Research

MEASURING ACCESS TO HIGHER EDUCATION: DEVELOPMENT AND VALIDATION OF SCALE

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Abstract

The present study is an endeavor to develop and validate Access to Higher Education Scale (AHES) by administering it in a stratified sample of 51 predominantly third years' bachelors program students enrolled in newly established distant campuses in rural areas of Sindh, Pakistan. Exploratory factor analysis was carried out to analyze the data. This revealed good reliability and validity of scale and identified a two factor model. The data were further used to undertake confirmatory factor analysis. Results confirmed the reliability and validity of the scale. This study also used three other scales i.e. Teachers Support, Self-perceived Employability and Psychological Wellbeing for the validity of AHES. Shorter versions of these scales were confirmed through their adequate reliability and validity. Scholars in education and human resource management field can further use these scales to measure students' outcome of graduate employability and psychological wellbeing.

Keywords: Access to Higher Education, Teachers' Support, Self-Perceived Employability, Psychological Well-Being, Exploratory Factor Analysis, Confirmatory factor analysis, Pakistan.

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Introduction

Higher Education has been traditionally under the pressure of challenges it faces to produce the skilled workforce to meet the challenges of the Twenty first century workforce. The role of higher education is manifold in all of nations. Human Capital is gaining more importance in economic development than physical capital. Though the developed countries pay more attention towards raising the quality of tertiary education yet in developing countries concerns are raised to increase access to higher education to produce High Quality Human Capital through high quality educational systems. The benefit of higher education is also seen contributing towards not only economic wellbeing but also towards social justice (Tomlinson, 2008).

Access to higher education lacks universal definition. A research done by the Centre for Legal Studies South Africa (Meny-Gibert, & Russell, 2009) categorized access to education in two dimensions. Basic access and enabling access. Basic access is just getting through the gates which is not sufficient if that access is not enabled and translated into reality through the mechanism of social support, enabling environment within and outside the school. Therefore, this study assumes that, access to higher education may be defined as "the ability of a person getting and retaining the admission to higher education institution well equipped with all necessary human and material resources which may enable the learner to translate this opportunity into getting education"

This enabling environment cannot be completed without strengthening the support mechanism. In environmental factors contributing towards students' academic and career achievements the role of the teachers is crucial and sometimes more important than the parents (Farmer, 1985). Metheny, McWhirter, and O'Neil (2008) operationalized the notion of Teachers' support as to how teachers take interest in the career development of students (invested), extent to which teachers take care of students during the class (emotional support), how much teachers inspire the students (expectations) and provide the support regarding the matters other than the campus (Informal Support).

University students always play the role of supply market of human resources (Soukalová, &Gottlichová, 2015). Therefore, access to Higher Education provides avenues for the employability. The role of Universities is said to be important in development of employability in graduates (Qenani, MacDougall, & Sexton, 2014). There is a need to study the perception of employability developed in minds of the students. Employability as the word suggests is the judgment of one's self keeping in view his /her skills, trends and willingness in comparison to the labor market trends and the perception that he will be able to attract and retain a job. It is also defined as the ability of an individual to acquire and maintain a desired employment (De Cuyper, Van der Heijden, & De Witte, 2011)

The role of higher education may not end at the employability. The ultimate goal of education may be the prosperity, happiness and wellbeing. Scholarship in this area has explored various determinants of wellbeing, education is one of them (Konu, Lintonen, & Autio, 2002).Ryff (1989) conceptualized the concept of Psychological Wellbeing and its proposed role in the development and self-actualization of a person. He proposed six dimensions of Psychological wellbeing which a person wishes to aspire.

For all the variables discussed above a scale for the Access to Higher Education did not exist. This paper has strived to develop a scale based on the literature review and dimensions suggested by the African study referred above. The scale of employability, teachers' Support, and Psychological wellbeing do exist and are developed by Rothwell, Herbert, and Rothwell (2008), Methenyet al., (2008) and Ryff (1989) respectively but these are not or rarely investigated in Pakistani perspective in general and with the combination of Access to Higher Education in particular.

This paper has developed a new scale of Access to Higher Education which is creating opportunities for the disadvantaged people to enter and succeed in higher education. Concept lacks empirical evidence though there is a wide discussion on the policy implications of access to higher education. This paper makes distinctive contributions towards the understanding and measurement of access. First, Access to Education is the subject of policy makers at macro level but due to the growing number of educational opportunities

and the scale of investment by public and private sector, it is necessary to develop a scale to empirically measure the impact of access on individuals' development and wellbeing, second, this paper in order to measure the scale has used three other distinct scales which also lack empirical evidences from Pakistani context, thirdly this paper will open new avenues for research in higher education system in order to not only remove disparities in access but to know the perceptions of people regarding the objectives of higher education.

This article intends to provide the development, validity and reliability of Access to Higher Education Scale (AHES) as an instrument to measure its impact upon students' success in future careers and their wellbeing. This study based on the research questions of whether two dimensions Access to Higher Education Scale (AHES) captures the sources of employability and wellbeing of students.

Model Development for Access to Higher Education

The concept of Access to Higher Education is twofold. First it refers to providing the youth entry to higher education institutions by either opening up new opportunities where they don't exist, or supporting the individuals through scholarships. This may be called as participation (Belyakov, Cremonini, Mfusi, & Rippner, 2009) or Basic Access (Meny-Gibert & Russell, 2009). The Second notion is access which contributes towards success (Belyakov et al., 2009) environmental factors which ensure and add meaning to the access, transform youth into skillful and meaningful persons. This is called Enabling Access (EA) (Meny-Gibert & Russell, 2009).

In order to capture the concept of Access to Higher Education (AHE) a model was developed which includes basic and enabling access dimensions of access and teachers support (TS) as environmental contributor. For measuring success as outcome of access to higher education two measures are included Self- perceived employability and psychological wellbeing. Next paragraph briefly describes the variables.

Teachers Support is how students perceive their teachers are helpful to them in academic achievements, career counseling,

problem solving in and outside the campus. Teachers are the part of campus environment which enhance students' achievement, engagement and development (Benard, 2003). Structural characteristics of campuses along with interpersonal relations with teachers are influential factors in adolescent achievement and psychological development (Kang, 2012). Metheny et al. (2008) developed Teachers Support Scale (TSS) which is used in this study.

Self-perceived Employability is students' self-awareness of their expectations of gaining employment with regards to skills and capabilities they possess, reputation of field of study and university they opted and overall condition of opportunities in labour market they aspire to join. Scholars observe the importance of universities regarding enhancement and development of employability in graduates (Qenaniet al., 2014) and their successful entry to labour market (Coetzee, 2014; Rothwell, Jewell, & Hardie, 2009).

Second outcome which is proposed to be measured is psychological wellbeing of students which is extent to which people feel good, contented, or satisfied with their lives. Ryff (1989) has contributed a lot in Eudaemonist wellbeing commonly called as Psychological Wellbeing PWB. He has divided PWB in six dimensions, how the person feels he / she is master of himself / herself, *Autonomy*, how the person feels he / she is master of things around him / her, *Environmental mastery*, How he / she is growing, *Personal growth*, what type of relations he / she enjoy with friends and relatives, *Positive relations with others*, what he / she aspires to achieve in future*, Purpose in life*, the degree to which he / she is satisfied with himself / herself, *Self-Acceptance*. This study will use scales prepared by Ryff (1989).

Methodology

Development of scale

As per review of literature and theoretical understanding and model development 24 item questionnaire based on two theoretical dimensions. The first dimension was basic access which has further two sub-dimensions. The second dimension was infrastructure. The content and face validity was checked by involving

four learned scholars belonging to different fields including Education, Business, Public Administration and English literature. Initial analysis resulted in exclusion of six items that were found to be not suitable as these were either less important or irrelevant and creating redundancy. In order to measure responses from participants five point Likert scale was used ranging from strongly disagree to strongly agree denoted by 1 and 5 respectively.

Population and sample

The population for this study was all the graduating students enrolled in Universities or Higher Education Institutions of Sindh, Pakistan. The sample was chosen from students enrolled in newly established campuses of University of Sindh Jamshoro. A careful selection of sample is necessary so that it may adequately represent the population from which it is drawn. In this study stratified sampling was used where equal number of students from two campuses was selected. Sample size of present study was students from Badin and Dadu Campus.

Statistics

SPPS and AMOS software were used to calculate the Cronbach's Alpha, reliability of instrument, factor loadings and KMO and Bartlett's test of sampling adequacy and sphericity.

Measures

For the Access to higher Education self-developed 18 item questionnaire was used to collect data. Next section will discuss the results of exploratory and confirmatory factor analysis.

For Teachers Support 20 item questionnaire having four factors developed Metheny et al.(2008) was used (Cronbach's Alpha, 0.97) Value of Cronbach's Alpha for this 20 item instrument was 0.96.

Self-perceived employability was measured using 16 item questionnaire developed by (Rothwell et al., 2008). He developed the instrument to measure perception of students regarding their future employment keeping in view the skills and competencies they possess,

position of their university and field of study in market and labour market conditions of favorability. Cronbach's Alpha for the scale as reported by Rothwell et al.(2008) was 0.75 with good discriminant and convergent validity.

Psychological Wellbeing was measured using 54 item instrument (9 items each for its six dimensions) developed by Ryff (1989). There are a varieties of versions available to measure psychological wellbeing. These versions vary from 120 items instrument to 18 items instrument. This study used medium level questionnaire because one purpose was to bring its short version more suitable for Pakistani environment.

Data was collected through paper pencil questionnaire format from Badin campus and link of online questionnaires was circulated to students of Dadu Campus. A total of 51 responses were collected from two campuses out of them 23 (45%) were females and 28 (55%) were males. 26 students (50.9%) were from Dadu Campus out of them females were 10 and students from Badin Campus were 25 out of them 13 were female. Most of the participants were enrolled in various Bachelors programs. Only 3 participants were students of Master classes. Out of 48 Bachelor Program students, 28 and 11 students were in their third and fourth year of University and thus the majority of the sample was well versed with policies, procedures and environment at campuses. It also shows that sample was free from first impression biases.

In the age wise composition of sample predominant group was age group 18 to 25 years which has 43 participants (84%) out of the 19 were females. Campuses provide variety of subjects keeping in view the local as well as national market demands. Composition of sample had major representation from students of Business administration (27 students: 52%) followed by information technology and computer science, 19 students (37%). English language and literature and Commerce had 4 and 1 students respectively.

Exploratory factor Analysis

18 item instrument developed by author was subject to exploratory factor analysis. Value of KMO a measure of adequacy of sample is 0.774. Bartlett's test is significant at p<0.001 (Chi square =

56.820; df= 105; p=0.000 results are shown in table 1). Table 2 shows the factor loadings. Value greater than 0.40 were retained for further analysis.

Table 1:

KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.774
Bartlett's Test of Sphericity	Approx. Chi-Square	556.820
	Df	105
	Sig.	.000

Table 2:

Factor Loadings of Independent Variable Access to Higher Education (N=51)

Serial	Item	Factor Loadings (λ)	Decision
1.	**Class**	0.765	Included
2.	Chairs	0.539	Included
3.	Ventilation	0.597	Included
4.	Multi	0.384	Excluded
5.	Internet	0.657	Included
6.	Library	0.596	Included
7.	Canteen	0.466	Excluded
8.	Play	0.577	Included
9.	Park	0.562	Included
10.	Transport	0.769	Included
11.	Parking	0.817	Included
12.	Sec	0.809	Included
13.	ATT3	0.698	Included
14.	ATT2	0.945	Included
15.	ATT1	0.885	Included
16.	EN3	0.961	Included
17.	EN2	0.464	Excluded
18.	EN1	0.902	Included

Total variance explained

Results and Scree plot reveals that total four factors are extracted which share total of 78% variance with each other

Confirmatory Factor Analysis

After exploratory factor analysis a confirmatory factors analysis. Using AMOS Software factor loadings for all variables were obtained. Items having Factor loadings less than 0.50 were excluded from the analysis. Except the item SA3 in psychological wellbeing having load factor 0.40 was retained in order to maintain at least three minimum items for each dimension. Table 3 shows standardized factor loadings for all variables.

Table 3:
Factor Loadings and Reliability (N=51)

	Item	Factor Loadings (λ)	Reliability (λ^2)	δ=1- Item Reliability
Access to Higher Education				
1.	**Class**	**0.765**	0.585225	0.414775
2.	**Chairs**	**0.539**	0.290521	0.709479
3.	**Ventilation**	**0.597**	0.356409	0.643591
4.	**Internet**	**0.657**	0.431649	0.568351
5.	**Library**	**0.596**	0.355216	0.644784
6.	**Play**	**0.577**	0.332929	0.667071
7.	**Park**	**0.562**	0.315844	0.684156
8.	**transport**	**0.769**	0.591361	0.408639
9.	**Parking**	**0.817**	0.667489	0.332511
10.	**Sec**	**0.809**	0.654481	0.345519
11.	**ATT3**	**0.698**	0.487204	0.512796
12.	**ATT2**	**0.945**	0.893025	0.106975
13.	**ATT1**	**0.885**	0.783225	0.216775
14.	**EN3**	**0.961**	0.923521	0.076479
15.	**EN1**	**0.902**	0.813604	0.186396
Teacher's Support				
Invested				
TS6	My teachers are helpful when I have questions about career issues	0.672	0.4516	0.5484
TS10	My teachers challenge me to think about my future goals	0.842	0.709	0.291
TS4	My teachers take the time to help me get better grades	0.731	0.5344	0.4656
TS18	My teachers support my goals for the future	0.859	0.7379	0.2621
TS12	My teachers help me understand my strengths	0.681	0.4638	0.5362
TS9	My teachers push me to succeed	0.809	0.6545	0.3455
TS7	My teachers are helpful when I have questions about school issues	0.642	0.4122	0.5878
Emotional Support				
TS14	My teachers enjoy having me in their classes	0.72	0.5184	0.4816
TS5	My teachers think I am a hard worker	0.706	0.4984	0.5016
TS11	My teachers believe I am smart	0.721	0.5198	0.4802
TS15	My teachers care about what happens to me	0.8	0.64	0.36
Expectations				
TS13		0.514	0.2642	0.7358
TS17	My teachers think I should continue my education after this degree	0.845	0.714	0.286

TS16	My teachers inspire me to study	0.802	0.6432	0.3568
Info Support				
TS19	My teachers will pay attention to me if I share any problem with them	0.766	0.5868	0.4132
TS20	My teachers are always available to discuss the things about the Campus	0.73	0.5329	0.4671
TS21	My teachers are always available to discuss the things other than the Campus	0.903	0.8154	0.1846
Self -Perceived Employability				
Emp1.a	Engagement with studies	0.637	0.40577	0.5942
Emp1.b	Academic Performance.	0.714	0.5098	0.4902
Emp2.a	University branding	0.581	0.33756	0.6624
Emp2.b	University Strength	0.666	0.44356	0.5564
Emp3.a.	Reputation of University regarding subject area	0.499	0.249	0.751
Emp3.b.	Reputation of University regarding field of study	0.649	0.4212	0.5788
Emp4.a.	Status of field of study	0.649	0.4212	0.5788
Emp4.b.	Credibility of field of study	0.73	0.5329	0.4671
Emp5.a.	Labour market perception with regard to field of study	0.515	0.26523	0.7348
Emp5.b.	Labour market perception with regard to degree	0.775	0.60063	0.3994
Emp6.a.	Perception of External labour market	0.612	0.37454	0.6255
Emp7.b.	Belief in skills and abilities	0.613	0.37577	0.6242
Emp8.a.	Self confidence	0.61	0.3721	0.6279
Emp8.b.	Relevancy of skills	0.605	0.36603	0.634
Psychological Wellbeing				
Autonomy				
AU1	Voice autonomy	.89	0.7921	0.2079
AU2	Decision autonomy	.792	0.62726	0.372736
AU4	Relationship autonomy	.795	0.63203	0.367975
Environmental Mastery				
EM4	Daily life mastery	.766	0.58676	0.413244
EM6	Personal finance mastery	.693	0.48025	0.519751
EM7	Time mastery	.7	0.49	0.51
Personal Growth				
PG2	Trying new ways. (rs)	.638	0.40704	0.592956
PG4	Improvement as a person (rs)	.593	0.35165	0.648351
PG9	Learning new things (rs)	.687	0.47197	0.528031
Positive relations				
PR5	Friends in need (rs)	.585	0.34223	0.657775
PR6	Friends in comparison to others (rs)	.65	0.4225	0.5775
PR9	Trust in friends.	.573	0.32833	0.671671
Purpose in life				
PL1	Thinking about the future. (rs)	.754	0.56852	0.431484
PL2	Focusing on the present (rs)	.686	0.4706	0.529404
PL3	Importance of daily activities (rs)	.732	0.53582	0.464176
Self-Acceptance				
SA2	Self confidence	.853	0.72761	0.272391
SA5	Sense of past mistakes	.401	0.1608	0.839199
SA9	Feeling good in comparison to friends	.617	0.38069	0.619311

Model fit indices

Values of model fit indices are summarized Table 4. Chi – square value of all variables are less than 3 and depicts the model is excellent fit. Values of Access to Higher Education, teachers support, self-perceived employability, and psychological wellbeing are 2.068, 2.751, 1.965, 1.461 respectively and show excellent fit on being less than 3. P value for all the variables is significant. Both the dependent variables show GFI value above .7 thus show the average fit. Again the value of CFI of Psychological wellbeing 0.833 is greatest of all variables. RMSEA value for the four variables show poor fit except the value of psychological wellbeing which is slightly less than 0.10. Results show that fit indices for Access to Higher Education Scale are reasonably acceptable at CFA 0.771. Chi Square obtained through AMOS was 2.068 (less than 3) shows excellent fit. Good fitness indices for whole model are shown in table 4.

Table 4:
Model fit indices (N=51)

Factors	Access to Higher Education	Teachers Support	Self-Perceived Employability	Psychological Well-being
CMIN	277.076	327.363	204.401	175.374
Df	134	119	104	120
Chi-square (CMIN/df)	2.068	2.751	1.965	1.461
p-value	.000	.000	.000	.001
GFI	.670	.581	.710	.754
AGFI	.578	.461	.621	.650
RMR	.151	.101	.142	.104
TLI	.738	.610	.669	.788
CFI	.771	.659	.713	.833
RMSEA	.146	.187	.139	.096

GFI (goodness of fit index), **AGFI** (adjusted goodness of fit index), **RMR** (root mean square residual), **TLI** (Tucker-Lewis coefficient Index), **CFI** (comparative fit index)

Convergent Validity

In order to measure shared variance in common among variables test of convergent validity was applied. Table 5 show the Average variance extracted and construct reliability. (Hair, Black, Babin, Anderson, & Tatham, 2006) is adequate. Analysis of table 5 reveals that AVE for AHES is 0.60 (>0.5), Teachers Support 0.57, and Psychological wellbeing 0.50. AVE is greater than 0.5 for all variables except Self – perceived employability which has AVE 0.40 (<0.5). Construct reliabilities for all variables greater than 0.7 thus show excellent reliability. Table also shows that Initially for the Access to Higher Education 18 items were theorized after the exploratory and confirmatory factor analysis, on the basis of standardized factor loadings 3 items were deleted and 15 items were retained. Whereas retained items for Teachers' support, Self-perceived employability and psychological wellbeing are 17, 14 and 18 for their initial instruments of 21, 16 and 54 items respectively.

Table 5:
Summary of AVE and CR

Construct	Results of Factor Loading		AVE	CR
	Total items	**After deletion**		
Teachers Support	20	17	.57	.96
Access to Higher Education	18	15	.60	.95
Self-Perceived Employability	16	14	.40	.90
Psychological Well-being	54	18	.50	.94
Total items	108	64		

Discriminant Validity

The discriminant validity shows the distinctiveness of latent variables from each other (Hair et al., 2006). It is measured by comparing value of values of AVE with the corresponding values of SIC (squared inter-construct correlation). AVE greater than SIC shows discriminant

validity. In the study AMOS 20.0 has been used to calculate the discriminant validity of full model.

Table 6
Diriminant and Nomological validity

Construct	AVE				IC	SIC	P
Psychological Wellbeing	**0.50**						
	0.40	PSWB	<-->	Emp	0.54	0.2916	0.028
	0.60	PSWB	<-->	Access	0.423	0.17893	0.038
	0.57	PSWB	<-->	TS	0.721	0.51984	0.076
Self-Perceived Employability	**0.40**						
	0.60	Emp	<-->	Access	0.263	0.06917	0.008
	0.57	Emp	<-->	TS	0.516	0.26626	0.03
Access to Higher Education	**0.60**						
	0.57	Access	<-->	TS	0.392	0.15366	0.113

Table 6 enlists values of SIC in comparison with values of AVE for each variable. Results show that value of AVE for all variables are greater than those of SIC of all variables thus show the discriminant validity.

Nomological Validity

Nomological validity is measured to investigate whether there is any natural link among indicators of construct (Hair et al., 2006). The values of inter-construct correlation estimates are taken into consideration while measuring nomological validity. Positive inter-construct estimates having significance value less than 0.05 are said to be indicator of nomological validity.

Analysis of table 6 reveals that all inter-construct correlations are positive and significant except Access to Higher Education and teachers support. Overall model shows good nomological validity.

Discussions

The results shown here reveal ample empirical evidence of validity, reliability and accuracy of 2 factor model theorized for Access to higher education. Evidence also support our notion that Access to Higher Education Scale can be used to measure student's outcomes. Cronbach's Alpha obtained for the construct is 0.837 greater than 0.7 shows adequate reliability (Nunnally, 1978)

Figure 1

Discriminant Validity

Discriminant Validity : Full Model
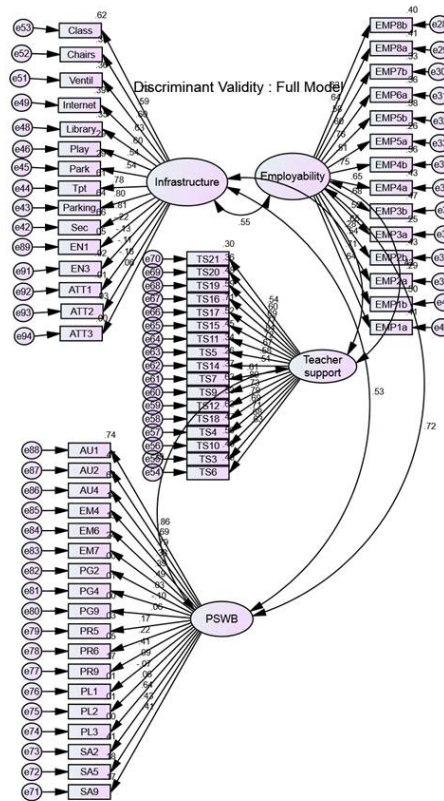
For the Teachers' Support Scale (TSS) same four factor model was retained with 17 items. Cronbach alpha and construct reliability was 0.936. It is near to the reliability obtained by its 21 item version measured by (Metheny et al., 2008), Results support the usefulness of this measure in Pakistani context.

For the scale of Psychological wellbeing very interesting results are obtained. Through a careful analysis of factor loadings, a new 18 items instrument has been extracted which slightly differs from its available instrument. However same six dimensions are further proved to be relevant and useful for measuring psychological wellbeing in Asian and Pakistani context.

Conclusion

This study provided a new set of knowledge regarding measurement of Access to Higher Education. It is hoped that this exploration will stimulate new avenues for research in the field of higher education. This study provides empirical evidence regarding validity and reliability of two-dimension instrument which encompasses basic Access and enabling access. This is the first known endeavor to operationalize and develop an instrument for empirical investigation of Access to Higher Education.

Besides development of new scale of Access to Higher Education this study strived to refine three additional instruments available in scholarship not considerably studied and validated in Pakistani sample before this. This endeavor will also hope to ignite application of these instruments in Higher education context in Pakistan.

Limitations, Recommendations and Future Directions

This study was limited to relatively small sample of two distant campuses of one University. Though these campuses vary in cultural values but share same organizational and leadership practices. Therefore, interpretation of these results should be made with caution of generalizability. This study was cross sectional in design therefore causal relation between constructs is difficult to examine. Longitudinal study involving multiple samples at different points of time is recommended to validate the results of study and further investigate the AHES in educational environment of various cultures. This study investigated Teachers Support as a separate construct, further efforts may be made to investigate teachers, friends and parents support as dimension of enabling access to further enhance the scale and improve its concurrent validity.

Despite the limitations this effort to chart out a scale for the measurement of very important aspect of economic social justice is a tool which may be used to measure its impact upon graduate aspirations regarding employability and wellbeing. Education being an important source of positive externality may create wellbeing in the masses not directly benefitted. Therefore, future research may explore the impact of Access to Higher Education on the Wellbeing of society as a whole.

Note:

The views presented in the paper are the authors' personal and do not reflect the views of the affiliated institutions.

References

Belyakov, A., Cremonini, L., Mfusi, M., & Rippner, J. (2009). *The effects of transitions on access to higher education*: Institute for Higher Education Policy Washington, DC.

Benard, B. (2003). Turnaround teachers and schools. *Closing the achievement gap: A vision for changing beliefs and practices, 2*, 115-137.

Coetzee, M. (2014). Measuring student graduateness: Reliability and construct validity of the Graduate Skills and Attributes Scale. *Higher Education Research & Development, 33*(5), 887-902.

De Cuyper, N., Van der Heijden, B. I., & De Witte, H. (2011). Associations between perceived employability, employee well-being, and its contribution to organizational success: a matter of psychological contracts? *The International Journal of Human Resource Management, 22*(07), 1486-1503.

Farmer, H. S. (1985). Model of career and achievement motivation for women and men. *Journal of counseling Psychology, 32*(3), 363.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis (6th ed.). Pearson Prentice Hall, PearsonEducation, Inc: Upper Saddle River, NJ: Pearson Prentice Hall.

Kang, B. (2012). *Multilevel analysis of school context impact on career maturity of South Korean adolescents*: uga.

Konu, A. I., Lintonen, T. P., & Autio, V. J. (2002). Evaluation of well-being in schools–a multilevel analysis of general subjective well-being. *School Effectiveness and School Improvement, 13*(2), 187-200.

Meny-Gibert, S., & Russell, B. (2009). *Access to education, Technical Report of the National Household Survey*. Retrieved from 2 Upper Park Drive, Forest Town, Johannesburg, South Africa:

Metheny, J., McWhirter, E. H., & O'Neil, M. E. (2008). Measuring perceived teacher support and its influence on adolescent career development. *Journal of Career Assessment*.

Nunnally, J. (1978). Psychometric theory (2nd ed.): New York: McGraw-Hill.

Qenani, E., MacDougall, N., & Sexton, C. (2014). An empirical study of self-perceived employability: Improving the prospects

for student employment success in an uncertain environment. *Active Learning in Higher Education, 15*(3), 199-213.

Rothwell, A., Herbert, I., & Rothwell, F. (2008). Self-perceived employability: Construction and initial validation of a scale for university students. *Journal of vocational behavior, 73*(1), 1-12.

Rothwell, A., Jewell, S., & Hardie, M. (2009). Self-perceived employability: Investigating the responses of post-graduate students. *Journal of vocational behavior, 75*(2), 152-161.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of personality and social psychology, 57*(6), 1069.

Soukalová, R., & Gottlichová, M. (2015). The Impact of Effective Process of Higher Education on the Quality of Human Resources in the Czech Republic. Procedia-Social and Behavioral Sciences, 174, 3715-3723.

Tomlinson, M. (2008). 'The degree is not enough': students' perceptions of the role of higher education credentials for graduate work and employability. *British Journal of Sociology of Education, 29*(1), 49-61.