary education. These nations are confronted with the complex task of aligning educational goals with the diverse needs of their populations while ensuring the delivery of high-quality vocational education. A significant portion of their combined 771 million adult citizens lacks fundamental skills essential for informed decision-making, representing a critical developmental deficit. The imperative of enhancing literacy levels in the E-9 nations stands at the forefront of the global agenda, necessitating comprehensive educational initiatives designed to elevate literacy standards and the overall quality of education. This is a shared responsibility that calls for the active engagement of governments and donor agencies worldwide. Within this context, Pakistan emerges as a unique challenge due to its burgeoning population, ranking as the world's sixth most populous nation with approximately 184 million people, a significant proportion of whom live below the poverty line. The mounting demographic pressure places additional strain on the nation's natural and financial resources, amplifying the urgency of addressing functional literacy within Pakistan.

Keywords: E-9 Countries, Primary Education, Literacy Enhancement, Developing Nations, Educational Challenges

Introduction

More than half of the world's population lives in nine highly populated developing countries (E-9: Bangladesh, Brazil, China, Egypt, India, Indonesia, Mexico, Nigeria, and Pakistan). All of these countries face tremendous challenges when trying to provide consistent and comprehensive primary education. The majority of these countries struggle with obtaining educational targets that meet the needs of the populations they serve while ensuring quality vocational education. Nearly 70% of the world's 771 million adults living in these nine countries and as citizens receive a limited education that results in a lack of the basic skills that facilitate strategic decision making. Hence, increasing literacy is a developmental imperative for all E-9 governments and donor agencies. Providing comprehensive educational efforts designed to enhance literacy building efforts that significantly improve the quality of the education of these highly populated countries is central to global involvement and success (UNESCO, 2006). Although the challenge to increase literacy remains for all nine countries, improving functional literacy presents a significant challenge in Pakistan. Pakistan's latest estimated population figure of 184 million people (NIPS, 2014) makes it the sixth most populated country in the world; whereas, unfortunately more than half of its population is living below the poverty line. In addition, as the population continues to increase serious pressure is being placed on the natural and financial resources of the country in the future.

Therefore, enhancing functional literacy that enhances the skills to Pakistani citizens is fundamental to meeting the growing need for human-capital formation which in turn can propel the economic and social development of the country. In order to meet the Millennium Development Goals (MDGs) Pakistan faces many challenges. These

challenges include increasing poverty levels for its citizens as well as numerous health, security and general welfare concerns. In order to address these challenges, a new developmental paradigm is needed that will set the stage with regard to economic growth while helping to protect life opportunities for current as well as future generations (UNDP Human Development Reports). One way to increase the capability of human capital is to help educate the population and increase literacy which in turn will help contribute, construct and maintain social order and progress (Ololube et al., 2008).

The Educational Environment

Education is a process by which individuals develop their abilities, attitudes, and skills which are of a positive value to the society where they live (Egbezor & Okanezi, 2008). Purposeful education enables an individual to understand and deal with real life situations with full confidence. It provides a strong base for nation-building characters (Rena, 2008). Several authors have identified the crucial role of human capital for economic growth and development (Cannon, 2000; Barro, 1998; Aghion & Howitt, 1998). Increasing education is an accepted way to improve the social order while enhancing creativity and human development (Islam & Mia, 2007). According to the Organization for Economic Cooperation and Development (OECD) there are three types of learning practice namely: formal, informal, and non-formal education. Formal learning is the knowledge that is learned through a recognized educational institution. It is intentional, and has clearly defined expectancies and learning objectives along with formal classroom experiences that measure educational competencies. As an institutional activity formal learning is hierarchically structured, uniform, subject oriented and generally leads to some type of formalized educational certification.

Informal learning is considered the opposite of formal learning, as it has minimal structure and objectives are subject dependent and not easily measured. Informal education relies heavily on the individual incorporating his or her own daily experiences. The context for informal learning extends beyond the traditional confines of the formal institution that incorporates day-to-day experiences including lessons learned from exposure to the environment at home, work or through leisure activities. Non-formal learning often referred to as non-formal education (NFE) is a mutually responsive form of learning and education that requires the students' participation but may also use some aspects of formal learning such as a structured program that allows flexibility similar to what is experienced in non-formal learning. Non-formal learning is based on mobilizing local community resources and taking into account how an individual learns and benefits directly in the surrounding environment. It enriches human and environment as a potential. In this article vocational education is categorized as an education that is obtained from a combination of both education and occupational skill provided via a certain non-formal learning setting. To obtain a better understanding of the distinction between formal education and NFE see Table 1.

Table 1 Distinction between Formal and Non-formal Education

Differences	Formal Education	Non-formal Education
Purpose	- Long-term and general - Certified	- Short-term and specific - Certificate not necessarily the main purpose
Timing	- Long cycle/preparatory/full-time	- Short cycle/recurrent/part-time
Content	- Standardized/input centered - Academic - Entry requirements determine clientele	- Individualized/output centered - Practical - Clientele determine the entry requirements
Delivery system	-Institution-based, isolated from environment -Rigidly structured, teacher-centered and resource intensive	-Environment-based and embedded in the community -Flexible, learner-centered and resource efficient
Control	External/hierarchical	-Self-governing/democratic

Source: Simkins (1977)

Non-formal education (NFE) refers to the structured education that takes place outside of an organized school system. Typically, non-formal education refers educational efforts that stress functional literacy and is acquired through skill enhancing programs. This would include any organized and sustained educational activity which does not necessarily correspond to the expectations outlined in formal education. Non-formal education can therefore, transpire both within and outside formal educational settings covering programs that impart adult literacy, basic education and work/employment related skill building. Furthermore, measuring successful completion can vary based on the program type or skills learned. Grading and progress indicators can vary and programs may or may not lead to formal certification of learning achievements (Hernes, Aguilar, Appadu, et al., 2010).

The functionality of NFE rests in the simple facet that all educational efforts take place out of the formal schooling system in a flexible learning environment. This type of education comes to the locality and can address adult literacy by keeping individuals as active and contributing members of the work environment. In this type of educational setting the trained educators and instructors empower nontraditional students raising their confidence while increasing vocational expertise and skill. Since NFE is not a traditional form of learning it may be difficult to measure skill acquisition and accomplishments (Hernes et al., 2010).

When NFE focuses primarily on vocational training the term non-formal vocational education (NFVE) is often utilized. Vocational learning emphasizes the importance of gainful employment and stresses the development of work-related knowledge and skills to enable the non-traditional students to grow and improve their vocational abilities in a changing and competitive labor market. Oftentimes the participants in such programs are housewives, vendors, and poor and disadvantaged individuals who could never attend a formal school due to other obligations.

NFVE programs can also be used as an experimental site for assisting with the teaching of new technologies thereby also meeting the training needs making these individuals qualified as workers in the industrial and/or other commercial enterprises. As this type of education gains in popularity it enriches the student as well as the local in which he or she lives. The NFE and NFVE can open doors to helping people to gain the skills needed for life-long employment thereby embracing the concepts of life-long training and life-long learning (ILO, 1999; Sargent, 2001; World Bank, 2003). Apart from that, the non-formal education (NFE) as an alternative is in place to provide educational and skilldevelopment opportunities for individuals who have either dropped out or never joined any formal schooling system. A network of community based non-formal schools is established all over the country including in the Punjab province.

NFE efforts consist of an assortment of organized and semi-organized activities operating outside the routine of the formal system offering a variety of venues to accelerate functional literacy for humancapital formation and productivity. However, there is no measurement about the quality and achievements of this non-formal education, and how it benefits the literacy of those that complete this skill enhancing activities. As the population continues to grow so do the educational needs and expectations in highly populated countries. Formal systems of education are stressed to provide the demand for services needed. One way to address poverty is through education and scarce resources have made alternatives such as non-formal education when compared to formal education even more popular. Pakistan is the second largest country in South Asia, where approximately 61% of the total population lives in rural settings. The literacy rate of Pakistan is nearly 54 % (i.e. 65.25% for men and 41.75% for women). Whereas, the rural literacy rates (44% overall, 58% for men, and 29% for women) indicate the alarming situation in rural areas. Low levels of literacy especially in rural areas is believed to be the result of a lack of commitment to ensuring accessibility to formal education and non-consistent policies for requiring and providing education in these areas.

To improve education targets, the formal education system in Pakistan needs long-term reforms designed to reduce drop-out rates while also increasing access to a quality education.

In Pakistan, according to the 18th amendment provinces are now responsible for making policies and strategies to improve the quality of NFE. The responsibility rests primarily with government at the district levels with the expectation that they implement and monitor all NFE activity fostering functional literacy and skill development

maximizing human capital at a grassroots level. The Government of Punjab (2014) claims enormous strides have been made using NFT in various sectors thereby helping to increase literacy. One of the key strides claimed by the government is the implementation of "Punjab Accelerated Functional Literacy Project."

Through this effort vocational training is a compulsory part of NFE which facilitates strategies that foster self-employment opportunities. Apart from claims such as this, overall the complex occupational and market service structures do not seem ready to embrace individuals who have developed their skills through NFE practices. The same program that seems to benefit individuals related to NFE practices is in place in the district Layyah. A number of individuals both males and females were vocationally trained to take an active role in helping to reduce poverty, and foster economic growth, and social development (see UNESCO, 2005). However, outcomes information on the success of this program is limited and the emphasis on a needs assessment would be beneficial. Critically examining and reassessing the quality of the NFVE can provide information that fills the gaps in policy and practice, ensuring lasting change and improvement for in human capital. This study therefore, examines the quality of NFVE (i.e. the output) and achievements of those participants who learned from the NFVE (i.e. the outcome) to gauge the level of a real human capital formation supporting the hypothesis that quality of non-formal vocational education and human capital formation have a positive association.

Theoretical Foundations Supporting NFE

Functionalism

Functionalism is a pioneer theoretical base in sociology and other related fields including education. According to Hurn (1985) functionalism mainly focuses on the application of scientific methodology to the objective social world, and the use of reality (analogy) between the individual as an organism and society.

Functionalists believe that society is broken into parts, all of which must come together to make an integrated whole Sociologists often view society as a body whose various organs may function in different ways but all parts work together to keep the whole body healthy. In similar manner government, media, religion, family, and education are the institutions (organs) that function in their own domains but work together to keep and run society harmoniously. Education being an essential component of a system tends to help maintain a steady state in any given society.

A steady state happens when a certain ratio among various components of a system are maintained with the continuous input. It develops a self-regulatory system to regain normal characteristics (see Whawo, 1993). Durkheim (1956) by valuing education as a means for building morals and skills argued that developing a "sense of belonging to a larger society" must be the main objective of both formal and non-formal education regardless of the setting in which it transpires. The function of a school is to socialize individuals while implementing broader values of society and perform a specific role in given social structure (Parsons, 1959). It provides a sufficient foundation for this subject that non-formal (vocational) education has equally a vital role in creating a just society and 'good citizenship'. As, it enhances functional literacy and skills of out-of-school adults, that are vital for human capital development (Government of Punjab, 2014).

Social Practice Theory

The social practice approach towards literacy and numeracy supports this research with regard to significance and official recognition, as it stresses a combination of learning that takes place in varied contexts. The social practices approach to literacy is also identified as the New Literacy Studies (NLS). It visualizes literacy as the social practices of persons involved in public affairs and stresses recognition of the power relationships that exist in varied social contexts (Prinsloo & Breier, 1996; Baynham & Prinsloo, 2001). The proponents of this approach view literacy practices as connecting people in different spheres creating an enabling environment that is flexible to context-specific circumstances (Prinsloo, 2005). The theory informs that learners start learning on the basis of what they know, what they practice doing and what makes sense to them as functional in their daily lives once this connection is made they move forward to embrace broader social, cultural and development issues (Prinsloo & Breier, 1996). This approach relies heavily on the importance on the immediate application of the skills acquired, and how they can be applied.

This approach supports the importance of NFE settings and immediate relevance, whereas formal settings focus more on specific knowledge as opposed to learning in context and direct application. The theory, however, does not promote an idea of a single school model of literacy and uniform skills. Rather, it conceptualizes non-formal education settings as multiple literacy engagements where one receives practical empowerment by integrating learning from diverse sources (Barton, 1994). In these situations daily application becomes central to showing its relevance and helping to ingrain the information shared with direct functional application in the social environment.

Capability Approach

According to the Sen's capability approach "basic education and literacy is an important entitlement for all people and a determinant of well-being necessary for continued human growth and development (Maddox, 2008). Capability refers to a combination of various functionings that someone can achieve. Functioning in this context illustrates what a person is capable of doing and how it enhances his/her basic communication skills such as reading and writing. Having these skills allows the learner to take part in multiple community activities and prepares him or her to share more freely and concisely what he or she knows with confidence (Sen, 1999).

The capability approach recognizes enhancing literacy as a critical means to human capability improvement, as it considers the lack illiteracy a form of "human deprivation" (Maddox, 2008). Literacy skills have an important role in social relations between people where emphasis is on the application of skills designed to not only benefit the individual but also those around them. Sen (1999) argued that literacy helps individuals in their social relations expand their capabilities and apply direct practice application to the skills that are learned making capacity theory and social practice theory central to NFE as opposed to formal education. Individuals learn differently and these theories of learning can help to provide the basis for maximizing learning stressing the format that is most conducive for change. It encourages people to learn in a way that is easy and suitable for acquiring essential engagement skills and activities for sustainable livelihoods with certification of these skills irrespective of how they have been achieved.

Policy Relevance

Pakistan in 2002 established the department of literacy to address the educational needs of more than 31 million illiterate individuals. It provides non-formal education to 5-14 year old students. The department has launched its major project: Punjab Accelerated Functional Literacy in province of Punjab including the district Layyah. This effort is designed to provide non-formal education (NFE) to children, youth and prisoners in the area. This department recently has shifted its approach form supporting the development of adult literacy to functional literacy based on the information learned from various sources and supported by the theories outline above. It visions the province as "Literate, Learning & Prosperous Punjab.

In its mission the department is committed to provide high quality learning opportunities through nonformal means to all people that are considered illiterate and no longer participating in any type of formal education by 2020 (Government of Punjab, 2014). The main features of the program are to: Target age groups above the age of 14; provide the services for a course of 6 months; and, assist the learner to gain basic literacy skills and be able to communicate these activities "become skillful" in a specific trade. The - initiatives of the Literacy & NFBE Department is to work on the following projects:

- Punjab Accelerated Functional Literacy Project
- Campaign for Enhancement of Literacy in four model districts
- Punjab Literacy and Livelihood Program
- Community Learning Centers Project
- Capacity Building of the department

The Government of Punjab has also launched the Punjab Accelerated Functional Literacy Project in the district Layyah. The project is being implemented and will work closely with the Punjab Vocational Training Council (PVTC), the health department, and other civil society organizations. The main objective of this project is to provide high

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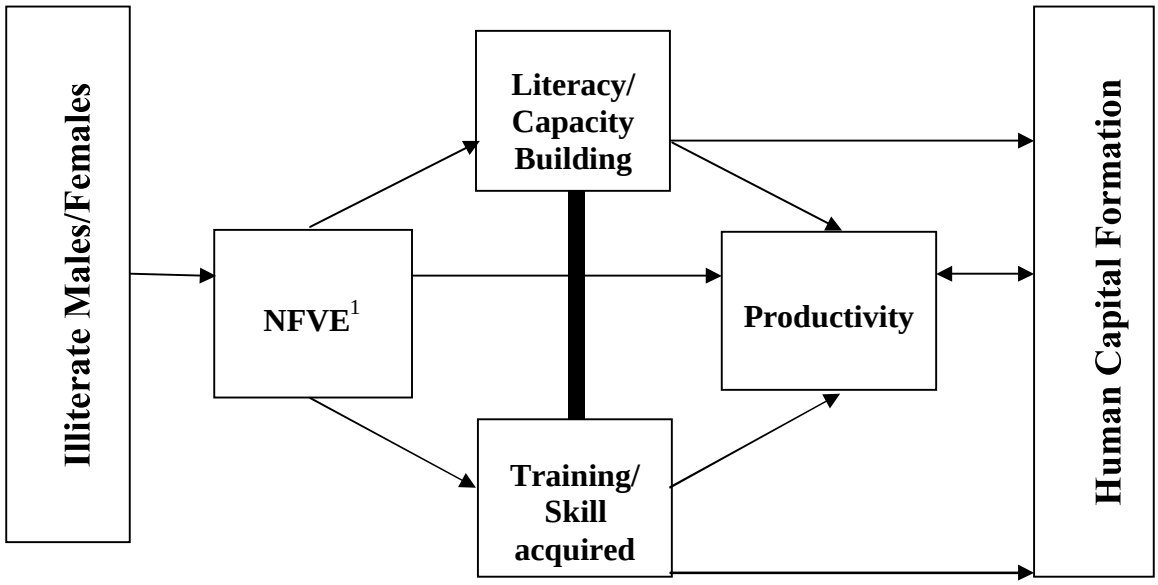
quality non-formal vocational education (NFVE) to develop skills to enhance human capital formation. For this purpose, four literacy-cum-skill centers were established in four vocational training institutes (VTIs) of PVTC in the district where a total of 120 illiterates consisting of both males and females, have been trained in trades such as dress making, embroidery, and electrical work.

Conceptual Framework

To better understand the role and importance of NFVE the conceptual framework supports the implementation of non-formal vocational education (NFVE) and its role in human capital formation. Physical facilities that allow direct application and the use of educational technologies in the teaching learning environment play a key role in quality and effectiveness of the education that is provided. Illiterate adults, both males and females, are the main stakeholders in the NFE process. Hence, their opinion on quality components, learning achievements, and productivity of the skills acquired can predict the role of NFVE in human capital development. These variables all need to be taken into account for assessing the quality of NFVE, and its role in human-capital formation. (See Figure 1, listed
in text below).

Figure 1



Conceptual Framework

1. Non-formal Vocational Education (NFVE)

In conceptualization, this study sees functionalism and non-formal education, following Sen's capability approach as one formulation where literacy-cum-skill acquired through NFVE plays a significant role in productivity and human-capital formation. Not applying this model properly could result in the failure of the program denying non-traditional learners the opportunity to develop the capabilities allowing them to be more competitive in the overall economy.

Methodology

This exploratory study examines the basic questions that can demonstrate success and seeks to answer the how and why questions that can help explain causation (Yin, 1984; Willing, 2001). Likewise, in broader sense this study

attempts to investigate in what ways the NFVE can assist to convert illiterate individuals into more productive human capital.

Study Area and Selection Criteria

Punjab province was the main focus of this study where the population was high according to the last census of 1998, of which approximately 61% were living in rural areas. This study aimed to assess the NFVE provision, particularly in remote rural settings, that was designed to help convert persons considered illiterate (both males and females) into more productive human capital. Hence, this poorly developed rural area in the district Layyah located in the southern Punjab was purposely selected. In this district a variety of non-formal education services have been provided to educate and increase literacy among illiterate individuals. Likewise, non-formal basic education (NFBE) schools targeted learners from ages 5-16; and recruited from community learning centers (CLC) to help empower women age 16 and older; and, the literacy-cum-skill centers (established at VTIs: Vocational Training Institutes) were contacted for recruitment volunteers to help increase functional literacy and skill development. All of these efforts were designed to bring a comprehensive approach to addressing the problem and foster connections within the community.

To better understand the program's goals and objectives, a number of stakeholders associated with the policy implementation and delivery of non-formal educational services were invited to share their opinions. In addition, to give voice to the participants using the services individuals who learned in the literacy-cum-skill centers were included in the research process to also get their opinions on the services they were provided. The details related to those invited are listed below.

Key Informants and Administrators of Literacy-cum-Skill Centers Literacy-cum-Skill Centres are established at four Vocational Training Institues (VTIs) and the locations of these centres established to cover the four corners of the district are as follows:

i) Vocational Training Institute, Layyah; ii) Vocational Training Institute, Kot Sultan; iii) Vocational Training Institute, Chowk Azam; iv) Vocational Training Institute, Fateh Pur

Principals of the four above-mentioned institutes were included in this study to seek their opinion on the subject matter. District officer (DO) being district head of the Literacy Department at district Layyah was included as a key informant to get insight on various provisions for illiterate individuals in literacy policies, and strategies to deliver non-formal education services at grassroots levels.

Respondents

According to the secondary data provided by the Literacy Department, Layyah, a total 120 males and females classified as illiterate participated in services provided by the four centers (i.e.30 illiterate individuals from each center). With the fraction 0.5 of the Total 120 individuals, 60 individuals were selected with males (n=30) and females (n=30) represented from all four areas. Details related to the sample are provided in Table 2.

Table 2 Individuals who benefited from Literacy-cum-Skill Centres

	Sample distribution					
	Male		**Female**		**Total**	
Literacy cum Skill Centre	**(f)**	**(%)**	**(f)**	**(%)**	**(f)**	**(%)**

VTI, Layyah (for males only)	15	(50)		(-)	15	(50)
VTI, Kot Sultan (for males only)	15	(50)	15	(-)	15	(50)
VTI, Chowk Azam (for females only)	-	(-)	15	(50)	15	(50)
VTI, Fateh Pur (for females only)	-	(-)		(50)	15	(50)
Total	**30**	(100)	**30**	(100)	**60**	(100)

Source: Literacy Department of District Layyah

In examining the gender ratio distribution it becomes clear that respondents from the Literacy-cum-Skill Centre's are separated with specific services designed for males and females. As can be seen from Table 2, out of the four centers two of them are designed to educate and train males while the other two are designed to educate and train only females. In this study, it was decided to complete equal representation of males and females and the quota control (0.5) used ensures an equal distribution and helps to support the unbiasedness property of sample (Chaudhry & Kamal, 2009). In addition, owing to equal proportion of males and females the gender-wise effect size (Eta squared) of the sample is equal to zero which is less than the value 0.01 (Cohen, 1988). This distribution of gender will help to show the differences based on gender in the final analysis and any resulting gender differences. In addition, to ensure the maximum possible representation of the sample universe, it was also taken into account during the selection of sample that more than one respondents living in the same locality would not be the part of the sample selected.

Data Sources and Procedures

The data were derived from both the primary and secondary sources to obtain reliable results for further interpretation and generalization. For secondary data in addition to the policy documents, several governmental and non-governmental sources were used for information. Some important sources are as follows:

- Literacy & Non-Formal Basic Education Department, Government of Punjab, Lahore;
- Federal Bureau of Statistics (FBS);
- District government Offices i.e. Literacy, education, and social welfare etc.;

The primary data source from the participants consisted of a semi-structured interview-guide containing closed-ended as well as open-ended questions. To locate the requisite respondents, snowball sampling was used with the help of the administrators of the literacy-cum-skill centers who had the record of the respondents. It was made clear to the stakeholders that this study was only for academic purposes with no specific benefits for the program or the recipients.

Data Analysis

The collected data was processed through SPSS, and MS-Office software for tabulation, and further analysis. Despite descriptive statistics, indexing technique was used to quantify responses.

Indexes are known as efficient data-reduction tools as they help to summarize several indicators in a single numerical value (Babbie, 2010). Therefore, indexing with composite means (with a value between 0 and 1) was adopted to quantify variables selected for assessing quality of NFVE and its level converting learners into human capital. To further examine satisfaction with the services provided a quality assessment was conducted using the opinions of the users on various aspects of the services. The services were noted to be outputs, and the expected results based on delivery of those services were defined as the outcomes.

After a careful review of literature, following dimensions as outputs and outcomes to rate perception on quality of non-formal vocational education and its role in human capital formation were chosen and measured by using a five-point scale from "very good" (1) to "very poor" (5). The dimensions and variables selected are as follows:

Assessment of quality

(a) Physical facilities (output)

1. Availability of books
2. Availability of class room
3. Availability of furniture
4. Workshop rooms built for vocational training

(b) Audiovisual aids/educational technologies (output)

5. Availability and use of white board, charts and pictorials
6. Availability and use of audio/video aids, computer and internet
7. Use/access to the available machines, equipment and tools for a vocational training 8. Counseling and career guidance

(c) Teaching learning environment (output)

9. Language of course (easy)/quality of content
10. Friendly behavior of teachers/instructors
11. Teaching method
12. Individual learning
13. Regularity of students
14. Punctuality of teachers
15. Checking of home work
16. during course evaluation
17. after course evaluation
18. Regular supervision of NFVE

For assessment of learners' achievements

(d) Ability (outcome)

19. Reading skill
20. Writing skill
21. Numeracy skill
22. Cognition

(e) Building capacity (outcome)

23. Raise overall skill confidence
24. Feeling of independence
25. Adaptability enhancement
26. Participation in community activities

(f) Productivity (outcome)

27. Potential of the training to join work force at local/national level
28. Potential of the training to join work force abroad
29. Relevancy of training to the current job/work if working
30. Knowledge gained through this training is market oriented
31. Significance of the skill acquired to cope with day-to-day advancement in technologies 32. NFVE programs are income generating

Besides using indexing, to test significance and association t-test and Pearson Correlation Coefficient (r) were also employed accordingly. In addition, thematic technique was adopted for analysis of statements where appropriate.

Results

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The proposed indexing techniques to assess quality of NFVE and human capital formation are: composites of a simple mean of overall quantified values (between 0 and 1) of the selected three dimensions for each as outputs and outcomes respectively i.e. assessment for quality of NFVE: Quality = 1/3 [physical facilities + A.V. Aids/Edu. technologies + Teaching learning environment]; while, for human capital formation = 1/3 [Ability + building capacity + productivity] of learners.

Table 3 Physical Facilities (output)

Features (rating)	*Individuals who learnt from NFVE*					
	Male		**Female**		Statistical results (t-test)	
	f	**WAI**	**f**	**WAI**	t-value	ρ (value)
1. Availability of books	30	0.43	30	0.61	-4.718	0.000**
2. Availability of class room	30	0.48	30	0.61	-3.112	0.003**
3. Availability of furniture	30	0.35	30	0.57	-5.733	0.000**
4. workshop rooms built for vo. training	30	0.42	30	0.44	-.506	0.615
5. Availability of machines, equipment & tools necessary for vacation training	30	0.37	30	0.52	-5.139	0.000**
Overall (1 to 5)	-	**0.41**	-	**0.55**	-	-

WAI = weighted average index; **ρ < 0.01
Scale: (1) very good (2) good (3) average (4) poor (5) very poor;
Score: (1) = 1.00-0.81, (2) = 0.80-0.61, (3) = 0.60-0.41, (4) = 0.40- 0.21, (5) = 0.20-0.01

The results in Table 3 show the respondents' satisfaction on the availability of physical facilities. There is a significant difference in responses on four out of five features of physical facilities among male and female respondents. The overall values of WAIs for both males and females i.e. 0.41 and 0.55 respectively indicate that the learners' satisfaction level on physical facilities was on average.

Table 4 Availability/use of A.V. Aids/Educational Technologies (output)

Features (rating)	Individuals who learnt from NFVE					
	Male f	**WAI**	**Female f**	**WAI**	Statistical results (t-test) t-value	ρ (value)
1. Availability and use of black board ,charts and pictorials	30	0.28	30	0.44	-4.323	0.000**
2. Availability and use of audio/video aids, computer & internet 3. Use/access to the available machines, equipment/tools for a vocational training	30	0.14	30	0.18	-1.154	0.253
	30	0.22	30	0.36	-4.186	0 .000**
4. Counseling and career guidance	30	0.39	30	0.55	-2.956	0 .005**

Overall (1 to 4)	**0.25**	**0.38**	-

WAI = weighted average index; **ρ < 0.01
Scale: (1) very good (2) good (3) average (4) poor (5) very poor;
Score: (1) = 1.00-0.81, (2) = 0.80-0.61, (3) = 0.60-0.41, (4) = 0.40- 0.21, (5) = 0.20-0.01

The results in Table 4 show that the respondents' satisfaction on the availability of audiovisual (A.V.) aids/education technologies. Three out of four features are showed significant results among male and female respondents. The overall values of indexes i.e. 0.25 for male and 0.38 for female respondents (significantly) indicate that the satisfaction level of both the male and female learners on the availability/use of A.V. aids/technologies was poor. This finding will most likely decrease the overall quality/effectiveness of NFVE and its outcomes. For instance, the use and availability of audio/video aids, the computer and internet connections within the facility were readily accessible to learners during the learning process is central for skill development; thereby, making the services provided that facilitate learning to be more trade and market-oriented. Contributing to this, the results in Table 4 clearly indicate that the use and availability of such aids was very limited and this ranking of poor could inhibit the learning process of both the male and female learners.

Similarly, counseling and career guidance plays a key role in guiding individuals on how to best join the work force further ensuring their financial independence. Career guidance is written into the policy on literacy and providing this support is compulsory particularly for the NFVE component.

However, the results of this study show that counseling and career guidance for female learners and their counterpart males was rated as average to poor. The data gathered in this study and the questions asked of respondents related to whether counseling and career guidance was actually given priority was not clearly supported. This result is surprising as it is the expectation for NFVE to purposely use these factors to influence literacy among the participants allowing them to better integrate the skills learned into the global economy.

The teaching learning environment is central for making a difference for developing quality knowledge and skills of learners (Ololube, 2008). The results in Table 5 show the learners' opinion on the teachinglearning environment. There is significant difference on nine out of ten features rated by the male and female respondents. The overall values 0.38 for males and 0.58 for females (significantly) indicate that the level of female learners' satisfaction on the teaching-learning environment was average, whereas when compared to males the teaching learning environment of the literacy-cum-skill centers received an overall rating of poor.

It is evident from the results in Table 5 that, particularly the male learners were not satisfied with regard to the quality of course content, teaching method, individual learning. Results also indicated that homework activities given to the learners were also poor.

Table 5 Teaching Learning Environment (output)

			Individuals who learnt from NFVE
Feature	**Male**	**Female**	Statistical results (t-test)

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(rating)	**F**	**WAI**	**f**	**WAI**	t-value	*ρ (value)*
1. Language/quality of course	30	0.36	30	0.44	-2.408	*0.019**
2. Friendly behavior of teachers/ instructors	30	0.40	30	0.64	-7.699	*0.000***
3.Teaching method	30	0.36	30	0.63	-6.718	*0.000***
4.Individual learning	30	0.28	30	0.52	-6.427	*0.000***
5. Regularity of students	30	0.44	30	0.65	-4.563	*0.000***
6. Punctuality of teachers	30	0.48	30	0.65	-4.496	*0.000***
7. Checking of home work	30	0.38	30	0.40	-0.351	*0.727*
8. During course evaluation	30	0.35	30	0.61	-4.999	*0.000***
	30	0.34	30	0.64	-5.768	
10. Regular supervision	30	0.44	30	0.66	-4.372	*0.000***
Overall (1to10)	-	**0.38**	-	**0.58**	-	-

WAI = weighted average index; *ρ < 0.05; **ρ < 0.01
Scale: (1) very good (2) good (3) average (4) poor (5) very poor;
Score: (1) = 1.00-0.81, (2) = 0.80-0.61, (3) = 0.60-0.41, (4) = 0.40- 0.21, (5) = 0.20-0.01

Table 6 shows gender-wise and overall composite values of assessment of quality of the non-formal vocational education (NFVE). Despite the overall composite value i.e. 0.43 in Table 6 which reflects the quality of NFVE as on average, the gender-wise composite values quite understandably reveal that the quality of delivery of NFVE received an overall rating of poor for males as compared to the females. One reason for this may be that it can be argued that the trades introduced for females are more traditional where no high-tech applications were required in their training. Hence, their satisfaction level on quality of this program is slightly above i.e. on average than their counterpart males.

Table 6 Composite Quality Assessment of NFVE (output)

Overall Index values

Assessment Dimensions	**Male**	**Female**	**Overall**
Physical facilities (Table 3)	0.41	0.55	0.48
A.V. Aids/Educational Technologies (Table 4)	0.25	0.38	0.32
Teaching Learning Environment (Table 5)	0.38	0.58	0.48
Total (composite)	**0.35**	**0.51**	**0.43**

Assessment of human capital formation (outcomes)

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The results in Table 7 show the respondents' ability. There is no significant difference among various features for enhancing ability of both males and females who participated in the NFVE.

Table 7 Ability of Respondents (outcome)

Individuals who learnt from NFVE						
Features (rating)	**Male** test		**Female**)		Statistical results (t-	
	f	**WAI**	**f**	**WAI**	t-value	ρ (value)
1. Reading skill	30	0.42	30	0.39	0.642	0.523
2. Writing skill	30	0.44	30	0.36	1.613	0.112
3. Numeracy skill	30	0.46	30	0.38	1.552	0.126
4. Cognition	30	0.36	30	0.34	0.460	0.647
Overall (1 to 4)		**0.42**		**0.37**		

WAI = weighted average index;
Scale: (1) very good (2) good (3) average (4) poor (5) very poor;
Score: (1) = 1.00-0.81, (2) = 0.80-0.61, (3) = 0.60-0.41, (4) = 0.40- 0.21, (5) = 0.20-0.01

The overall values: 0.42 for males and 0.37 for females reveal that female learners' ability with respect to: reading, writing, numeracy, and cognition is lower (poor) than the male learners despite the fact they rated the quality of NFVE overall as average.

The results in Table 8 highlight the respondents' achievements with regard to building their capacity. The overall values 0.36 and 0.34 respectively for males and females also verify the observations at the time of interview that both males and females were not adaptable, and did not report confidence in taking part in the community activities necessary for independence. It may be argued here that, the NFVE contributed little with respect to various features for building capacity of the learners.

Table 8 Building Capacity (outcome)

Individuals who learnt from NFVE						
Features (rating)	**Ma** **le**		**Female** test)		Statistical results (t-	
	f	**WAI**	**f**	**WAI**	t-value	ρ (value)
1. Raise in confidence	30	0.41	30	0.38	0.722	0.473

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2. Feeling of independence	30	0.38	30	0.38	0 .000	1.000
3. Adaptability enhancement	30	0.34	30	0.38	-1.112	0.271
4. Participation in community activities	30	0.28	30	0.21	1.339	0.186
Overall (1 to 4)		**0.36**		**0.34**	-	

WAI = weighted average index;
Scale: (1) very good (2) good (3) average (4) poor (5) very poor;
Score: (1) = 1.00-0.81, (2) = 0.80-0.61, (3) = 0.60-0.41, (4) = 0.40- 0.21, (5) = 0.20-0.01

The results in Table 9 show the respondents' achievements with respect to productivity. There is a significant difference on two out of six features of productivity among the male and female respondents. The literacy policy claims that the non-formal vocational education not only helps to increase literacy for persons but also provides quality skills to individuals that help them to join the workforce and integrate into society. Therefore, literacy and vocational skill is considered the key to employability (Powell, 2012).

However, the overall productivity values i.e. 0.33 for males and 0.27 for females (see Table 9) reveal that the achievement in terms of employability for both the male and female learners was poor. Moreover, the results in Table 9 predict that the respondents were neither clear nor confident with identifying the skills acquired and whether in the future they will be able to use these skills in other venues within country or abroad.

Table 9 Productivity (outcome)

Features (rating)	Individuals who learnt from NFVE					
	Male		Female		Statistical results (t-test)	
	f	WAI	f	WAI	tvalue	ρ (value)
1. potential of the training to join workforce at local/national level	30	0.29	30	0.14	4.647	0 .000**
2. Potential of the training to join workforce abroad	30	0.24	30	0.12	3.803	0 .000**
3. Relevancy of training to the current Job/work if working	30	0.37	30	0.35	0.414	0 .681
4. knowledge gained through this training is market oriented	30	0.37	30	0.36	0 .272	0.787
5. significance of the skill acquired to cope						

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with day-to-day tech. advancements	30	0.35	30	0.31	1.339	0.220
6. NFVE is income generating						
Overall (1 to 6)	30	0.36	30		0.153	0.879
		0.33	0.35 0.27		-	

WAI = weighted average index; **ρ < 0.01
Scale: (1) very good (2) good (3) average (4) poor (5) very poor;
Score: (1) = 1.00-0.81, (2) = 0.80-0.61, (3) = 0.60-0.41, (4) = 0.40- 0.21, (5) = 0.20-0.01

To summarize, Table 10 shows the gender-wise and overall composite values to assess the level of human capital formation among males and females, and overall. Literacy and vocational skill together serve as a 'transition vehicles' to achieve economic and social independence (Nuehring & Sitlington, 2003). The study results reveal that practical empowerment of both the male and female learners who learnt from NFVE is at the poor level of human capital development. The composite outcomes both gender-wise and overall suspect that the quality of NFVE is not at par to realize the real human capital. However, beyond the above results, it was considered pertinent to capture the effect of quality on human capital formation with the (policy) belief that quality of non-formal vocational education and the human capital formation have a positive association.

Table 10 Composite Assessment of Human Capital Formation (outcome)

Overall Index values

Assessment Dimensions	**Male**	**Female**	**Overall**
Ability of respondents (Table 7)	0.42	0.37	0.40
Building capacity (Table 8)	0.36	0.34	0.35
Productivity (Table 9)	0.33	0.27	0.30
Total (composite)	**0.37**	**0.33**	**0.35**

But this relationship may not be linear if a threshold effect impinges on the prospects, as such some of the learners even having a NFVE skill may decide not to join workforce for one or the other reasons. Moreover, in case of females, a male-dominated environment in the traditional workplace may tend to restrict female learners from joining the workforce unless they have enough confidence to take the chance and work there. Despite these facts, there is a strong potential for a significant rise in human capital formation with the increase in the overall quality of NFVE. To determine relationship between quality NFVE (output) and human capital formation (outcome), Pearson correlation coefficient (r) was calculated among the overall output and the overall outcome. The formula for correlation coefficient and the values calculated for this formula are as follows:

$$r = N\sum XY - (\sum X)(\sum Y) / \sqrt{[N\sum X^2 - (\sum X)^2][N\sum Y^2 - (\sum Y)^2]}$$

Where;

N = Sample; = (60)

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$\sum X$ = Sum of X scores (overall output: Table 6); = (0.43) =

$\sum Y$ Sum of Y scores (overall outcome: Table 10); = (0.35)

$\sum XY$ = Sum of the product of the paired scores; = (0.46)

$\sum X^2$ = Sum of squared X scores (sq. overall output); = (0.57)

$\sum Y^2$ = Sum of sq. Y (sq. overall outcome) = (0.38)

The sign of Pearson correlation coefficient (r) indicates the nature of association between two parameters. A positive sign indicates that there is a direct association between X and Y, and a negative sign shows an inverse relationship. Whereas, the absolute value of r gives the strength of the association on a scale moving from 0 to 1. The value calculated here for r from the above given formula is 0.98. It justifies that there is a very strong and positive relationship between the quality of NFVE and human capital formation. Apart from the poor performance of the NFVE in this research, the bivariate analysis justifies the results in Table 6 and Table 10 in a way that when overall quality of a non-formal vocational education is average (i.e. 0.43) this results in the overall level of human capital formation as poor (i.e. 0.35).

Discussion

The study was conducted by conceptualizing the quality of non-formal vocational education (NFVE) as the output, and human capital formation as the outcome. The research hypothesis studied postulated that quality NFVE and human capital formation have a positive relationship. This positive relationship assumed that as one variable increases so does the other. To examine these variables the theory underlying the use of NFVE was examined. After using theory to better understand the concepts, the Human Development Index (HDI), was used as the indexing technique adopted to assess the quality of NFVE, and its direct relationship to human capital formation. In the first part of this study the quality of non-formal vocational education was assessed based on the responses of learners on three dimensions: physical facilities, availability/use of audiovisual aids/educational technologies, and teaching and learning environment. The detail of the variables selected for each dimension was given in previous section. After developing individual indexes of all dimensions a simple composite mean of all indexes was calculated to see a composite level of quality of NFVE with respect to gender and cumulative overall.

In the second part of this study, using a similar procedure, the level of human capital formation was assessed by selecting three dimensions: ability, building capacity, and productivity to determine the individual and overall achievements of male and female learners from the non-formal vocational education. At the end a bivariate analysis was carried out among quality and human capital formation being considered as output and outcome respectively to see their association.

Summary of Findings

Quality of non-formal vocational education

In the provision of physical facilities at learning-cum-skill centers respondents (males and females) were averagely satisfied. To measure what constituted availability the physical facility was assessed including access to books, furniture and classroom space as well as the condition of workshops and suitability for training along with the availability of machines, equipment and tools.

In looking directly at the audiovisual aids/educational technologies available through the learning centre all respondents (males and females) noted their satisfaction level as poor. Besides the use of traditional means the availability/use of audio/video aids, computer and internet, use/access to the machines, the equipment/tools available and counseling and career guidance during learning constituted this assessment dimension. Shortage or non-availability and inaccessibility to such necessary items or equipment in learning environment created a compromising situation for the success of this component of non-formal education which could reflect both the program and the overall policy implementation levels. With regard to teaching learning environment the female learners' satisfaction level was average while the males' satisfaction as poor. The reason for this could be the

difference in trades and services offered for males and females. As the trades selected to train females were traditional ones where no high-tech was involved in their learning or work activities.
Hence, since this type of equipment was not needed in the traditional roles they were to fill, females' satisfaction level on various features of teaching learning environment was slightly above the satisfaction level of the counterpart males. To see a cumulative picture, a simple composite mean of all individual indexes was calculated which had shown that the overall quality of non-formal vocational education was average in the study area of Human capital formation.
In the parameter of ability, the achievements with regard to reading, writing, numeracy skill, and cognition by male learners were assessed as average, and by female learners were assessed as poor. It was surprising that a few of the male learners had five to eight years of schooling prior to starting the program, in the learning at literacy-cum-skill centers while for the most part the females were totally illiterate. This factor could affect the reason for difference in the ability of the both groups.
With Regard to capacity building the achievements of both the male and female learners was rated as poor. It was also observed at the time of interview that both the males and females did not feel the skills they learned were adaptable, and had little to no confidence to take part in community activities with the aim of becoming independent. Hence, it can be argued that the NFVE was contributing very little in building the capacity of learners. In the assessment of productivity of the skills acquired both male and female respondents' achievements in terms of employability or self-employment was also measured as poor. Learners felt that the skills provided to them were very basic and not at par to fulfill the day-to-day demands of labor market and existing entrepreneurs. Since they felt the skills were sub-standard, they were not certain about the prospects and whether they would be able to get any placement in the country or abroad utilizing the skills they had learned.

Particularly after completing the course of sewing, the female learners felt that they had little if any opportunity to join workforce at either a local, national or international levels. They felt the primary skill learned would only allow them to stitch the clothes of their family members. Unfortunately, none of the respondents reported having any permanent job or work that resulted from participation. All individual indexes were summarized to compute a composite mean to present a holistic picture which predicted that practical empowerment of both the males and females who learnt from the NFVE was rated poorly on human capital development. Besides these findings a bivariate analysis of the composite results of this study has interestingly proved that there is a very strong and positive relationship between the quality of non-formal vocational education and human-capital formation, in general. Beyond these findings, from a thematic analysis of several statements of the respondents it was found that:

- A number of learners that participated in the programs were not from the disadvantaged and marginalized groups, which were against the policy, and it suspected that this resulted from a poor selection process at the implementation level.
- It was also evident from the personal profile recorded at the time of interview that prior to enrolling in the NFVE a few female learners had 5-8 years of schooling. Similarly, there were also a few males that had higher levels of formal education then expected for participating in the NFVE program which is against program recruitment standards as it negates the expectation of catering literacy-cum-skill needs only for illiterates.
- Most of the learners (both males and females) expressed interest in the program participation but limited interest in acquiring the NFVE skills and occupation. Therefore, it is quite possible that their main objective for seeking enrollment in the NFVE was financial benefit and to receive a stipend. Future programs need to look at incentives to make the program itself more marketable, rather than the benefits received from participation.

Conclusions

For evaluating the role of non-formal vocational education (NFVE), data presented in this study might not be convincing in numbers. However, it helps to outline the importance of the role of NFVE in human capital development. In theory, to implement NFVE effectively it requires a delicate balance between the dictated venture

and what is actually provided. The non-structured and functional components related to this type of learning constitute sincere challenges over formal learning where the environment is more controlled and predictable. NFVE requires a delicate balance of educational-cumskill building that matches the needs of vulnerable youth and results in tested efforts that yield human capital that self-perpetuates. From this perspective all participants can teach others to use the skills they have learned increasing overall functionality resulting in sustainment beyond the formal training provided. Despite negative images of the NFVE, the bivariate analysis here showed this method has great potential to contribute to human capital formation.

Apart from that, this study also points out the weaknesses that can occur in implementation of NFVE such as the lack of facilities for practicum, problems that can occur when there is no real connection between the content and market demands, and the importance of selecting the most influential target groups that can bring about current and future change. In addition, there needs to be several multidisciplinary aspects taken into account for quality and outcomes such as counseling and career advisement. Theoretically, it is postulated that NFVE can prepare a person to stand strong against the exploitation and become financially and socially independent (Nuehring & Sitlington, 2003).

However, according to these study results whether the NFVE contributes to outcomes that can extend beyond human capital is still questionable. Important milestones that the programs can accomplish include increasing participant skill and ability while building capacity and capability to extend beyond the traditional bounds of the program. However, the reality of NFVE here in Pakistan seems most heavy in the emphasis of one single outcome - economic independence through providing a traditional trade.

NFVE offers great potential for increasing human capital and building the functional independence of all that participate. The focus of NFV, however, should not be only on achieving literacy or simply providing someone a skill in some trade for economic gains. If applied comprehensively it can offer practical empowerment which can extend beyond this and help the individual to achieve the following aspects in policy and practice:

- Computer-related skill building
- Marketable skills competitive in the existing and future market
- Business skills to create linkages with market and entrepreneurs
- Decision-making skills to make informed financially innovative decisions
- Social skills to manage interactions with other professionals and achieve social support
- Awareness of the rights of all individuals in the society
- Developing self-esteem and assertiveness
- Enabling conditions conducive for learning and change strategy

Providing these types of services can enable individuals to experience the freedoms that cannot be influenced directly by education alone (see Sen, 2001).

Above all, there needs to be a removal of gender bias that exists in skill provision as the trainings provided for females in the traditional trades as this can force women to live at home in isolation rather than to become a more active part of the economy and participate in community change efforts (see UNESO, 2012). As a result, training and learning skills in traditional "female-typical" fields, even if non-intentional and by default, places females at a disadvantage when compared to their counterpart males.

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