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## Articles

**Adult's Participation in Work-related Training: The Balance between Improving Job and a Desire for Learning-** Ana Inés Renta-Davids, Manel Fandos-Garrido, José Miguel Jiménez-González & Ángel Pío González-Soto ..... 1

**Development of an Academic Achievement Risk Assessment Scale for Undergraduates: Low, Medium and High Achievers-** Tahira Jibeen & Masha Asad Khan..... 23

**Dialogue and Interaction in Early Childhood Education: A Systematic Review-** Rocío García-Carrión & Lourdes Villardón-Gallego..... 51

**A Comparison of Assessment Beliefs of Science and Education Lecturers in a University-** Mark S. Davies & Maddalena Taras..... 77

## Reviews

**El Profesor Cosmopolita en un Mundo Global-** Estefanía Fernández Antón ..... 100

**List of Reviewers** ..... 103

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## **Adult's Participation in Work-related Training: The Balance between Improving Job and a Desire for Learning**

Ana Inés Renta-Davids<sup>1</sup>, Manel Fandos-Garrido<sup>1</sup>, José Miguel Jiménez-González<sup>1</sup>, Ángel Pío González-Soto<sup>1</sup>

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# **Adult's Participation in Work-related Training: The Balance between Improving Job and a Desire for Learning**

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## **Abstract**

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The study draws on findings from a survey of adults in non-formal continuing education under the professional training for employment framework in Spain. Quantitative analysis was carried out to a sample of 425 respondents from three different educational providers. Firstly, a factor analysis was conducted to fourteen motives for participation items. A two-dimension model of motivation to participate was identified: one dimension oriented towards job-improvement and the other dimension oriented towards learning. Secondly, a variance analysis was conducted according to demographics variables. Results showed significant statistical differences in the first dimension according to demographic variables. This might indicate an instrumental motivation in participation in work-related training among different groups who try to cope with different types of drawbacks.

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**Keywords:** adult learning, work-related training, lifelong learning

# Participación de las Personas Adultas en la Formación relacionada con el Empleo: Equilibrio entre la Mejora del Trabajo y el Deseo de Aprender

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## Resumen

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El presente estudio muestra resultados de una encuesta aplicada a participantes de cursos de formación continua bajo el marco del Subsistema de Formación para el Empleo en España. El estudio analiza cuáles son las razones de los trabajadores, ocupados y desocupados, para participar en formación para empleo. Se realizó un análisis cuantitativo a una muestra de 425 registros. En primer lugar, se realizó un análisis factorial sobre catorce ítems que indicaban razones de participación. Se identificó una estructura bidimensional: una dimensión orientada al aprendizaje y otra orientada a la mejora del empleo. En segundo lugar, se realizó un análisis de la varianza de acuerdo a variables demográficas. Los resultados muestran diferencias significativas en la dimensión relacionada con la mejora del empleo. Este resultado indicaría que diferentes grupos participan en formación continua con el fin de superar sus desventajas.

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**Palabras clave:** educación de adultos, formación para el trabajo, aprendizaje a lo largo de la vida

**A**dult learning has become a policy priority for economic growth and social development in industrialized countries (Pont, 2004). In 2011, the European Commission set a renewed agenda for Adult Education highlighting its major role as a mean to achieve the Europe 2020 goals, by enabling adults to adapt to changes in the labour market and society. The European Council resolution states that 'adult learning provides a means of up-skilling and reskilling those affected by unemployment, restructuring and career transitions, as well as makes an important contribution to social inclusion, active citizenship and personal development' (European Commission, 2011a). The Europe 2020 goals in the field of adult education set a benchmark of 15% of adults aged 24-64 should be taking part in learning activities. Currently, participation of adults in learning activities varies greatly between European countries: overall, the numbers go from 1.4% to 31.6%, where Spain's figure is 10.4% according to the European Labour Survey Force (European Commission, 2011b). While educational provision and participation has increase in general population, yet remains unequal across population subgroups (European Union, 2013). Many researchers continue to be interested in understanding the reasons why adults participate in learning activities and in determining the factors that influence this decision. Why some adults participate in training while others do not is an interesting social question, above all when there is evidence that participation in training is not distributed uniformly across the population.

The emphasis placed on lifelong learning, both in terms of economic benefits and social inclusion, have increased the social relevance of this area of research. Furthermore, this question has a practical relevance for providers of training, who have an interest in developing training programmes that meet the needs and demands of participants and social agents.

The present research analyses adults' motivation to participate to work-related training. The study examined how adult motivation for non-formal work-related training is affected by demographic variables such as gender, age, educational level, and labour status. The questions we raise are: what motivates adults to participate in work-related training? Does motivation to

participate in work-related training differ according to demographics variables?

The article brings together the evidence from previous studies which show that participation in training is distributed unevenly throughout the adult population and that this is explained in part by individual differences. Likewise, the article also takes from previous studies the idea that adults' motivation for participating in training is composed of multiple reasons that are not mutually exclusive. In this article we analyse what motivates adults to participate in work-related training. It is clear that by analysing the motivation for participating in a very specific type of training, adults' reasons for participating will be oriented in this direction; that is, towards getting a job or maintaining and/or improving their current job. Even so, we still want to know if in addition to these reasons there are any others related to enjoyment of learning, personal development or other social aspects. The presence of a type of motivation oriented towards enjoyment of learning or personal development would indicate a profile of participants who are mobilized not only by external conditions imposed on them by the requirements of their job and the need to immediately apply knowledge, but also by an internal motivation oriented towards acquisition of knowledge and personal development.

## **Theoretical Background**

### **Patterns of Participation and Reasons for Participating**

Research on participation of adults in education, be this formal, non-formal or informal, has been taking place for some time now and has led to the publication of many studies. Among the literature that has been generated in previous years are some important studies that consistently identify the profile of adults that participate in training. One of the early studies in this area was by Johnstone and Rivera (1965), who stated that the typical adults taking part in training were young, highly educated, in full time work and with a high income. Most recent studies have thrown up similar results, albeit it with certain nuances. Chisholm, Larson and Mossoux (2004) present

a study based on data collected from large-scale international surveys in which they provide evidence of significant differences of levels of participation according to variables such as age, gender, educational level and occupation. According to their results, the group of older less educated females is the one with higher rates of non-participation. In general, recent studies on adult participation in training provide a consistent profile of those adults that take part in it: young adults participate more than older adults, adults with higher qualification degrees engage more than adults with low qualification degrees, and the employed participate more than the unemployed (Daahlen & Ure, 2009; Henry & Basile, 1994; Illeris, 2003, 2006). Other studies (Boudard & Rubenson, 2003; Carré, Aubret, Chartier, Degallaix & Fenouillet, 2000; Desjardins, Rubenson & Milana 2006) provide further nuances that indicate that the nature of an individual's job also influences the likelihood of a person participating in training; that is, jobs that are linked to new technologies and that require a high degree of literacy are related to higher levels of participation in training.

Reasons for participating in training are a recurring theme in the literature on adult education; that is, researchers have not only been interested in determining which adults engage in further training, they have also carried out studies to determine why these adults choose to do so. Such studies recognize the fact that adults are not a captive audience for educational institutions and that if they attend training courses or show an interest in lifelong learning is because they have reasons for doing so. For example, Houle (1961) classifies adult participants into three categories according to whether they are goal-oriented, activity-oriented, or learning-oriented learners. Tough (1968) argue that adults participate for pragmatic reasons (because they need to apply their new knowledge to practical experiences) or because they enjoy learning. Similarly, Cross (1981) indicates that the principal motivation for participating in training is a personal interest or pleasure in learning. Boshier (1977) carried out a study that identified two types of motivational orientation for participating in training: an orientation towards opportunity and an orientation towards development. People oriented towards opportunity tend to use training as a means of making up for some deficiency or achieving an external objective (getting a job, improving skills to better suit job-market requirements). People oriented

towards development tend to view training as a way of continuing to grow and stay up to date.

It is possible to extract some specific ideas that may help us to understand what motivates adults to participate in training. In the first place, the reasons for participating in training are many and might not be exclusive. There are no purely intrinsic or purely extrinsic reasons; participating in training may be motivated at the same time by a personal desire to learn about an interesting subject and by other goals such as obtaining a job or a promotion. In second place, the studies share the idea that motivation must be understood by analysing the interaction between the individual and his/her surrounding and that the motivation to participate is the result of the individual's perception of a particular situation. In third place, the studies suggest that adults have a certain control over their decisions and that the expectation that they will obtain some personal benefit is an important variable in their decision to participate.

Adults' motivations are social and historical constructions and therefore change according to the context. In this regard, Carré et al. (2000) argue that motivation assessment should be considered as a "snapshot of the relations that establish themselves, in a given context, at a given time, between a person and her/his environment". According to this author, a new approach to lifelong learning has emerged among adults that is marked by the current economic and social conditions such as competitiveness, knowledge economy, technological development, which demand adults to make a greater commitment to be 'apprentices' throughout their lives. For this reason, adults are increasingly "mobilized" to participate in training, but not necessarily "motivated" (Boudard & Rubenson, 2003; Carré et al., 2000; Hight, 1998).

Carré's model defines two axes on which motivation is oriented: The first axis is formed by an extrinsic orientation versus an intrinsic orientation; and the second axis is formed by an orientation towards the acquisition of knowledge versus an orientation towards achieving objectives. Ten types of specific motivation emerge depending on how these axes are combined. Carré's results show two groups of participants that are clearly differentiated in terms of their personal characteristics and types of motivation. The first group includes older workers who are well-educated with high-ranking



positions and who mainly have an operative-professional motivation for participating in training. The second group is made up of young adults who are poorly or less-well qualified and unemployed or with low-ranking positions; this group's motivations for participating in training are different from those of the group with operative-professional motivations (Carré, 2001). An interesting perspective offered by this model is that it presents an analysis that combines personal characteristics with types of motivation for participating, that is, the reasons for participating in training differ depending on the individuals' characteristics.

The principal focus of this article is people's motivations for participating in training. It brings together the evidence from previous studies which shows that participation in training is distributed unevenly throughout the adult population and that this is explained in part by individual differences. Likewise, the article also takes from previous studies the idea that people's motivation for participating in training is composed of multiple factors that are not mutually exclusive. Thus, a person's motivation for participating in training is different according to the type of training that is being analysed. In this article we will analyse what motivates people to participate in training related to work. It is clear that by analysing the motivation for participating in a very specific type of training (work related training), people's reasons for participating will be oriented in this direction; that is, towards obtaining work or maintaining and/or improving their current job. Even so, we still want to know if in addition to these reasons there are any others related to enjoyment of learning, personal development or social aspects. The presence of a type of motivation oriented towards enjoyment of learning or personal development would indicate a profile of participants who are mobilized not only by external conditions imposed on them by the requirements of their job and the need to immediately apply knowledge, but also by an internal motivation oriented towards learning and personal development. The article will focus on the Spanish context, and so before going any further, it will be useful to describe the nature of the continuous training system in this country.

## **The Spanish Tripartite Model of Work-related Training**

In the last decade lifelong learning in Spain has developed dramatically due to the implementation of specific public policies. The current model of professional training for employment was established by Royal Decree 395/2007 of 23 March, and is the result of numerous agreements signed between the state, workers' associations and business associations. Currently, professional training for employment is organized under a tripartite model that is co-funded and regulated by the administration, the employers and the unions. The system of professional training for employment offers three types of activity: training that is offered by social agents; training that is organized by and responds to the demands of businesses; and complementary actions aimed at research and development.

Although the current training model was only created recently, the specialized literature contains some important studies that try to explain the way the system functions and the possible results that it gives rise to (Federación Española de Municipios y Provincias, 2009; Pineda, 2007; Pineda & Sarramona, 2006; Ramírez del Río & Garrido Casas, 2011). However, with one exception (Ramírez del Río, 2011), research in this field has usually been qualitative and has made no reference to the motivations of workers who attend this type of training.

Whereas the preceding studies have focused on how the employment training system functions in general and how it is managed and funded, and even though there is information on the rates of participation, it is still necessary to gather additional information on the reasons why adults participate in training in order to understand what motivates them to do so. This type of training is oriented towards employment; that is, its aim is to increase workers' employability. However, is this the reason why adults attend this type of training? Are there other reasons why they attend these courses? What motivates them to attend this type of training? Finding out the reasons why adults participate in employment training is fundamental for adjusting and orienting training to the needs of the participants and the organizations where they work or will work in the future.

Based on the theoretical view and on the empirical evidence presented, we purpose the following research question:

- 1) What motivates adults to participate in work-related training?
- 2) Are there differences of motivation to participate among different demographic groups?

### **Research Design**

The study relied on quantitative data collected from a questionnaire design for the purpose of this research. The questionnaire had three parts: the first part collected demographic data such as gender, age, level of education and employment situation; the second part included a list of 14 statements regarding reasons for participating in training based on a six-point Likert scale (0=totally disagree, 5=totally agree); and the third part included an open question where the respondents could indicate other particular reasons for participating in training. The statements regarding the respondents' reasons for participating in training reflect work-related and non-work-related motives to participate which had been highlighted by previous studies (Chisholm, et al. 2004). Some of the statements had been used in previous studies into reasons for participating in lifelong learning programmes (Daahlen & Ure, 2009; Illeris, 2003), whereas other questions were specifically created for the present study. The questionnaire was previously validated by research experts and was applied to a pilot sample of 10 adults. Three items were rewrite and occupational information was eliminated (job tenure, job category, organization size). The data analysis presented here is based only in the data from to the first and second part of the questionnaire.

An exploratory factor analysis was performed to reasons to participate item set of the questionnaire in order to reduce the dimension and obtain latent variables. The aim of the factor analysis is to simplify a matrix of correlation such that it can be explained in terms of a few underlying factors (Kline, 1994). Diagnostic analysis was done prior to the factor analysis to assure the data were suitable. We followed a diagnostic process described by Pérez & Medrano (2010), Kline, (1994) and Tabachnick & Fidell (2007) to check for violations of normality, linearity and multicollinearity. The results indicated that the data were appropriate for further analysis. Two factor

analyses were performed by using principal component factoring method and oblique rotation. Direct-oblimin rotation was used because it was considered that the factors would be correlated (Cohen, Manion, & Morrison, 2011; Kline, 1994; Tabachnick & Fidell, 2007). To determine the number of factors we used parallel analysis procedures and screen-test examination. The first factor analysis was run without setting a priori criterion for the number of factors. The second factor analysis was run setting the a priori criterion for the number of factors after observing the screen-test. Finally, a decision was made to retain two factors after examining the screen-test, the eigenvalues and the model fit coefficient. Criterion variable scores were calculated using the mean score of each factor based on the items retained for each factor. All items were measured in a six-point scale so the variables had the same scale. High values of the variable represented a high presence of the feature measured. Independent variables such as gender, age, level of education and employment status were coded into categorical variables. Gender was coded 0 for man, 1 for woman. Age was coded into four categories: 1=18-24, 2=25-34, 3=35-44, 4=more than 45 years old. Level of education was coded into three levels: 1=Compulsory Primary/Secondary Education (ISCED 0-3), 2= Post-compulsory (ISCED 4-5) and 3= University qualifications (ISCED 6-8). Labour status was coded in two categories, 1=unemployed and 2=employed.

As the aim of the study is to identify difference among groups in their motivations to participate, we performed an analysis of variance of the components extracted in the factor analysis in terms of the demographic characteristics. Analysis of variance is used to compare two or more means to see if there are any statistically significant differences among them (Tabachnick & Fidell, 2007). One-way between-subjects ANOVA was run according to age and educational level and t-test was run for gender and employment status with a level of significance of 0.05. When there were more than two groups to compare we carried out post-hoc contrast tests to identify in which groups there were a difference (Tahmane when variance was not homogeneous and Tukey when variance was homogeneous). Effect size was also calculated using the eta-squared coefficient and Cohen's d. Regarding data handling, we used FACTOR (Lorenzo-Seva & Ferrando,

2006) to compute the factor analysis and SPSS to compute analysis of variance.

## **Sample**

Participants in this study were adults who were participating in training courses subsidized by the Professional Training for Employment Subsystem in Spain. Data were obtained using a self-administered questionnaire designed for this study. Three social organizations offering subsidized courses agreed to take part in the study, which allowed direct access to the participants. The courses in which the questionnaire was administered were chosen randomly, although one selection criterion was that they should be between 20 and 50 hours long. The courses dealt with different themes, but all were in the ambit of administration and marketing. In total, the questionnaire was administered in 40 courses during the month of September to December 2011. Participation rate in each course was 13 participants, with a range between 8 and 20 participants.

The questionnaire was administered in-situ during the classroom hours of the training courses. The researcher arranged a previous appointment with the each trainer who suggested the best moment to administer the questionnaire. On the day of the administration of the questionnaire, the researcher explained the purpose of the study, gave instruction for completing the questionnaire and distribute the forms. It was specified that participation was voluntary and data will be handled anonymously. In addition, a consent form to participate was distributed in a separate sheet. A total of 525 questionnaires were distributed and 499 were returned, yielding a response rate of 95% approximately of the total number of participants who were present on the day the questionnaire was administered. However, of the total number of questionnaires received, 74 had not been completed properly and were eliminated from the analysis, which meant that the sample was reduced to N=425. The administration time of the questionnaire was 10 to 20 minutes, which included presenting the study, explaining the instructions for completing the questionnaire and filling the forms.

## Results

### Descriptive Results

Table 1 presents descriptive statistic of the sample:

Table 1

#### *Descriptive Results*

	<i>Compulsory Primary/Secondary</i>	<i>Post- compulsory</i>	<i>University qualifications</i>	<i>Total</i>
<i>Gender</i>				
Female	38.03	49.66	69.57	57.41
Male	61.97	50.34	30.43	42.59
<i>Age</i>				
18-24	21.13	8.85	7.73	10.35
25-34	19.71	31.29	47.83	37.41
35-44	29.58	31.29	28.5	29.65
over 45	29.58	28.57	15.94	22.59
<i>Labour status</i>				
Unemployed	54.93	38.78	41.06	42.59
Employed	45.07	61.22	58.94	57.41
<i>Total</i>	16.71	34.58	48.71	1
N	71	147	207	425

Note: data is shown in percentage

Of the total sample, 57.41% were female. The largest group of respondents were between 25 and 34 years old (37.41%), followed by 35-44-year-old group (29.65%). Almost half of respondents hold a university qualification (48.71%), followed by respondents with post-compulsory education (34.58%). Only 16.71% of respondents reported having compulsory primary and secondary education. Fifty-seven percent of the respondents were employed. The sample showed a similar distribution to the national statistics of participation in this type of training in terms of age and level of education

whereas there were differences according to gender and occupational status (Fundación Tripartita, 2011). In the national statistic men participate more than women and the number of employed participants is greater than the number of unemployed.

## Factor Analysis

Table 2 presents the results of the second factor analysis. As stated before, the first factor analysis was run without setting a priori criteria for the number of factors. The first analysis yielded three factors with a cut-off point of 1.0 for the eigenvalue. However, an examination of the screen-test suggested that two factors should be retained. To estimate the adjustment of the model, different indices were used including: Keiser-Meyer-Olkin (KMO) 0.83; Root-Mean-Square-of-Residual (RMSR) 0.085. With these results, the matrix structure with two components presented the best statistical indices of the adjustment of the model. The cut-off point was 0.40 for the items' loading to remain in the factor, as can be seen in Table 2. All the initial items remained in the factorial analysis because they showed an adequate load. The matrix structure shows the matrix of correlation between items and correlated factors whereas the rotated matrix offers a better interpretability of each factor. The factor correlation coefficient was .28.

Table 2

### *Principal Component Analysis of Reasons to participate*

	Rotated Matrix – Oblimin-Direct Criterion		Matrix Structure		$h^2$
	Component 1: learning oriented	Component 2: Job-improvement oriented	Component 1: learning oriented	Component 2: Job-improvement oriented	
7. Increase the chance of getting a better job	-	0.754	0.289	0.777	0.610
9. Increase the chance of getting a job	-	0.740	0.106	0.714	0.518

Table 2 (cont.'d)

*Principal Component Analysis of Reasons to participate*

	Rotated Matrix – Oblimin-Direct Criterion		Matrix Structure		
	Component 1: learning oriented	Component 2: Job- improvement oriented	Component 1: learning oriented	Component 2: Job- improvement oriented	$h^2$
8. Increase the chance of changing job	-	0.721	0.227	0.729	0.532
2. Get a qualification	-	0.749	0.070	0.712	0.524
6. Reduce chances of losing job	-	0.682	0.295	0.711	0.517
5. Improve job prospects	-	0.573	0.421	0.645	0.481
10. Be made to participate	-	0.574	0.015	0.536	0.305
3. Get to know new people	-	0.495	0.254	0.527	0.291
1. Start a new business	-	0.471	0.065	0.454	0.210
12. Increase knowledge and skills in an interesting subject	0.806	-	0.763	0.036	0.605
13. Obtain useful knowledge and skills for work	0.716	-	0.747	0.312	0.571
11. Obtain useful knowledge and skills for daily life	0.700	-	0.685	0.138	0.472
4. Do a better job	0.620	-	0.674	0.367	0.491
14. Do new activities at work	0.478	0.308	0.562	0.438	0.404
% of Variance	17,8	28,8			

Note: Coefficients smaller than .30 were omitted in the rotated matrix. Coefficients greater than .40 are retained for that factor. Percentage of variance is post rotation. The eigenvalue of the third, not retained component was 1.17.  $h^2$  =communality coefficient.



The two extracted components reflect the orientation of adults' motivation to participate in training described in the literature, but with certain particular characteristics. The first component describes a motivation to participate in training that is oriented towards improving work perspective; that is, finding a job in the case of the unemployed and finding a better job or at least keeping their current job in the case of the employed. It includes items such as 'get a better job', 'change job', 'reduce chances of losing job', 'get a qualification', and 'improve job prospects'. It also includes the items 'get to know new people', 'start a new business', and 'be made to participate', although these have relatively low values. The second component describes a motivation to participate in training oriented towards the desire to learn about an interesting topic or to learn useful knowledge for use at work or at day-to-day life. It might be seen as a learning oriented motivation with practical connotations. In the light of these results, we decided to continue the analysis with these two components that emerged from the factor analysis. The components were given the names 'job-improvement oriented' and 'learning oriented' and scores were calculated for each component. The mean score for 'job-improvement oriented' is 2.70, and the mean score for learning oriented is 4.02. To answer the question of whether there is a difference among groups in their motivation to participate we conducted an analysis of variance for the categorical variables. Table 3 shows the results of these analyses.

There were significant differences in the mean score of 'job-improvement oriented' motivation in different groups of age, qualification and labour status. In order to identify among which groups of age and qualification there were a significant differences, post-hoc test were examined. Additionally, the effect size was calculated using eta-squared coefficient. The results showed that the 16-24-year-old group had a significantly higher score in job-improvement oriented motivation (3.28) than the other groups of age ( $F=6.056$   $p<.000$ ). The eta-square coefficient was .053, which express a moderate association. Furthermore, the results showed a significant difference in the score mean of each group of qualification ( $F=11.09$   $p<.000$ ). The group with compulsory primary and secondary education had the highest score (3.13), followed by the group with post-compulsory education (2.79) and the group with university

education (2.47). The eta-squared coefficient was .054, also expressing a moderate association. Likewise, there was a significant difference in the score mean between employed and unemployed groups ( $t=4.420$   $p<.000$ ). The unemployed group had the highest score in this variable (2.96). Cohen's was calculated yielding an effect size of 0.41, which is considered a moderate effect. None significant difference was found in 'learning oriented' motivation mean scores among different groups of the categorical variables. The gender variable has no statistically significant effect on scores for the two dependent variables in this sample.

Table 3

*Type of motivation according to age, gender, qualifications and labour status*

	Component 1: learning oriented		Component 2: Job-improvement oriented
	N	Mean	Mean
<i>Gender</i>			
Female	244	4,05	2,66
Male	181	4,02	2,73
<i>Age</i>			
16-24	44	4,15	3,28*
25-34	159	4,01	2,68
35-44	126	3,99	2,48
more than 45	96	4,08	2,71
<i>Qualifications</i>			
Compulsory Primary/Secondary Education	71	3,97	3,13*
Post-Compulsory Education	147	4,14	2,79*
University Education	207	3,98	2,47*
<i>Labour Status</i>			
Unemployed	181	3,96	2,96*
Employed	244	4,09	2,49*
Total	425	4.02	2.70

Note: (\*) statistically significant difference  $p<.001$

## **Discussion**

The aim of this study was to determine what motivates adults to participate in work-related training courses and whether there are any differences between different groups in terms of socio-demographic variables. Previous studies have found that adults have different motivations for participating in training. An individual's motivation for participating in training may be intrinsic, extrinsic, it may be related to social, personal or professional motives, it may be related to the individual's job or it may be related to reasons outside the sphere of their job. Most of the studies argue that this diversity of motivations is linked to individual differences and the different types of training to which they sign up.

In our study, a double orientation for participating in training emerges from the factor analysis of the reasons for participating in training. This analysis throws up two components; one was given the name 'job-improvement oriented', and another 'learning oriented'. The first component was defined as a motivation oriented towards obtaining or keeping a job or getting a better job, whilst the second component was defined as a motivation oriented towards learning or acquisition of knowledge. This result is similar to previous studies that show that motivation for participating is a combination of different factors, be these social, personal or work-related (Carré et al., 2000; Chisholm et al., 2004; Illeris, 2003). For example, Chisholm et al. (2004) argue that motivation to participate in training and education tends to be mixed in nature as adults report both work-related and non-work-related motives to take part in education and training. Furthermore, these results also coincide with those presented by Houle (1961) and subsequently by Boshier (1977), who identified two types of motivation, one oriented towards opportunity and another one oriented towards lifelong development.

In our study, in general, 'learning oriented' has a higher score than 'job-improvement oriented' suggesting that these adults in our sample are driven by their desire of gaining new knowledge in something that they are interesting in. This result is homogeneous across different groups when demographic variables are taking into account. None significant differences are observed in the mean scores of the groups studied or the 'learning

oriented'. We may conclude from this that all individuals of the sample, regardless of their personal characteristics, are motivated to participate in training oriented towards finding out about an interesting subject that can be of benefit both in day-to-day life and at work. This result is related to the arguments offered by Tough (1968) who stated that those adults who participate in training are those who enjoy learning and who are motivated by the desire to use and apply what they have learnt. In the same vein, Cross (1981) suggests that those who participate in training are predisposed towards participating in learning activities, and that this is perhaps related to previous positive educational experiences.

However, if we look into job-improvement oriented motivation we found significant differences among demographic groups. This motivation is related to an external element such as labour situation and suggests an intention of attending a training course which could increase the possibilities of finding a job, changing a job or getting a better job. We may see this motivation as an instrumental attitude towards this type of training, as means of achieving other goals. For example, the youngest group has a high score in this motivation compare with the other groups of age. One possible explanation for this result is that young adults need to make up for certain areas in which they are needing such as lack of work experience or insufficient grades during their compulsory education, and this in turn might mean that they see work-related training courses as an opportunity to address this drawback.

In addition, the data shows that there are significant differences according to level of education. The findings suggest that adults with low level of qualification score significantly higher in job-improvement motivation than adults with high level of qualification, which in turn score low. Individuals with low educational qualifications might see this type of training as an opportunity to improve their position in the work market. Given the current socio-economic conditions, where qualifications are essential in the work market, having a lowed qualification is a clear disadvantage and these training courses are therefore seen by this group as a way of improving their position in order to obtain or keep a job or change to a better one. The low score in this variable for the group holding

university qualifications could indicate that this type of training is less relevant for obtaining or keeping a job or changing to a better one.

Furthermore, the data show that there is a statistically significant difference in the mean score of the employed and unemployed groups. The unemployed group has a significantly higher score than the employed group in job-improvement motivation. This result suggests that unemployed adults are more concerned than the employed adults in improving their background conditions which in turn could increase their likelihoods to find a job. We considered perfectly legitimate to attend work-related training driven by the motivation to improve future labour perspectives or prevent to lose current job. However, there is little evidence that this type of training effectively helps individuals to achieve this goal. For example, Chisholm et al. (2004) found that only 10% percent of adults who reported attending training to find a job or change a job succeeded in doing so as a result of their training. This issue raises other questions about fulfilment of expectation of work-related training.

This findings support Carré's (2001) theoretical view which state that there is certain a pressure on adults' involvement in work performance and, consequently in improving their qualifications. This is especially true for particular groups such as young participants, low-qualified workers and the unemployed. The increasingly based knowledge economy, changing skills requirements, and unemployment high rates are making adults to attend training more necessary than before. The findings in this study imply that it may be necessary to develop targeted policy instrument to help these vulnerable groups to find their way in an increasingly demanding labour market.

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## **Development of an Academic Achievement Risk Assessment Scale for Undergraduates: Low, Medium and High Achievers**

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# **Development of an Academic Achievement Risk Assessment Scale for Undergraduates: Low, Medium and High Achievers**

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## **Abstract**

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This research has developed The Academic Achievement Risk Assessment Scale [AARS], for identification of the factors which influence performance of undergraduate (448 students); studying at three universities of Lahore, Pakistan. An 18-item scale, with five distinct factors was developed which included lack of motivation, dysfunctional parental practices, parental involvement in drug abuse or antisocial activities, difficulty with peers, and language barrier. The results revealed differences among low, medium and high academic CGPA groups as all five risk factors were significantly related to the low achieving group. The study has implications for teachers, counselors, and policy makers in the field of learning.

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**Keywords:** lack of motivation, dysfunctional parental practices, parental involvement in antisocial activities, high academic achievers, low academic achievers

# **Desarrollo de una Escala de Evaluación de Riesgos en el Logro Académico para Estudiantes Universitarios: Alumnado con Altas, Medias y Bajas Calificaciones**

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## **Resumen**

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Esta investigación ha desarrollado la Escala de Evaluación de Riesgos en el Logro Académico [AARS], para la identificación de los factores que influyen en el rendimiento de los estudiantes de grado (448 estudiantes); estudiados en tres universidades de Lahore, Pakistán. Se desarrolló una escala de 18 ítems, con cinco factores distintos, incluyendo la falta de motivación, prácticas parentales disfuncionales, participación de los padres en el abuso de drogas o actividades antisociales, dificultades con el grupo de pares, y barrera idiomática. Los resultados revelaron diferencias entre los grupos bajos, medios y altos en la CGPA, puesto que los cinco factores de riesgo se relacionaron significativamente con el grupo de bajo rendimiento. El estudio tiene implicaciones para profesorado, profesiones de la orientación y responsables de las políticas en el ámbito del aprendizaje.

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**Palabras clave:** falta de motivación, prácticas parentales disfuncionales, participación de los padres en actividades antisociales, dificultades con el grupo de pares, barrera idiomática, rendimiento académico bajo

Students' academic performance plays a vital role in producing the best quality graduates who are responsible for a country's economic and social development. The performance of students in universities is a concern not only to the administrators and educators, but also to corporations in the labour market (Ali, Jusoff, Ali, Mokhtar, & Salamat, 2009). The employers pay great attention to academic achievement level of workers and recent graduates while recruiting. It is important to note that the problem of low academic achievement is one of the great crises of the educational system in third world countries. The problem of low academic achievement has been identified several times as problematic in terms of social and economic waste (Peelo & Wareham, 2002).

Previous statistics indicated that 40% college students leave higher education without getting a degree and 75 % of students leave within their first two years of college (Deberard, Spielmans, & Julka, 2004). Education for All (EFA) Global Monitoring Report (UNESCO, 2005) suggested that only 41.5 % of people older than 15 years of age are literate in Pakistan having the highest dropout rates in South Asian countries, with just over 10 percent of students finishing twelve years of schooling (Akram & Khan, 2007). The recent Barro-Lee's (2010) data indicated that percentage of students who complete college education range 4% to 6 % in Pakistan indicating very low rate in comparison with developed countries (Barro & Lee, 2010).

In Pakistan, the academic achievement is calculated by the CGPA (Cumulative Grade Point Average) that shows the overall academic performance of a student where it considers the average of all examination grades for all semesters during the tenure in a university (Ali et al., 2009). The students performing on the low end of the continuum are considered low achievers, with a grade point average below a B (below 70th percentile) on a five-point grading system (e.g., A, B, C, D, and F) while high achievers perform on the high end of the continuum with a grade point average above a B (above 80th percentiles) on a five-point grading system (Cohen, 2001).

Researchers try to relate the constructs of individualist and collectivist culture with specific psychological functioning of the individual (e.g.,

behavior, attitudes, cognitions, norms, values, goals). In general, group cohesiveness, emotional interdependence, obligation, and group solidarity are characteristics of collectivistic societies whereas personal autonomy, emotional independence, singular actions, and personal goals are related to individualistic societies (Pearson & Child, 2007; Triandis, 1989). As Pakistan is a collectivist culture, the social pattern is characterized by differences in things such as family living arrangements (e.g., collectivism tends to larger families and extended families living under the same roof), social behavior (e.g., collectivists tend to show greater conformity to group norms), beliefs, political ideologies and so on. Because of these trends educational researchers are interested in studying the academic success and adjustment of college students of different societies (Dennis, Phinney, & Chuateco, 2005, p. 223).

Risk factors related to academic achievement are those conditions that increase the likelihood of a student' being of the school dropout or low academic achievers. Of all the personal and psychological factors that have attracted researchers in the area of educational achievement, motivation seems to be gaining more popularity and leading other variables (Awan, Noureen, & Naz, 2011). Motivation is defined as a set of interrelated beliefs and emotions that influence and direct behaviors (Martin, 2009). It has been indicated that low achievers show various motivational problems including a lack of participation in the class, lower self motivation, less goal directed behavior and more negative or non-cooperative attitudes toward institution, teachers or studies than high achievers (Downey & Yuan, 2005; Ma & Xu, 2004; McCoach & Siegle, 2001; 2003a; Tella, 2007).

Literature documents that positive parental support and nurturance promotes higher academic attainment whereas dysfunctional parental practices have been defined as a potential risk factor for poor academic performance among early and late adolescents (Aunola, Stattin, & Nurmi, 2000; Dennis et al, 2005; Hickman, Kim, & Rohner, 2002; Kordi & Baharudin, 2010). These practices comprise poor parent-child communication, permissive or strict parenting, less acceptance, less supervision, and more conflict towards their children (Moss & St-Laurent, 2001; Shek, Lee, & Chan, 1998; Stewart, 2007). Further, studies have reported positive relations between peer acceptance or peer support and

academic success among both children and adolescents (Fass & Tubman, 2002). It has been found that perceived same-sex and opposite sex peer relationships yield positive direct and indirect links with academic performance and general self-esteem (Liem & Matin, 2011). Moreover, low peer acceptance or peer rejection in adolescence has been identified as a risk indicator for poor school adjustment including academic failure (Buhs & Ladd, 2001).

Moreover, parental substance or alcohol abuse also increases a child's risk for behavioral problems that include drug and alcohol abuse, social-skill deficits, and low educational attainment (Fillmore, 1987; Solis, Shadur, Burns, & Hussong, 2012; Winters, 2006). Findings indicate that children from anti-social alcoholic families are most susceptible to relative intellectual, cognitive, and academic deficits. Another individual factor related to low academic performance is language barrier. A number of studies have examined the correlation between language proficiency and academic performance among post-secondary students (Butler & Castellon-Wellington, 2005; Francis & Rivera, 2007; Parker, Louie, & O'Dwyer, 2009). It has been suggested that limited-English-proficient students achieve lower academic grades as well as drop out of school (Rumberger & Larson, 1998).

The main objective of this study was to develop a multidimensional measure of academic achievement risk (personal, familial and peers' related) factors for low academic achievement among Pakistani undergraduate students. Further, to check the validity of the newly developed scale in differentiating low, medium and high academic achievers on identified risk factors in different domains. Therefore, it was hypothesized that low academic achievers are significantly different from high and medium achievers regarding the level of academic achievement motivation, dysfunctional parental practices, parental involvement in drug abuse or antisocial activities, and relationship problems with peers and language-barrier.

## **Method**

### **Participants and Procedure**

The final sample for the present study was comprised of 448 undergraduate students studying at three universities including COMSATS Institute of Information Technology, University of Management Sciences and University of Central Punjab, Lahore, Pakistan (Table 1). Initially, 20 participants were contacted for item generation. The sample included 10 male and 10 female undergraduate students with low CGPA (below 2.51). Afterwards, the clarity and comprehensiveness of the initially formed items was assessed using a separate sample of 30 (22 male and 8 female) undergraduate students. Finally, the exploratory factor analysis was conducted with 448 undergraduate students studying at three universities mentioned above (Table 1).

A range of demographic information including age, gender, CGPA, semester, mother education, father education, system of living arrangement, parental status, and level of income satisfaction (from 1—not at all satisfied to 4—highly satisfied) was inquired from participants. These questions were based on a review of the relevant research literature (Bean, Bush, McKenry & Wilson, 2003; Buddy, 2007; Buhs & Ladd, 2001; Diaz, 2003; Eamon, 2005; Oliverez & Tierney, 2005; Turner, Chandler & Heffer, 2009).

The average age of students was 20.32 years ( $SD = 1.83$ ) and it was composed of primarily males (88%) as compared to females (12 %). In terms of income comfort level, on a scale from 1 (not at all satisfied) to 4 (high level of comfort), the mean was 2.1 ( $SD = 1.0$ ). The mean number of family members in home was 6.5 ( $SD = 3.27$ ). Seventy three percent of the participants belonged to nuclear and 26% came from joint family living arrangement. In terms of medium of instruction, 38% of the participants had Urdu, while 60% of the participants had English background. For the purpose of this study, three groups were created based on their self-reported CGPAs on a five-point grading system: low (CGPA at or below 2.50 or

below 70th percentile), medium (CGPA ranged 2.51 to 3.0 or 70th to 79th percentile) and high (CGPA above 3.1or above 80th percentiles) (Table 1).

Table 1  
*Study Sample Characteristics (N = 448)*

Variables	<i>M</i>	<i>SD</i>	Frequency	Valid %
CGPA	2.68	.57		
Low			159	35.6 %
Middle			144	32.2%
High			144	32.2%
Semester			185	41.6
Second			99	22.2
Third			54	12.1
Forth			32	7.2
Fifth			23	5.2
Sixth			25	5.1
Seventh			26	5.8
Eighth			26	5.8
Income satisfaction level				
Highly satisfied			186	42.43
To some extent satisfied			153	34.8
To some extent not satisfied			58	13.2
Not at all satisfied			42	9.5
Father education				
Less than metric			25	5.9
Metric			49	11.6
Intermediate			56	13.3
Graduate			139	33.0
Master			82	19.5
Professional			64	15.2
PhD			6	1.4



Table 1 (cont.'d)

*Study Sample Characteristics (N = 448)*

Variables	<i>M</i>	<i>SD</i>	Frequency	Valid %
Parental status				
Both parents alive			392	88.9
Only mother or father alive			34	8.0
Parental divorce/separation			13	3.1
Both died			2	.5
System of living arrangements				
Nuclear			322	73.3
Joint			114	26.0
Medium of instruction				
Urdu			169	38.5
English			265	60.4

*Note.* The numbers do not always lead up to 448 as a result of some missing data

### Stages of Scale Development

The Academic Achievement Risk Assessment Scale was developed following the sequential stages given below.

**Item generation and content validity.** The first step was generation of the items and content validity was the main aim of this step which was accomplished by a theoretical framework and employing a careful sorting process. Through this process, items were matched to construct definition. The literature indicated that different factors affect college students' academic performance (Buddy, 2007; Buhs & Ladd, 2001; Casanova et al., 2005; Kirby & Sharpe, 2001; McCoach & Siegle, 2003b; Rumberger & Larson, 1998). This scale was developed based on combined inductive and deductive approach and therefore, items were derived from two sources: (a) a review of the literature, including studies on low academic achievement

factors; and (b) unstructured interviews with undergraduate students with low CGPA. In the current study, the researchers did not establish specific hypothesis regarding the core factor structure of the scale items. Through this process, the researchers came up with 45 items that were then assessed by five subject matter experts including the researcher themselves.

**Inter-item correlations and expert feedback.** In the second step, the initially generated 45 items were presented to five subject matter experts including the researcher themselves. They assessed the items and provided feedback regarding face and construct validity, comprehensibility and comprehensiveness.

The experts analyzed the items to evaluate its content validity and provided an explanation of the meaning of each item and outlined the objectives, concepts, and definitions of the items. The three steps that were taken were checking for agreement among the experts, discussion, and consensus. The experts ranked each item's priority, deleted or added comments, and provided a level of agreement for each item. Only those items were retained for further analysis when these experts provided 80 % agreement or consensus (Lynn, 1986). As a result of expert feedback, 10 items were excluded and consequently, 35 items remained for the next procedure.

**Item categorization and pilot study.** In this step, the researchers sorted 35 items into different categories (Churchill, 1979) and applied these items on thirty participants. Different categories included lack of motivation (7-items), dysfunctional parental practices (7-items), parental involvement in drugs or antisocial activities (4-items), relationship problems with peers (5-items), and language barrier (4-items), and miscellaneous problems (8-items). This categorization of items was based on the consensus among three coders (two doctoral students and one researcher herself). The coders independently back translated the 35-items into the different categories to further refine the assignment of the items into categories mentioned above. The only criterion for retaining the item for further analysis was agreement between coders. As a result of participants' feedback, the five point rating scale (1 = not at all, 2 = very less, 3 = less, 4 = mostly, 5 = always) was

changed to four point scale and the options for the responses were changed into “Disagree = 1”, “To some extent disagree = 2”, “To some extent agree = 3”, and “Agree = 4”. Lower scores indicate a lower level of risk factors and higher scores show higher level of risk factors. The purpose of this change was to adjust the opinions of the responses according to the wordings of these items and to get more meaningful responses.

After getting the coders’ ratings and pilot study, the researchers eliminated 5 repeated and poorly functioning items leaving a pool of 30-items for further analysis. The 30-items were divided into different categories for further analysis including lack of motivation (6-items), dysfunctional parental practices (6-items), parental involvement in drugs or antisocial activities (3-items), relationship problems with peers (4-items), and language barrier (3-items), and miscellaneous problems (8-items). The following stages are related to the validation and refinement of the 30 items on the final sample of 448 participants.

## **Results**

### **Exploratory Factor Analysis (EFA)**

Principal Component Analysis technique was applied on the correlation matrix of the final 30 items. Bartlett’s test of sphericity (Bartlett, 1954) was significant ( $p < .0001$ ), showing that the data were adequately distributed to allow an evaluation of the potential factor structure. Next, Kaiser-Meyer-Olkin yielded a value of .82, indicating that the ratio of the number of participants to AARS items was sufficient to run a principal-component factor analysis. The factors were based on the following criteria including :

- (a) an unrotated eigen value  $> 1$  with a category factor loadings of at least .35
- (b) a simple structure with each factor different from one another and with all items loading highly on one factor
- (c) and interpretability, that the factor represents a meaningful underlying aspect (Zeller & Carmines, 1980).

The Kaiser criterion and the total explained variance criteria were also used for the determination of “meaningful” factors (Kaiser, 1974). The five factor solution most closely corresponded to the best approximation of

simple structure with the fewest number of cross-loadings and it yielded the most interpretable solution.

The principal component analysis, item loadings and communality coefficients for the final 18 items are presented in Table 2.

Table 2

*Mean, Standard Deviation, EFA Factor Loadings and Communalities of 18-item Risk Assessment Scale (N =448)*

Items	Item description	M	SD	1	2	3	4	5	$h^2$
1	I feel lack of participation in class.	1.38	1.08	.81					.70
2	I am dissatisfied with my teachers.	1.26	1.07	.77					.62
3	I feel inattentive or unmotivated towards my studies.	1.43	.99	.73					.68
4	I feel inattentive or unmotivated towards my teachers.	1.07	.98	.71					.65
5	I think that my education is not according to my personal desires.	1.00	1.19	.75					.58
6	My parents have strict attitude with me.	.65	1.01		.65				.55
7	My parents have low expectations regarding my academic success.	.66	.99		.79				.67
8	There is poor communication between my university and home.	1.23	1.53		.75				.64
9	My parents do not emphasis on importance of education.	.55	1.99			.68			.62
10	I have family disturbances (e.g., violence situation in home).	.36	.82		.65				.61
11	One or both of my parents are indulged in alcohol or drug problems.	.20	.62		.52				.47
12	One or both of my parents have criminal or jail history.	.22	.69		.51				.49

Table 2 (cont.'d)

*Mean, Standard Deviation, EFA Factor Loadings and Communalities of 18-item Risk Assessment Scale (N =448)*

Items	Item description	M	SD	1	2	3	4	5	$h^2$
13	I have difficulty in relating to my peer group (participating in group activities like gathering, playing etc).	.68	1.04				.73		.73
14	I have negative attitude with my peer group.	.67	2.03				.66		.76
15	I feel uncomfortable in co-education environment.	.86	1.01				.68		.81
16	I have relationship problem with opposite gender.	.87	1.02				.61		.70
17	I feel difficulty to communicate in English.	1.04	1.07					.69	.78
18	I feel difficulty to write or express in English.	1.12	1.04					.65	.79

*Note.* Item 1 to 5 = Lack of motivation; Item 6 to 10 = Dysfunctional parental practices; Item 11 to 12 = Parental involvement in drugs or antisocial activities; item 13 to 16 = Relationship problems with peers; Item 17 to 18 = Language Barrier.

The final components were consisted of those selected items with a factor loading at least 0.50 on a specific component, cross-loadings not exceeding 0.30, and loading on two factors with the difference of less than 15 units. The items with miscellaneous problems (8-items) components did not meet the minimum retaining criteria of 0.50 values and items with cross-loadings with the difference of less than 15 units were deleted.

After item deletion, 18-items with five factors were retained including Lack of motivation, Dysfunctional parental practices, Parental involvement in drugs or antisocial activities, Relationship problems with peers and Language Barrier (see Table 2). The five factors accounted for 25.81%, 10.10%, 7.89%, 6.84%, and 6.13% variance respectively. The overall

variance accounted for 57%, while the communalities ranged from .36 to .80 after extraction (see Table 2). The four point Likert-type scales ranging from 1 (completely disagree) to 4 (strongly agree) were used for 18-items (see Appendix A). The resulting total 18-items AARAS had a coefficient alpha of .81 and the lack of motivation, dysfunctional parental practices, parental involvement in drugs or antisocial activities, relationship problems with peers and language-barrier subscales had alphas of .80, .81, .82, .79, and .64, respectively ranging from moderate to high. Although these results were promising, data-driven modifications to instruments may capitalize on chance (Jöreskog, 1993). Thus, further investigation into the reliability of the AARAS with an independent sample is needed. The 18-items were administered to a separate 40 participants (67% male and 32% female) in second reliability analysis study. The five subscale and total inter correlations were moderate to large in size, ranging from  $r = .64$  to  $r = .82$ .

The results from ANOVA did not indicate any significant gender effect for the lack of motivation ( $F = .314$ ,  $p = .57$ ), dysfunctional parental practices ( $F = 1.42$ ,  $p = .23$ ), parental involvement in drugs or antisocial activities ( $F = .29$ ,  $p = .53$ ), relationship problems with peers ( $F = .11$ ,  $p = .73$ ), and language barrier ( $F = 3.30$ ,  $p = .07$ ). Five parametric analyses of variance procedures were performed to examine the difference between three academic achievement groups based on CGPA. Bonferroni method of adjustment was utilized such that each statistical analysis had to reach a level of .01 for a result to be considered statistically significant. A one way ANOVA showed that the three groups (low, medium and high CGPAs) were statistically significant regarding lack of motivation,  $F(2, N = 402) = 15.44$ ,  $p < .0001$ , dysfunctional parental practices,  $F(2, N = 427) = 8.50$ ,  $p < .001$ , parental involvement in drugs or antisocial activities,  $F(2, N = 439) = 7.07$ ,  $p < .01$ , relationship problems with peers,  $F(2, N = 414) = 7.7$ ,  $p < .0001$ , and language barrier,  $F(2, N = 437) = 6.65$ ,  $p < .01$  (Table 3).

### 36 Jibeen & Khan – Risk Factors Academic Achievement

Table 3

*Analysis of Variance for Differences in Scores by Academic Achievement Groups (N = 448)*

Variables	Source	Sum of Squares	df	MS	F
Lack of motivation	Between	317.31	2	158.65	15.44***
	Within	4107.76	400	10.26	
	Total	4425.07	402		
Dysfunctional parental practices	Between	165.13	2	82.56	8.50**
	Within	4125.03	425	9.70	
	Total	4290.16	427		
Parental involvement in drugs or antisocial activities	Between	23.38	2	11.69	7.07**
	Within	721.88	437	1.65	
	Total	745.26	439		
Relationship problems with peers	Between	128.26	2	64.13	7.77***
	Within	3397.86	412	8.24	
	Total	3526.13	414		
Language-barrier	Between	33.39	2	16.70	6.65**
	Within	1091.77	435	2.51	
	Total	1125.17	437		

*Note.* The numbers do not always lead up to 448 due to some missing data. \* $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

Because the overall test was significant, post-hoc tests (i.e., Tukey's HSD) were used to decompose and interpret the results of the ANOVA. The post-hoc comparisons revealed that the mean scores of low CGPA group was typically higher than high CGPA regarding all risk factors including lack of motivation,  $M = 2.154$ ,  $SD = .3888$ ,  $p < .0001$ , dysfunctional parental practices,  $M = 1.517$ ,  $SD = .3679$ ,  $p < .001$ , parental involvement in drugs or antisocial activities,  $M = 8.5549$ ,  $SD = .1495$ ,  $p < .01$ , relationship problems with peers,  $M = 1.328$ ,  $SD = .1847$ ,  $p < .0001$ , and language barrier,  $M = .6422$ ,  $SD = .1847$ ,  $p < .01$ . Further, the high CGPA group was significantly different from medium CGPA group regarding lack of motivation,  $M = -1.27481$ ,  $SD = .39596$ ,  $p < .01$ , and relationship problems with peers,  $M = -.93997$ ,  $SD = .34892$ ,  $p < .01$ . The other factors

including language barrier,  $M = .8792$ ,  $SD = .3888$ ,  $p < .05$ , and parental involvement in drugs or antisocial activities,  $M = -.37204$ ,  $SD = .15227$ ,  $p < .05$ , did not reach Bonferroni criteria for significance (.01).

## **Discussion**

The main purpose of this multistage investigation was to explore the risk factors associated with low academic achievement and to compare high, medium and low academic achievers on these factors at undergraduate level. The current scale is comprehensive as it focuses on salient factors related to low academic achievement that previously had not been combined in a single measure (Nunnally & Bernstein, 1994). These factors included lack of motivation, dysfunctional parental practices, parental involvement in drugs or antisocial activities, relationship problems with peers and language barrier. The overall variance explained by all of these factors accounted for 57%. The current study provided confirmatory evidence to previously identified themes in literature (Bean, Bush, McKenry, & Wilson, 2003; Buddy, 2007; Buhs & Ladd, 2001; Diaz, 2003; Eamon, 2005; Oliverez & Tierney, 2005; Turner, Chandler, & Heffer, 2009).

The present results are in line with previous studies (Baker et al., 1998; Lufi & Cohen, 2003) indicating that low academic achievers are significantly different from high and medium academic achievers regarding low motivation characteristics. Sarwar, Bashir, Naemullah and Khan (2009) conducted a study with Pakistani secondary school students and found that the high achievers showed better study orientation and study habits than the low achievers. Literature (Jeynes, 2005; Mandara, 2006; Moss & St-Laurent, 2001; Whitlock, 2006) has emphasized that parental support and warmth and monitoring are the key parental characteristics that enhance student's academic performance even after entering college. The present findings supported the literature (Shek, Lee, & Chan, 1998; Stewart, 2007) indicating that in comparison to students with high academic achievement, the parents of students with low academic achievement significantly indicate higher level of dysfunctional parental practices (e.g., parental



strictness, lack of monitoring etc). In another study, Casanova, Garcia-Linares, Torre, and Carpio (2005) found that in the group of students with low achievement, parents were classified as authoritarian, permissive and indifferent. Further, students with problems reported that their parents show lower levels of supervision, support and affection as well as higher levels of conflict than students with no achievement problems.

The incidence of dysfunctional parental practices and low academic performance can be justified by observing a significant gap in the dropout rate between students who have a strong family background and those who have a weak background. It has been suggested that parental involvement activities and family practices are more important for helping students succeed in school than are family structure including socioeconomic status or characteristics such as race, family size, or age of child (Hidalgo, Epstein & Siu, 2002). It is important to note that parenting forms the basis of a family environment and without parental education; it may not be possible for them to fulfill their roles and duties in the family and the society (Kordi & Baharudin, 2010; Sinha & Singh, 1998). It seems that educated parents seem to provide all possible support services including coaching, guidance and facilities to their children as they are more competent than uneducated parents. For example, Hidalgo, Epstein and Siu (2002) found that education contributes to improve the parents' capacity to intervene in their children's education, for instance, establishing supportive home environments for children and helping children out with their homework. At the other hand, when the parents have little knowledge about the specific demands of academic fields and their children's lack of potential to succeed in different fields, they are more likely to practice authoritarian parenting to fulfill their own aspirations (Rudy & Grusec, 2006).

Research (Anna & Nattavudh, 2009; Hasnain & Krantz, 2010) indicates that the students from higher socio-economic and more educated backgrounds have lower rates of dropouts whereas those from poor and uneducated background have higher rates of dropouts in Pakistan. The family structure affects children through the degree to which family members provide resources or compete for them. As extended family members who live with their children are generally poorer, less healthy, and less educated. Thus, children who live with extended family members (especially grand-

parents) typically have lower academic achievement than those who do not live with extended family members (Ainsworth, 2013). A child's parents might give or lend money to poor relatives, thereby reducing the immediate resources available to the child. Moreover, siblings and extended family members share parents' attention, so children with more siblings have lower academic achievement (Chadda & Deb, 2013). Recently, Hasnain and Krantz (2010) investigated the risk factors associated with college dropouts among young adults in Karachi, Pakistan, and found that migrant residential status, living in an extended family and lower socio-economic status were identified as risk factors for college dropouts both for males and females.

The present results indicated that the low academic achievers significantly revealed parental substance abuse or criminal activities than did high achievers (Dallaire, Ciccone, & Wilson, 2010). One important potential explanation is that adult children of substance abusing parents may show cognitive deficits that impact their academic performance in college (Solis, Shadur, Burns, & Hussong, 2013; Winters, 2006). These adult college students (respectively) are typically exposed to negligent or abusive parenting and financial hardships. It is important to note that academic difficulties in children of alcoholics are partly due to less parental involvement in their academic activities, lower levels of family organization and less parental involvement in their college or school educational activities (Gonzalez-DeHass, Willems, & Holbein, 2005).

The current analyses revealed significant peer relationship problems and uncomfortable feelings in coeducational setting in the low and middle achiever students than did high achievers. The present findings are in line with literature (Thompson & Ungerleider, 2004) indicating that students from single-sex schools score higher than students from coeducational schools. It has been noted that single-sex schools actually benefit boys the most—specifically, boys from minority groups and boys from poor families who may need more direct guidance (Guarisco, 2010). For example, Hopkins (1997) found that single sex schooling is particularly effective for low-income African, American and Hispanic boys.

Working from a social psychological perspective, advocates of single sex environment describe concerns about the negative stereotypes, low

expectations, and relative lack of student and adult role models in coeducational schools (Singh, Vaught, & Mitchell, 1998). In a recent study, Ogden (2011) found that single-sex environments help to reduce gender stereotypes that students encounter in coeducational settings and they are generally more settled and more relaxed (Sax, 2008; Wills, 2007). Though it is claimed that single-sex schools are superior to coeducational schools, in reducing sex differences, but in most countries, single-sex schools tend to be private, whereas coeducational schools tend to be government; therefore, this hypothesis is very hard to test in an unconfounded way (Thompson & Ungerleider, 2004).

Literature (Carlivati, 2001; Liem & Martin, 2011) suggests that students doing well in school have been found to have a close friend than those rejected by peers. Researchers (Buote, 2002; Martin, 2012; Martin & Dowson, 2009; Stewart, 2007) noted that the involvement with positive peer group activities contributes to academic success, controls violent inclinations and increase the expression of pro-social behavior. In a recent study (Swenson Goguen, Hiester, & Nordstrom, 2010) the importance of peer relationships to academic outcomes of first-year undergraduates was tested and it was found that sharing common interests and having trust in peer was positively related to GPA while the extent of conflict with a new college friend was associated negatively with GPA and persistence to the second college year.

Finally, in current sample, the students revealing low proficiency in English language reported low academic performance as compared to high academic performance. These finding are in line with previous literature (Butler & Castellon-Wellington, 2005; Francis & Rivera, 2007; Kong, Powers, Starr & Williams, 2012; Parker, Louie & O'Dwyer, 2009) suggesting that low language proficiency has been considered a barrier to learning and academic success at the post-secondary level because sufficient level of English language proficiency is needed to be able to demonstrate content knowledge on academic assessments.

## **Limitations**

One of the limitations of the current study is the moderate reliability of subscales as Cronbach's alphas for the subscales were moderate. In the present study, probably the small number of items in each subtest and limited (4-points' scale) width resulted in these "relative moderate coefficients". Indeed, it has been shown that Cronbach's alpha estimation of reliability increases with scale length (Voss, et al., 2000). Other limitations include the use of self-report questionnaires to assess the outcome variables, the lack of temperament and IQ measures to assess how student temperament factors and ability affect the perception of the variables reported, and the cross-sectional nature of the study. Another limitation is related to the lack of information about those students who might have learning disabilities as they need comprehensive assessment separately using appropriate questionnaires.

## **Implications**

The current study has demonstrated the utility of risk-focused ecological model that could be effective in improving academic achievement of students. The academic achievement predictive model is particularly important for college student personnel that are looking for ways to identify students who are at risk for academic difficulties. It is important to note that the college counselors might use these data as an impetus for furthering development of behavior modification of parents and students. For example, there is need for the promotion of parenting programs emphasizing home environments of warmth and autonomy during adolescence to help students be more academically successful throughout their education. These programs would help students develop skills that an authoritative home environment imparts, such as elements of mastery and persistence, which are important for success in college.

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## **Dialogue and Interaction in Early Childhood Education: A Systematic Review**

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# Dialogue and Interaction in Early Childhood Education: A Systematic Review

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## Abstract

There is solid evidence that high quality Early Childhood Education (ECE hereafter) have substantial impact on later life outcomes. A growing literature suggests that interventions that develop social competency as well as cognitive, language and academic skills in the earliest years play a role in later educational, social and economic success. Less is known about the most conducive interactions –verbal and non-verbal- underpinning such pedagogical practices in early childhood education. This article aims at reviewing the last decade's early childhood education with a twofold objective: (a) to describe how dialogue and interaction take place in high-quality early childhood education settings; (b) to identify the effects, if any, on children's learning and development as a result of implementing dialogue-based interventions in ECE. The studies were identified through systematic search of electronic databases and analyzed accordingly. Several types of interactions given in high quality ECE programs and its short and long-term effects are discerned in this review.

**Keywords:** early childhood education, dialogue, interaction, learning outcomes

# **El Diálogo y la Interacción en Educación Infantil: Una Revisión Sistemática**

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## **Resumen**

Existen evidencias sólidas de que la educación infantil de alta calidad tiene un impacto sustancial en los resultados a lo largo de la vida. Una amplia literatura sugiere que las intervenciones que se desarrollan la competencia social y cognitiva, el lenguaje y las habilidades académicas en los primeros años de vida desempeñan un papel en el éxito educativo, social y económico posterior. Se ha explorado en menor medida cuáles son las interacciones más propicias -verbales y no verbales- que sustentan esas prácticas pedagógicas en la educación infantil. Este artículo tiene como objetivo revisar la literatura sobre educación infantil de la última década, con un doble objetivo: (a) describir cómo se desarrolla el diálogo y la interacción en contextos de educación infantil de alta calidad; (b) identificar los efectos, si los hubiera, en el aprendizaje y desarrollo de los niños como resultado de la implementación de las intervenciones basadas en el diálogo en la educación infantil. Los estudios se identificaron mediante una búsqueda sistemática en las bases de datos electrónicas y se analizaron de acuerdo a los objetivos planteados. Se distinguen varios tipos de interacciones como resultado de esta revisión, así como intervenciones de aula que se desarrollan los programas de educación infantil de calidad y su efecto a corto y largo plazo en el aprendizaje y desarrollo de los más pequeños.

**Palabras clave:** educación infantil, diálogo, interacción, resultados de aprendizaje



Early experiences and learning environments where children grow and develop can have substantial impacts on later life outcomes. Emotional, social and cognitive skills emerge in the early years and are important prerequisites for success in school, employment, earnings and healthy behaviors (Heckman, Moon, Pinto, Savelyev, & Yavitz, 2010). Such beneficial impact is dependent on the quality of early childhood education (ECE hereafter), which should provide a learning environment for all children to succeed in acquiring social, emotional, cognitive and linguistic skills. However, the availability of affordable and high-quality early childhood education and care is still a challenge across some of the EU countries. According to the *Education and Training Monitor 2015* (European Commission, 2015), participation rates of children at age of 4, which is currently 93.9%, are close to achieve the benchmark of 95% established by 2020. Nevertheless, these participation rates are considerably low amongst the most disadvantaged children, and only eight European countries provide a place in Early Childhood Education and Care (ECEC) for all children after their birth and guarantee the right to education from early age (European Commission/EACEA/Eurydice/Eurostat, 2014).

Increasing participation rates in early childhood education would contribute to reduce inequalities due to the especially sensitive period for the brain development that takes place from birth up to the age of three, both at the cognitive and emotional levels (Leseman & Slot, 2014). This effect is mediated by the quality of the early childhood education provided; particularly, high-quality interventions promote and support cognitive-linguistic skills to prevent educational inequalities among children from different social backgrounds. The influential study conducted by Hart & Risley (1995) demonstrated that significant discrepancies in language acquisition start from a very early age are influenced by parent-child interactions. Their unprecedented results showed that children from high-income families were exposed to 30 million more words than children from families on welfare. Such large differences in the size of children's vocabulary have lasting impacts on children's performance as disparities persist and increase later in life (Magnuson, Meyers, Ruhm, & Waldfogel, 2004).

As inequalities are generated from a very early age and consequences may be irreversible, school is often the only second chance many children have. Therefore, offering such unique opportunity during the first years of life is even more critical. One of the largest longitudinal studies on pre-school education conducted in England, showed that pre-school education has a similar impact on achievement at the age of 11, like any of the other socioeconomic factors such as parents' income or educational level (Sammons et. al, 2007). The longitudinal study (1997 – 2014) *Effective Pre-school, Primary and Secondary Education Project* (EPPSE), investigated the influence of pre-school on children's academic and social-behavioral outcomes, and compiled measures of pre-school quality. Using multilevel modeling to determine the influence of pre-school, Sylva and colleagues (Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2011) demonstrated that pre-school has a positive and long term impact on children's attainment, progress and social-behavioral development; but, this positive influence on children's outcomes continues throughout primary school, especially, if preschool is of high quality. Furthermore, high quality pre-school is particularly beneficial for pupils with Special Education Needs (SEN) and those from disadvantaged backgrounds (Taggart et al., 2006).

Watanabe and colleagues (2011) showed the benefits of high-quality early childhood education for counteracting the negative effects of low quality home environments; their study indicated the relevance of increasing positive interactions between parents and children's caregivers (Watanabe et al., 2011). This seems to be particularly beneficial for the healthy development of all children. Such foundations for a successful later learning, behavior and health are established in the first years of life through interaction between the children and adults, a process that has been defined as "serve and return interaction" elsewhere (Center on Developing Child, 2009). From a social conception of cognition, learning and development are inherently social processes. Theories of social learning have traditionally emphasized the importance of social interaction for learning and development from the first years of life (Bruner & Haste, 1987; Vygotsky, 1962). Therefore, infants need to interact directly with another person to enhance learning and to develop, for example, language

skills. Experiments conducted in the laboratory with 9 and 10 months old infants demonstrated that exposure to language, without interpersonal interaction, had no effect in developing new language skills; instead, learning occurs and is enhanced through social interaction (Kuhl, 2007; Kuhl, Tsao, & Liu, 2003).

There is now a general consensus on the social nature of human cognition and the development of each individual's capabilities through social interaction. Research on infant-adult communication have provide evidence of toddlers being 'highly social communicators' capable to engage with others through material, cultural or psychological tools (White, Peter, & Redder, 2015). However, many psychological studies with infants have analyzed dyadic encounters in laboratory settings and less attention has been paid to the significance of these social acts in educational contexts. Our emphasis relies on exploring through the literature how dialogue and interaction take place in educational settings, particularly in high-quality early childhood education.

What constitutes high quality in ECE has been widely discussed in the literature (Mathers et al., 2014) and it is a current debate in European educational systems and policies (European Commission, 2011). Among the several conceptualizations that define quality as a multidimensional construct, different aspects of quality can be identified dependent on whether they assess structural or process quality (Howes et al., 2008; Mathers et al., 2014; Snow & Van Hemel, 2008). Structural quality may refer to those aspects more stable in the environment (e.g., facilities, physical environment, group size, teacher qualifications, teacher-child ratio, etc.). Process quality focuses on the educational experience of the children, particularly on the interactions in the teaching and learning process, leadership and pedagogy (e.g. teacher-child interaction, staff-parents communication, staff-staff communication) (Ishimine & Tayler, 2014). Overall, regardless the aspect of quality that research has focused on, there is a consensus that 'high-quality' ECE boosts and sustains children's outcomes over time. Despite the complexity to measure outcomes, high quality ECE has to provide evidence of fostering children's cognitive, social and emotional skills in the areas of language, literacy, math and science, and support the development of young children's learning-related

socio-emotional skills (Siraj-Blatchford, Taggart, Sylva, Sammons, & Melhuish, 2008), as those key competences will equip children to succeed in education and in their life. Therefore, we agree on defining quality “in terms of relevant and measurable features and interactions that affect children’s outcomes (Siraj-Blatchford & Wong, 1999 cited in Mathers, Singler & Karemaker, 2012, p.10). In this review we admittedly restrict our focus to one particular aspect of the process quality–interactions and dialogue in ECE settings- and its relation with children’s outcomes. We aim to synthesize the literature of the last decade with a particular focus on identifying dialogue-based interventions in ECE and their effects on children’s learning and development.

Firstly, we provide a brief theoretical background aiming at justifying the need for this review; secondly, we describe the methods used to perform the review including the search strategy and analysis of the literature. Results are presented followed by the conclusions.

## **Background**

The role of interactions between infants and adults has been shown as central mechanisms for learning and development. This has been the central thesis of Vygotsky’s (1978) theory of learning and development, which sees a child’s ‘level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers’ (p. 86). His theory recognizes that ‘learning determines development’ and that all learning has social roots. Vygotsky moved the field beyond the established Piagetian theory within which development was seen to determine learning, with less focus on the important influence of language and social interactions. Instead, Vygotsky’s studies demonstrated the social and cultural nature of the development of the higher mental functions during the first years of age and its dependence on cooperation with adults and on instruction. He insisted on ‘the strong influence that instruction can have when the corresponding functions are not fully matured’ (Vygotsky, 1962, p. 200).

Building on the social conception of learning and development, Radziszewska & Rogoff (1991) indicated that the role of adults (parents, mainly) in children's zone of proximal development is unique. There is an important amount of literature which is focused on the impact of adult-child interactions in the cognitive and non-cognitive development of children, indicating the relationship between richness of interactions and stimulus and better or worse cognitive and non-cognitive development. Bruner has been one of the authors detailing the importance of dyads formed by an adult and a child who interact regarding a discussion topic, a play or just during informal observation as social spaces that are central for children's learning and development. In particular, Bruner (1983) analyzed how young children acquire language and develop communicative skills through adult-child interactions, even when those are informal as it often happens with parents during early childhood. Children learn the language using it through activities based on play and games that are practiced through parents and children's interactions (Bruner, 1983).

But it is not only a question of multiplying interaction as quality matters too. In a study focused on mother-child communication to identify growth predictors of toddlers' vocabulary production, Pan and colleagues (2005) found that the diversity of mothers' words (maternal lexical input, language and literacy skills) was positively related to an increase in low-income children's vocabulary. Among the 108 low-income families who participated in the study, children (age 2) whose mothers communicated using diverse vocabularies produced, on average, 33.5 unique words in a 10-minute interaction period compared to only 24.5 unique words for children whose mothers used less diverse vocabularies (Pan et al., 2005). These results are consistent with recent European research that argues the quality of ECEC depends on the type and quality of interactions that children have with diverse adults such as professionals, relatives, and other community members (Urban, Vandenbroeck, Van Laere, Lazzari, & Peeters, 2012), mainly because such communicative interactions are key to acquire functional skills (Popp & Wilcox, 2012). Language is developed in the context of social interaction, and the better the quality of the communicative interactions, the better the language and overall cognitive development.

Yet the benefits of early educational interactions with adults go beyond cognitive gains. Whitebread (2012) has studied the quality of early interactions and their relationship with children's wellbeing, especially in terms of emotional development. In this regard, his research shows that to foster young children's emotional development, the power and quality of the interactions is more important than the number of people educating and caring for children (Whitebread, 2012). Similarly, research on this topic has also emphasized the role of peer interactions in children's emotional and social development.

Furthermore, the characteristics of the contexts and situations in which children interact can modulate their behavior and attitudes. When toddlers interact with peers in collaborative settings that entail sharing resources, altruistic attitudes are promoted (Ulber, Hamann, & Tomasello, 2015). This occurs when they jointly decide the distribution of the resources, and do not do it individually, and when the objects to share were not owned by one of them before. Their results show that the selfish attitudes often attributed to toddlers can be modulated by the social context and the learning environment. Consequently, early childhood education may offer a unique opportunity for young children to engage in social interactions for them to strengthen the acquisition of social skills. This can also be particularly beneficial for children to develop strategies to make friends; therefore they will be more likely to engage in supportive and friendship relationships in the subsequent critical period for a child's life, such as starting school (Danby, Thompson, Theobald, & Thorpe, 2012).

Overall, the present literature underlines the importance of exposing children to rich social interactions from an early age to foster cognitive, social and emotional development.

## **Methods**

Our methodological approach is informed by the systematic review methodology (Gough, Oliver & Thomas, 2013) developed at the EPPI-Centre, part of UCL Institute of Education. We aim at systematically reviewing the literature on dialogic learning and teaching experienced by infants in high-quality educational settings. Consequently, we have

followed a research process to search and synthesize the relevant papers for this purpose. In this section we outline the main stages of this endeavor.

### **Research Questions**

How do dialogue and interaction take place in high-quality early childhood education?

Do early childhood interventions based on a dialogic approach affect children's learning and development?

By answering these questions, we should be able to fulfill the objectives of this paper, that is, to describe how dialogue and interaction take place in high-quality early childhood education settings; and to identify whether implementing dialogue-based interventions in early childhood education has any effects on children's outcomes.

### **Search Strategy**

The literature search for the present review was performed between October-November 2015. The procedure for conducting the search was developed by the authors and included three main electronic databases. These were:

- Web of Science (journals in Social Sciences Citation Index SSCI)
- Educational Resources Information Centre ERIC
- PsycINFO.

Sets of keywords were allocated in two different categories, and their combinations facilitated searches. Boolean logic searches (e.g. "dialogic" OR "dialogism") were used. We also used other validation activities such as 'snowball strategy', that is, we looked through the references of selected works to find other relevant studies.

Table 1  
*Categories and keywords related to conduct the search*

Category	Keywords
1. Educational stage and setting	Early childhood education, preschool, early years
2. Dialogue	Dialogic, dialogic learning, dialogic teaching, dialogism, interaction
3. Provision	High-quality early childhood education, intervention, program

**Inclusion and Exclusion Criteria**

Applying the inclusion/exclusion criteria allowed us to include only the relevant literature for the purpose of this article. Studies were included if they fulfilled all/some of the following criteria:

- (a) reported on an intervention, program, classroom strategy or pedagogical practice in educational settings
- (b) concerned pre-school, early childhood education (i.e. children aged 2-5 included)
- (c) provided evidence of high-quality early childhood education
- (d) published between 2005 and 2015
- (e) published in peer reviewed journals and written in English

Studies were excluded if they:

- (a) reported on experiments in laboratory settings (i.e. dyadic encounters, mother-child interactions)



- (b) provided theoretical accounts on the relevance of early childhood education without empirical data

Once the studies were selected according to the criteria, we scrutinize them in detail accounting for aspects regarding (a) relevance of the study for the scope of the review (e.g. the study refer to the process quality and outcomes in ECE); (b) aspects of methodological trustworthiness such as appropriateness of method and data collection, claims and evidence.

## **Results**

Final selection of papers has followed several stages to identify and examine those relevant studies that enabled us to answer the research questions. Firstly, as a result of implementing the search strategy, we found potentially relevant literature related to ECE programs, specific interventions based on the implementation of a particular curriculum and/or dialogic strategies. We applied a basic filtering through reading the title (and/or abstract) to remove the clearly irrelevant papers.

As a result, 114 studies were identified 9 of which were excluded due to repetitions. By reading the abstract of 105 studies, 71 studies were excluded because of the inclusion/exclusion criteria, for example, participants were older children (age +6), or the papers addressed topics beyond our scope or they were too specific (e.g. children with speech/language disorders).

After reading the full text of 34 identified studies and applying the inclusion criteria we use 11 studies for a detailed examination and data analysis. For each study, we pay particular attention and extract data referring to:

- (a) the focus of the study, including aims, objectives and/or research questions
- (b) educational settings in which the research took place, taking into account high-quality ECE programs
- (c) methods applied
- (d) country in which research was conducted
- (e) number and characteristics of the participants
- (f) outcomes reported. A brief account of this data is provided in Table 2.

Table 2

*Overview and characteristics of the studies*

Author	Setting	Country	Focus	Method	Participants
Love et al. 2005	17 Early Head Start programs	USA	Impact on child parenting outcomes	Randomized trial	3001 families
Pianta et al. 2005	238 pre-school classrooms	USA	Predicting quality and teacher–child interactions	Multivariate analyses, hierarchical regression	3 and 4 year-old children, teachers
Mashburn et al 2008	671 pre-k classrooms	USA	Academic, language, and social skills in relation to quality	Randomized trial	2307 children
Burchinal et al. 2010	671 pre-k classrooms Head Start classrooms	USA	Teacher-child interaction	Linear regression / link between quality & child outcomes	1129 children from low-income families
Piasta et al 2012	Learning Language and Loving It–The Hanen Program for Early Childhood Educators	USA	Preschool teachers’ conversational responsivity	Randomized controlled trial	49 preschool teachers, 330 children
Rasku-Puttonen et al 2012	5 preschool classrooms	Finland	Teacher-child interaction	Observational study, video analysis	49 teachers, 10-11 children on average per observation
Lonigan et al. 2013	13 Head Start centers and Title I preschools	USA	Emergent literacy skills	Quasi-experimental study	324 preschoolers, low income backgrounds

Table 2 (cont.'d)

*Overview and characteristics of the studies*

Author	Setting	Country	Focus	Method	Participants
Stein et al 2013	Educare Chicago Research-Program Partnership. Families & children	USA	School readiness and the transition from early education to the school system	Quantitative & qualitative data. No group control	Six cohorts of children n=172
Towson & Gallagher 2014	3 Head start centers	USA	Dialogic shared book reading	Randomized control study	25 children, age 3, and their parents
Taggart et al 2015	Effective pre-school, primary and secondary education project	UK	Children's academic and social-behavioral outcomes	Longitudinal study (1997 – 2014)	2,800 children from 6 English Local Authorities, 141 pre-school
White et al 2015	High-quality education and care centre	New Zealand	Interactions between infants and teachers	Exploratory study, polyphonic video footage and teacher interviews	2 infants and 2 key teachers

## Overview of the High-Quality ECE Programs

Overall, most of the studies referred to long established high-quality programs, widely implemented in the United States of America, such as Head Start (Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Lonigan, Purpura, Wilson, Walker, & Clancy-Menchetti, 2013; Towson & Gallagher, 2014), Early Head Start (Love et al., 2005) or Educare (Stein, Freel, Hanson, Pacchiano, & Eiland-Williford, 2013). The rest of the small-scale studies also focused the research on high quality education and a care centre in New Zealand (White et al., 2015) or in preschool classrooms in Finland

(Rasku-Puttonen, Lerkkanen, Poikkeus, & Siekkinen, 2012). Three studies evaluated the implementation of a particular strategy such as an intervention to develop emergent literacy skills (Lonigan et al., 2013), a dialogic reading program for parents (Towson & Gallagher, 2014) or a professional development on preschool teachers (Piasta et al., 2012). All the studies provided evidence on children's outcomes resulting positive effects in nine out of eleven researches.

The importance of interactions for learning and development appears across the studies and specific instruments were used to measure those interactions. For example, six out of eleven studies used the *Classroom Assessment Scoring System* (CLASS), an observation instrument that assesses the quality of teacher-child interactions in preschool classrooms (Burchinal et al., 2010; Lonigan et al., 2013; Love et al., 2005; Mashburn et al., 2008; Pianta et al., 2005; Piasta et al., 2012). CLASS is a valid and reliable instrument and builds upon educational and developmental theories that support interactions (adult-child). CLASS is also used combined with other internationally recognised observation instruments to measure quality in ECE such as the Early Childhood Environment Rating Scale-Revised (ECERS-R). Pianta and colleagues (2005) used both scales to investigate the features of the classrooms, programs and teachers that predict quality and teacher-child interactions. The Effective Pre-school, Primary and Secondary Education Project (EPPSE), a large-scale study ( $n=2800$ ) conducted in the UK (1997 – 2014) also used the *Early Childhood Environment Rating Scale-Extension* (ECERS-E) and the Child-Care Interaction Scale, to study the influence of preschool on children's learning outcomes and socio-emotional behaviors (Taggart et al., 2015).

Unlike the studies mentioned above, two small-scale studies used video recording and analysis to carefully examine the interaction behavior between children and teacher in a few high-quality classrooms (Rasku-Puttonen et al., 2012; White et al., 2015). It seems particularly relevant that these studies explore dialogic patterns of interactions in five preschools in Finland (Rasku-Puttonen et al., 2012) and analyze the interactions between teachers and infants and the language forms they used in the social event (White et al., 2015).

## How do Dialogue and Interaction Take Place in High-Quality Early Childhood Education?

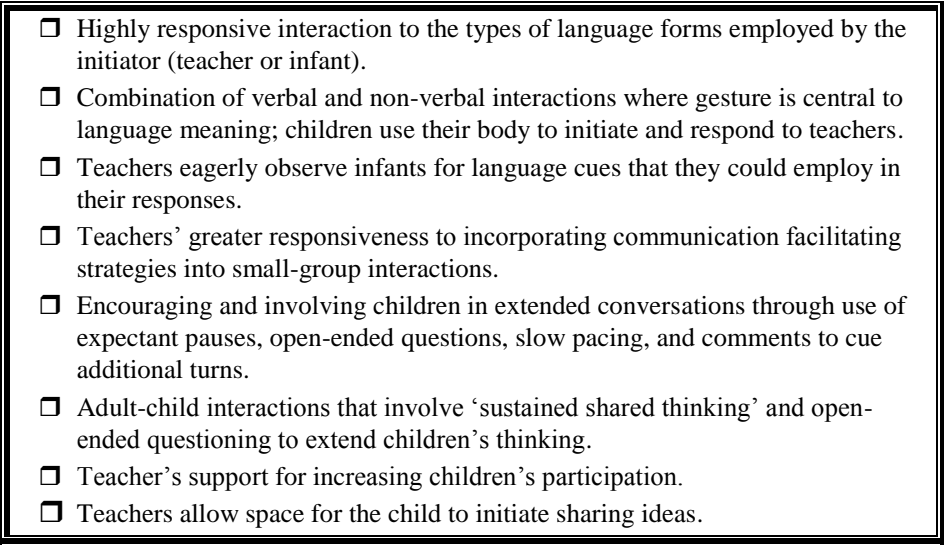
**Instructional and emotional interactions.** Stemming from the results reported by five of the studies, teacher-children interactions distinguish into two broader dimensions, if they provide *instructional quality* or *emotional support*. CLASS system allowed for researchers to provide evidence of the quality level of the interactions in both dimensions, so that the quality (high/low) can be then linked to academic and social gains (Burchinal et al., 2010; Mashburn et al., 2008). In high quality ECE, teachers combine both dimensions when they (a) use a positive emotional tone and (b) engage infants deliberately in instructional interactions. When dealing with behavior, teachers actively monitor children's behavior (i.e. providing them cues for how to behave) while offering and engaging them in learning activities simultaneously. In the same vein, particular focus on fostering children's learning and thinking (e.g. extending conceptual understanding) emerges in these studies. This instructional interaction includes also quality in the teachers' feedback, which is oriented towards promoting higher order thinking. An example of this occurs when teachers encourage children to communicate in order to develop reasoning skills (Pianta et al., 2005); or they actively participate in conversations with children to elicit their thoughts, and ideas. Those interactions are critical to shape children's use of language and vocabulary (Burchinal et al., 2010).

**Effective use of language form and communicative acts.** Four studies allowed us to delve into the features of teacher-pupils social interaction and communicative acts (Lonigan et al., 2013; Piasta et al., 2012; Rasku-Puttonen et al., 2012; White et al., 2015). Taking a dialogic approach to study the teachers' interactive style, these studies shed light on detailed interactions teachers promote by (a) using forms of language –verbal and non-verbal- effectively (White et al., 2015), (b) communication-facilitating and language-developing strategies (Piasta et al., 2012), and (c) dialogical patterns (Rasku-Puttonen et al., 2012).

On the other hand, dialogic reading strategies conducted in small groups of children reported the use of particular forms of language such as

complexity of questions asked and the educative feedback provided. This referred to simple “wh-” questions, modeling, and corrective feedback and primarily open-ended questions and extensions (Lonigan et al., 2013).

Two studies are particularly relevant as they provide a detailed analysis of the effective use of dialogue; first, White et al. (2015) analyze the ways in which infants and teachers initiate and respond to dialogue working with two children (under 1 year of age) and their two teachers in a high quality ECEC center in New Zealand; second, Piasta et al. (2012) investigate the impact of teachers’ professional development on children’s linguistic productivity and complexity within small group interactions. Figure 1 summarizes main features of dialogue and social interactions identified in the high quality ECE classrooms presented above.

- 
- ☐ Highly responsive interaction to the types of language forms employed by the initiator (teacher or infant).
  - ☐ Combination of verbal and non-verbal interactions where gesture is central to language meaning; children use their body to initiate and respond to teachers.
  - ☐ Teachers eagerly observe infants for language cues that they could employ in their responses.
  - ☐ Teachers’ greater responsiveness to incorporating communication facilitating strategies into small-group interactions.
  - ☐ Encouraging and involving children in extended conversations through use of expectant pauses, open-ended questions, slow pacing, and comments to cue additional turns.
  - ☐ Adult-child interactions that involve ‘sustained shared thinking’ and open-ended questioning to extend children’s thinking.
  - ☐ Teacher’s support for increasing children’s participation.
  - ☐ Teachers allow space for the child to initiate sharing ideas.

*Figure 1.* Summary of teacher-infant dialogic interactions and small-group interactions.

### **Beyond teacher-child interactions: the role of parents.**

Notwithstanding most of the studies focus on the teachers’ interactions with children rather than ‘adults’, though parents and family members can also

establish effective interactions in the school and at home. Three studies reported data about the impact of the interventions not only among the children, but also on the parents themselves (Love et al., 2005; Stein et al., 2013; Towson & Gallagher, 2014)

Likewise the teacher-child interactions described above, these studies reported how interactions between families and children were emotionally supportive, provided more language and learning stimulation. Two of the studies agree on the significant impact of providing students with cohesive and coherent interactions between home and school. According to Love and colleagues (2005) parents involved in the Early Head Start created a more supportive learning environment at home and were more likely to read their children. Particularly, this program follows a ‘mixed-approach’ by offering a combination of center-based and home-based services, tailoring families’ needs and achieving larger impacts on the Early Head Start children. Observations of interactions during semi structured play indicated that parent-sustained attention to objects and engagement produced positive impacts on children’s social and emotional functioning (Love et al., 2005). Beyond the parent-child interactions the Educare Chicago Research-Program Partnership (Stein et al., 2013) identified former parents as an ‘unintended resource’ as they were willing to volunteer and engage in interactions with the new ones to help them.

### **Do Early Childhood Interventions Based on a Dialogic Approach Affect Children’s Learning and Development?**

**Positive and modest outcomes.** Among the eight studies reporting evidence of the effects on children’s learning and socio-behavioral outcomes, six of them presented positive outcomes in children’s learning and development (Burchinal et al., 2010; Lonigan et al., 2013; Love et al., 2005; Mashburn et al., 2008; Piasta et al., 2012; Taggart et al., 2015). Particularly, teacher-child interactions experienced by a large sample ( $n=2307$ ) of 4 years old directly in classrooms resulted to be the measure most consistently and strongly associated with children's cognitive and language development (Mashburn et al., 2008). In addition, quality of

instructional interactions was positively associated with all five measures of academic and language skills.

Two of the studies reported results of a form of interactive shared book reading known as *dialogic reading* and evaluated its impact of children's outcomes (Lonigan et al., 2013; Towson & Gallagher, 2014). Both studies were conducted in Head Start centers. Only one of the studies reported statistically significant effects on children's emergent literacy skills (e.g., oral language skills, vocabulary skills). For the dialogic reading intervention effect sizes ranged from .17 to .21 (Lonigan et al., 2013). Positive effects on the key emergent literacy skills highlight the benefits of focused intervention activities for preschool children at risk later reading difficulties. In contrast, after implementing the dialogic reading strategy with parents (five week intervention) whose children were 3 years old, including children whose primary language was Spanish, there were no significant results in the domains of receptive and expressive vocabulary or pre-literacy skills (Towson & Gallagher, 2014). Several limitations may explain these unexpected results, as dialogic reading strategies have resulted to be successful in increasing children's expressive vocabulary and oral language skills (Hargrave & Sénéchal, 2000). Therefore, two aspects that might have influence are (a) the duration of the intervention period (five weeks) may not have provided enough time to achieve positive effects; (b) the sample size ( $n=25$ ), which was notably smaller than other studies reported here.

Two studies reported clear associations between the quality of teacher-child interactions in pre-kindergarten and preschool and children's gains in academic and social performance across the pre-k year (Burchinal et al., 2010; Taggart et al., 2015). Higher quality of the teacher-child interactions predicted better social skills among children and reduced behavior problems in the classrooms. Similarly, the quality of instructional practices predicted better expressive language among children of 4 years old, and improved mathematics and reading skills (Burchinal et al., 2010).

Interestingly, the preschool classrooms in which adult-child interactions involved 'sustained shared thinking' (Taggart, et al., 2015), as part of effective preschool study in the UK, demonstrated long-term positive impacts on children outcomes at the end of elementary school (age 11) and



in secondary school (age 14). As a result of attending high quality pre-school there were benefits at age 11 for reading/English and mathematics (Effect Size -ES- from 0.29 to 0.34), for the social-behavioral development of boys (ES from 0.28 to 0.45 depending on the outcome), for children with SEN (ES from 0.23 to 0.39), and for children from disadvantaged backgrounds (ES from 0.29 to 0.34) (Taggart et al., 2015, p.10). Therefore, effectiveness of the pre-school was related to outcomes, but also to the quality of the pedagogical practices.

### **Limitations of the Study**

This review focused on ECE with a special emphasis on dialogue and interaction in high quality educational settings during the 2005 – 2015 period. Mainly, teacher-child interactions and its impact on children's learning and development have been examined. It did not focus on other specific activities, such as play, which is also essential to young children's education and related to cognitive development and emotional well-being (Whitebread et al., 2012).

Despite conducting a systematic search and examine the related studies, it might be the case that other relevant studies have not been identified. Our search covers studies for a ten years period and includes eleven studies that have been analyzed in depth, so earlier relevant work may have been omitted. We also acknowledge there are only English-language resources searched systematically; therefore the review does not include non-English written papers.

### **Discussion and Conclusions**

Dialogue and interaction play a crucial role in high-quality early childhood education. Within the framework of a multidimensional definition of quality, we have focused this review on a particular dimension of the 'process quality' (Howes et al., 2008; Mathers et al., 2014), that is, teacher-child interactions and small group interactions in educational settings.

Still, some of the educational debates and practices in early years have neglected the importance of learning interactions, or instructional quality,

within this stage. This review challenges that belief and shows that a considerable amount of research investigating short and long-term impacts of high-quality ECE emphasizes the importance of instructional quality and emotional support from birth (Burchinal et al., 2010; Mashburn et al., 2008; Pianta et al., 2005). This might be controversial and disapproved by scholars who argue against introducing literacy and numeracy skills in early years; the movement ‘Too much too soon’ created in England is an example of it<sup>1</sup>. However, although there may be disagreements on this particular point, there is a consensus on the need to offering learning opportunities, including basic skills, and promoting rich and stimulating learning environments from a very early age. Indeed, the studies analyzed in this review provide sound evidences of the benefits that instructional support (i.e. language-rich learning environment, dialogic reading, communication facilitating strategies, warm and responsive interactions with teachers and parents) is for children’s cognitive and socio-behavioral outcomes.

Findings emerging from our review are not far from Vygotsky’s views on the optimal period for learning to read and write. For him and his collaborators it would be natural to transfer the teaching of writing to preschool years. They saw younger children as capable of discovering the symbolic function of writing; then the teaching of writing should be made the responsibility of preschool education. Even more, they argued the teaching of writing comes too late from the psychological point of view ‘The great majority of the children can read at four and a half. Montessori is particularly in favour of teaching reading and writing an earlier age’ (Vygotsky, 1978, p. 116,117).

In addition, instructional and emotional interactions are equally important in high quality ECE. Without the slightest hesitance, teachers in these high-quality ECE classrooms combine both dimensions, for example, when they use a positive emotional tone to engage infants deliberately in instructional interactions (Burchinal et al., 2010). This has implications for teachers working in ECE settings; building upon of this evidence, teachers can foster cognitive and emotional development simultaneously. This aligns with current European research conducted in preschool and elementary schools working as ‘Learning Communities’ where teachers and other adults –including highly disadvantaged communities- engage in

dialogic interactions to foster learning and socio-emotional development (Flecha & Soler, 2013).

Early childhood is a critical period of human development on which later learning, behavior, and health depend. Therefore, providing high-quality education for all at this stage is essential since it can most effectively influence children's development. Most of the studies examined here confirm short and long-term benefits of high quality ECE. However, deepening into how dialogue and interaction take place in those educational settings was less prominent in the studies. Only few studies provided details about the verbal and non-verbal interactions, language forms, and communication facilitating strategies, for example. Some of those studies used video recording of the teacher-child or small-group interactions, which seems to be a powerful methodology for analyzing interactions beyond verbal communication. Further research in this field could explore how successful dialogic learning environments contribute to create rich and stimulating spaces where children grow and develop cognitively, socially and emotionally.

## Notes

1. Retrieved from <http://www.toomuchtoosoon.org/>

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## **A Comparison of Assessment Beliefs of Science and Education Lecturers in a University**

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# **A Comparison of Assessment Beliefs of Science and Education Lecturers in a University**

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## **Abstract**

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Assessment processes and products are important at all levels of education, from the micro context of the classroom to national level. Expertise in assessment is assumed to be a basic attribute of lecturers. However, given the developments of the past 20-30 years a panoply of ideals and ideas have permeated discourses so as to camouflage the basics of theoretical understanding. This study examines the beliefs of 50 science and 50 education lecturers at an English university, focusing on data collected via a questionnaire to clarify the beliefs and understanding of assessment terms and the relationship between them. The results demonstrate that there is a great variety of understanding both between and within subject disciplines. This spread, though to be expected in a thinking, developing sector, has implications for learning and teaching and for quality assurance.

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**Keywords:** assessment beliefs, science, education

# **Comparación de las Creencias acerca de la Evaluación del Profesorado de Ciencias y de Educación en una Universidad**

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## **Resumen**

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Los procesos y los productos de la evaluación son importantes en todos los niveles educativos, desde el contexto micro del aula hasta el nivel nacional. Se supone que la experiencia en la evaluación es un atributo básico del profesorado. Sin embargo, dada la evolución de los últimos 20-30 años, una panoplia de ideales e ideas han calado en los discursos, con el fin de camuflar los fundamentos de la comprensión teórica. Este estudio examina las creencias de 50 profesores universitarios de ciencias y 50 de profesores universitarios de educación en una universidad inglesa, a partir de los datos recogidos a través de un cuestionario, con el fin de aclarar las creencias y la comprensión de los términos de evaluación y la relación entre ellos. Los resultados demuestran que existe una gran variedad de entendimiento entre y dentro de las materias. Esta expansión, aunque es de esperar en un sector en desarrollo, tiene implicaciones para el aprendizaje y la enseñanza y para la garantía de calidad.

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**Palabras clave:** creencias acerca de la evaluación, ciencia, educación

Papers published in 2008 (Taras, 2008a), 2013 (Taras & Davies, 2013) and 2014 (Taras & Davies, 2014) examined university lecturers' beliefs and opinions relating to assessment in a UK University's departments of education and science to explore their understanding of assessment issues. This paper presents comparison between the two sets of results, to determine the extent to which beliefs are shared across disparate disciplines in a single university. This is important because personal internal coherence is as critical as a shared understanding, given the social nature of communities of practice. In developing strategies to achieve this shared understanding it is important to know where to start, i.e. what the beliefs of staff are and how they differ between disciplines.

Assessment is at the heart of learning and teaching and focuses learners and tutors on the curriculum content, choices and focus of learning. Since learning outcomes are assessed, learning activities within and outside the classroom are ultimately influenced by assessment. How tutors understand assessment processes, functions and products impacts on how they organise their teaching and learning activities and how they envisage the roles learners should play. Learners have, for their part, been required to engage with learning outcomes, criteria and have a pro-active and independent role in learning and assessment. These student responsibilities come with new powers linked to student voice (Taylor & Robinson, 2009) and this is linked to gauging institutional excellence through, for example, the Course Experience Questionnaire (Australia) and the National Student Survey (UK). It is interesting to note that frequent least positive aspects of students' course experiences are related to assessment and feedback (Yorke, 2013). Thus tutors' perceptions relating to student understanding of assessment are relevant at micro and macro levels.

## **Background**

The different functions that assessment serves socially and politically, outside of the immediate educational requirements to support validation and accreditation (sometimes known as assessment of learning) and assessment to support learning and understanding (sometimes known as assessment for learning), make it a difficult and contentious subject. Socio-political

tensions vie with the education pressures which already exist. Additional complications arise because the common vocabulary noted above has different contextual and semantic meanings across education sectors, complications which have had limited attention (Black & Wiliam, 2009; Taras, 2009, 2012a, 2012b; Wiliam, 2009).

In the compulsory sector, the work of Black and Wiliam is recognised as having led discussions on and dissemination of assessment for learning world-wide, beginning with their seminal review article of 1998. In higher education (HE) in the UK, a number of centres of excellence in promoting learning have demonstrated the focus and interests in the discourses of learning, assessing and feedback. Cross-sector links through international journals, conferences and collaborations require a better and clearer understanding of sector-specific differences (Havnes & McDowell, 2008; Taras, 2008b), particularly in assessment processes, terminologies and protocols.

As regards theory, despite the differences across sectors, much of the literature uses Sadler's (1989) theory of formative assessment as a common baseline. This theory focuses on three aspects: the importance of using feedback to improve work; the necessity of using self-assessment by students in order for the parameters of assessment to be understood and for feedback to be used and therefore to ensure that formative assessment has taken place; and for criteria to be a constant point of discussion as they are in constant flux during assessment.

Another author and his work on assessment is also quoted regularly, Scriven (1967), but in the case of Scriven, the interpretation and reading of his work is not consistent (Taras, 2009; Wiliam, 2007). Taras focuses on the process of assessment and how all assessment uses parameters (that is, criteria, standards, outcomes etc.) either explicitly or implicitly to form a judgement. This judgement is a summation at any given point in time, which if it produces feedback that is used to improve work in learning, becomes formative assessment as stated by Sadler. Wiliam, on the other hand, maintains his focus on functions of assessment and on the irreconcilable separation of summative and formative functions, although in recent work it is no longer the function but the actual use to which the assessment is put that is mooted as important.

Scriven and Taras appear to be isolated figures who have explicitly considered how summative and formative processes relate. A further consequence of the lack of engagement with the clarification of the relationships between summative and formative assessment functions and processes, and how these relate to feedback, learning, peer and self-assessment, is that the education community is drip-fed disparate discourses which remain segmented and unrelated. Some of the consequences might be that although many pockets of good practice would continue across the education community, and dissemination and take-up of these would help sustain excellence in learning and teaching, disparate understandings of assessments would result in a less coherent picture where pockets of beliefs replace a coherent and complete theoretical picture. Since we are limited by the theoretical frameworks available, if these are limited, flawed and incomplete, this will inevitably be reflected in our understandings.

### **Research Method**

A questionnaire of 43 questions (Appendix 1) was distributed to 50 lecturers in an Education department at an English university in 2007. The same questionnaire was distributed to a further 50 lecturers in a variety of health and life science-related academic teams in a science faculty at the same university in 2010. For education lecturers the questionnaire was completed during a whole-staff ‘awayday’, but for the science lecturers it was issued on an opportunistic basis over an eight-month period on occasions when each academic team met to discuss business. All lecturers were told that the questionnaire was to be completed anonymously and were instructed to answer the questions in order and not to go back. They were asked not to confer but told that they could ask for clarification of any question. The questionnaire was not piloted because it was that used by Taras (2008a) who had already undertaken a piloting exercise.

For most questions a yes/no response was required and data were analysed accordingly. However, some questions were qualitative in that they required a written comment. Questions 1 and 3 asked for a rough definition of firstly summative and then formative assessment; questions 2 and 4 asked for examples of summative and formative tasks, respectively;

question 15 asked how formative work is related to summative work; and the final questions, 42 and 43, asked again for definitions of summative and formative assessment. These questions required analysis and interpretation. Key words were selected and analysed to find the general trends that appeared from repetition of words and ideas and the responses were classified.

**Results and Discussion**

For all tables numbers are percentage of respondents; Ed = education lecturers; Sc = science lecturers.

**First and Second Definitions of Summative Assessment**

Semantic analysis revealed that in general lecturers were consistent between the first and second definitions of summative assessment (SA), suggesting that completing the questionnaire had no impact on their understandings.

Many more education lecturers linked SA to the concept of final than did science lecturers, though a similar proportion used the idea of grade (Table 1). In the literature, both grade and final are often interlinked (Hargreaves 2005, Taras 2008b). No education lecturer fundamentally misunderstood the concept of SA, but 16 % of science lecturers did, using terms linked to formative assessment (FA).

Table 1  
*Semantic focus of summative assessment definitions (first and second definitions combined)*

	Ed	Sc
‘grade’	36	46
‘final’	80	42

**First and Second Definitions of Formative Assessment**

Again semantic analysis revealed that in general lecturers were consistent between the first and second definitions of FA, suggesting minimal impact of the questionnaire on their understandings.

Responses mentioning the notion of feedback were low for both education and science lecturers (Table 2). Education lecturers are required to be familiar with the literature to support trainee teachers, and despite feedback being the central component of the accepted definition of FA (Black & Wiliam 2009; Sadler, 1989; Taras, 2009), it is surprising that so few referred to feedback. Nonetheless we were also surprised by how few science lecturers, as professionals in higher education, referred to feedback.

Table 2  
*Semantic focus of formative assessment definitions (first and second definitions combined)*

	Ed	Sc
‘feedback’	28	34

**Examples of a Summative Assessment Task**

By far the most common response referred to examinations, though education lecturers used this term much more than the science lecturers (Table 3). This may relate to a broader range of assessment tools deployed in the sciences. The proportion of education lecturers using an examination example matches closely the proportion who used the concept of ‘final’ in the definition, though fewer science lecturers used final in the definition than used exam in the example (Table 1).



Table 3  
*Semantic focus of summative assessment task example*

	Ed	Sc
‘examination’	86	52

**Examples of a Formative Assessment Task**

38 % of education lecturers gave examples that focused on classroom processes, presumably aware of the discourse of the compulsory sector which links FA to classroom processes (Black et al, 2003; Black & Wiliam 2006; Wiliam, 2009). However, 20 % focused on the product of assessment, as did 50 % of science lecturers who used the terms “essay”, “presentation”, “multiple-choice questionnaire”, “coursework”, “practice” and “draft”, usually associated with FA in the literature, although technically the first four are also examples of SA tasks (Stobart, 2008; Wiliam, 2007, 2009).

22 % of science lecturers mentioned feedback, though this is not an assessment task, but is information. 16% mentioned “exam” or “time-constrained test”, both of which are normally associated with SA. Therefore, 38% of replies from science lecturers would seem inappropriate to the question. Surprisingly 42 % of education lecturers also gave inappropriate non-task related examples.

**Formative Assessment Tasks used with Students**

All education lecturers used FA tasks, as did almost all science lecturers (Table 4). Although both groups used FA tasks both in class and for homework, slightly more science lecturers used them in class and slightly more education lecturers for homework. However, it is clear that FA tasks are more associated with classroom work than with homework, given that a significant proportion of both groups indicated that they did not use FA

tasks for homework (Table 4). This accords with the assessment for learning literature, which focuses on formative assessments as classroom activities (Gardner, 2006; Stobart, 2008). Since the respondents’ definitions and understandings of FA tasks are disparate it is difficult to understand what the data on the use of FA with students actually mean. It may be that lecturers want to help learners, but are not clear on why their activities help students.

Most of the assessment for learning literature (particularly, but not exclusively, from the compulsory sector) emphasises the desired separation of SA and FA functions (Black et al, 2003; Black & Wiliam, 2009; Gardner, 2006; Haynes & McDowell, 2008; Stobart, 2008; Wiliam, 2007). Since it is evident from the data from both education and science lecturers that it is extremely difficult to separate functions from general understandings of SA and FA it is surprising that education lecturers are less inclined to separate SA and FA than are science lecturers (Table 4). We would have expected education lecturers to be influenced by the literature, which indirectly implies separation because of external examinations in the compulsory sector. Conflation has the advantage of using the focus and work put into SA tasks to provide feedback that can support learning and also be used for other assessments. Separating SA and FA results in repetition and duplication of effort (Taras, 2009).

Table 4.  
*Formative assessment tasks used with students*

Response	5. FA tasks used		6. In class		7. For homework		8. FA and SA separate		9. FA and SA conflated	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	100	94	86	92	78	62	38	48	54	38
No		6	10	8	20	34	46	34	38	52
Sometimes							10	12	6	2

*Note.* Numbers in first row refer to question numbers; where percentages do not sum to 100 this indicates some respondents did not answer the question or gave an ambiguous answer

**Information Given to Students on Formative Assessment Tasks**

78% of science lecturers inform students that the task is FA and almost all of those explain how it is formative (74%). More lecturers mark the work (66%) than grade it (48%), and most thought that FA is related to SA (70%) (Table 5). The figures for education lecturers are comparable if slightly lower: 70% of lecturers inform students that the task is FA and 64% explain how it is formative. This is surprising since it could be expected that educationalists are more careful about clarifying pedagogic process to their students. The number of education lecturers marking the work is comparable (70%) but far fewer grade it (30%) and most of it is related to the summative assessment work (78%).

The differences between education and science lecturers again refers to the literature on assessment which distinguishes between SA and FA with the latter sometimes excluded from grading (Black et al, 2003) and sometimes not. When grading does not take place it does not support the understanding of standards against pre-determined criteria (Sadler, 1989, 1998, 2010; Scriven, 1967).

Table 5  
*Information given to students on formative assessment tasks*

Response	11. Tell students task is FA		12. Explain how task is FA		13. Is formative work marked?		14. Is formative work graded?		15. Is formative work related to summative work?	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	70	78	64	74	70	66	30	48	78	70
No	30	18	36	22	24	32	58	48	10	18
Sometimes		2			6		8	2	8	8

## **How is Formative Work Related to Summative Work?**

The research literature is divided on the relationship between SA and FA as noted in the 'Background' section, with some definitions being based on the processes of assessment (Sadler, 1989; Scriven, 1967; Taras 2005, 2009) and some based on the functions of assessment (Black et al, 2003; Black & Wiliam, 2009; Wiliam, 2007, 2009). It is little wonder therefore that science lecturers were confused about the relationship between SA and FA. Here 32 % of science lecturers gave responses that followed the framework of the relationship between SA and FA as defined according to the functions of assessment, that is, that FA leads to SA. 76 % of the education lecturers aligned themselves to this view, reinforcing the notion that educationalists' understanding is informed by research into the compulsory sector.

## **Information on Student Self-assessment**

More education staff use self-assessment, and more believe it is related to FA than do science staff (Table 6).

Similar numbers of education staff present it as SA and believe it can be both, but more science staff believe it can be both than present it as SA. The literature in general associates self-assessment with FA (Black et al, 2003, Black & Wiliam, 2009; Wiliam, 2007, 2009) because the assumption is made that students will improve their thinking and their work, though more recently FA also requires the explicit use of feedback to become FA (Black & Wiliam, 2009; Wiliam, 2007, 2009). However, logically there must come a point where even after self-assessment students are not aware of how they can improve their work, and so technically it could be classified as SA.

Table 6  
*Information on student self-assessment (ssa)*

Response	17. Do students do ssa?		18. Do you present ssa as a formative exercise?*		19. Do you present ssa as a summative exercise?*		20. Does ssa use both SA and FA?	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	70	56	58	46	28	20	30	34
No	28	44	36	50	60	72	66	50
Sometimes	2		4		4	2	2	

**Is Theory Important to us as Teachers?**

Although an overwhelming majority of science lecturers (90%), though slightly less than education lecturers (96%), agreed that theory was important, the answers to many of the other questions indicate that the importance is not consistently translated into an understanding of theory or indeed into practical use. While recognising the importance of theory, the scientists might regard it as unimportant to their activities as lecturers and that it is something that does not concern them, perhaps the preserve of educationalists.

**Summative and Formative Assessment can be Used for End- or Mid-Course Grades**

Almost all lecturers, especially those in education, agreed that SA can be used for end-course grades and most thought it could be used for mid-course grades (Table 7). However, a significant proportion of both groups did not agree with these positions, and these beliefs appear counter-intuitive because at any point in any assessment process one can stop and provide a summative judgement (Scriven, 1967), and grading may or may not take place at this point.

More education lecturers than science lecturers thought FA could be used for both end-course and mid-course grades, but the lowest proportion recorded was 40% (Table 7). Thus there seems a discontinuity in the representation of the relationship between FA and grading in both groups, and this may be interpreted as a general lack of clarity of the terms used. Nearly half of both groups indicated that FA cannot be used for end-course grades (Table 7), and this has implication for both lifelong learning and for progression from one level to another. A significant proportion of respondents from both groups indicated that SA cannot be used for mid-course grades, when this is common practice. Even more indicated that FA cannot be used for mid-course grades.

Table 7  
*Summative and formative assessment can be used for end- or mid-course grades*

Response	22. SA can be used for end of course grades		23. FA can be used for end of course grades		24. SA can be used for mid-course grades		25. FA can be used for mid-course grades	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	98	82	56	40	76	70	66	54
No	2	16	40	54	20	26	32	44
Sometimes				4		2		

**Summative and Formative Assessment Assess Product and/or Process**

SA is seen as a final, product-based activity and FA as assessing a process, both more so by education lecturers (Table 8). However, high numbers of both groups also saw SA as a process and FA as a product: thus, over half recognised a dual function. It is surprising that 30% of education lecturers do not think that SA assesses process since teaching practice assessment is one of the mainstays of all education programmes. Similarly 32% of science lecturers agree with this position, even though practical exercises are a common feature of their work. These interpretations were unexpected

because any assessment (SA, FA, peer- or self-assessment) can be either of product or process or both (Taras, 2005, 2009, 2012b).

Table 8  
*Summative and formative assessment assess product and/or process*

Response	26. SA assesses product		27. SA assesses process		28. FA assesses product		29. FA assesses process	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	90	76	58	62	70	66	86	80
No	0	20	30	32	14	28	10	16
Sometimes	6		6		6	2	4	2

**Summative and Formative Assessment Assess for Validation (Grading) or for Learning**

There was general agreement between the two groups of staff (Table 9). Both SA and FA are seen as promoting learning relevant to grading. Those who did not see FA as requiring grading (40 % in each group) may believe that feedback to students does not occur (Taras, 2008a). This interpretation may not have been realised by respondents, particularly as so few of them explicitly linked the definition of FA with feedback in the definitions. There does not appear to be a clear, single understanding of how SA and FA functions interrelate.

An overwhelming majority (90% in each group) indicated that FA assesses for learning. The only difference between the two groups was that many more education lecturers thought SA assesses for grading and many more science lecturers (30%) thought that SA does not assess for grading, which seems counterintuitive.

Table 9  
*Summative and formative assessment assess for validation (grading) or for learning*

Response	30. SA assesses for validation		31. SA assesses for learning		32. FA assesses for validation		33. FA assesses for learning	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	84	62	78	78	48	52	90	90
No	4	30	12	18	40	40	0	8
Sometimes	6		6		6		2	

**Summative and Formative Assessment Provide Useful Feedback**

A large proportion of both groups regarded SA as providing useful feedback (Table 10), which is anomalous in relation to their previous comments. Higher proportions in both groups regarded FA as providing useful feedback (Table 10), but in each there was a low number of respondents who considered that FA and feedback were not connected. Even though these numbers were low, they were surprising since the literature makes feedback (and increasingly, its use) an integral part of FA (Black & Wiliam, 2009; Sadler 1989; Scriven, 1967).

Table 10  
*Summative and formative assessment provide useful feedback*

Response	34. SA provides useful feedback		35. FA provides useful feedback	
	Ed	Sc	Ed	Sc
Yes	82	78	96	88
No	12	18	2	8
Sometimes	6	2	2	



**Summative and Formative Assessment are Different or Similar Processes**

More science lecturers regarded SA and FA assessment as similar processes (64%) than education lecturers (50%), and vice versa for regarding them as different processes (50% versus 68%, Table 11). This may stem from the perception in education that duplication of assessment is required to obtain both SA and FA (Black et al, 2003; Torrance, 1993). That so many lecturers from both groups regard SA and FA as similar processes (that perhaps cannot be disentangled from each other) may account for the discrepancies in understanding noted above. Lecturers may lack confidence in their understanding of assessment terminology despite its common use in various academic contexts.

Table 11  
*Summative and formative assessment are different or similar processes*

Response	36. SA and FA are different processes		37. SA and FA are similar processes	
	Ed	Sc	Ed	Sc
Yes	68	50	50	64
No	22	42	30	30
Sometimes	6	4	12	4

**Sure/unsure how Summative and Formative Assessment Relate**

This question perhaps reveals most uncertainty as 32% of science lecturers and 16 % of education lecturers failed to respond, which perhaps indicates ‘not sure’, in addition to actual ‘not sure’ responses of 22% and 4%, respectively. Only 46% of science lecturers stated that they were sure how SA and FA relate to each other, but education lecturers were much more confident (80%).

**Students Understand/focus on Summative and Formative Assessment**

72% of science lecturers believed students understood SA (but only 50% for FA) (Table 12). 76% believed students focused on SA (but only 28% for FA). 28% of science lecturers believed that students did not understand SA and this increased to 48% for FA. It is hard to imagine why staff had not persisted in remedying this, since staff think students are engaging with processes that they are not clear about. However, it may be difficult for staff to do this if they are not certain themselves.

Much lower numbers of education staff thought that students did not understand assessment (10% for SA and 26% for FA, Table 12): this is to be expected where the students themselves are expected to understand processes used in education and its study. Both groups of staff perceived greater focus by students on summative assessment and again this could be expected if students do not understand assessment. Most higher education students have graduated from a culture where grades have determined their fate and thus focus on graded assessments (e.g. [Black et al., 2003](#)). However, it was surprising that such a large proportion of science lecturers did not think students focused on SA (Table 12).

Table 12  
*Students understand/focus on summative and formative assessment*

Response	39. Students understand SA		40. Students understand FA		41. Students focus on SA		42. Students focus on FA	
	Ed	Sc	Ed	Sc	Ed	Sc	Ed	Sc
Yes	74	72	60	50	82	76	32	28
No	10	28	26	48	12	22	50	64
Sometimes	16		14	2	2	2	14	4

## Conclusion

Although our sample size is adequate for generalizability, we investigated a single institution, thus diminishing generalizability: cross-institution work would be profitable for this field of research. We relied on the honesty and integrity of the respondents and we do not question these. The contradictory aspects of their responses reflect contradictions in the literature. Questionnaires were not all issued at the same time and this might have impacted on the results.

The understanding of assessment terms and their relationships by both science and education lecturers is far from homogenous. However, in general education lecturers seem more closely aligned with the literature and therefore have a greater shared understanding, although this does not coalesce coherently. For example, given the separation of external examinations from classroom-led assessments in the compulsory sector, it is not surprising that education lecturers see a greater separation between SA and FA: this is evidenced by SA being associated with ‘final’ (Table 1) and ‘examination’ (Table 3 and see Table 4). Science lecturers, on the other hand, seem more communicative and proactive in their classes, where 92 % carry out FA in class (Table 4) and where they are better at communicating with students about FA tasks (Table 5).

However, both groups find it equally problematic when it comes to relating FA and SA (Tables 7 - 9) and distinguishing between process and product, and what role they play in the assessment calendar. It is not surprising to see this because most of the literature defines SA and FA in terms of functions (e.g. Black & Wiliam, 2009; Wiliam, 2009). It is difficult to relate functions to the reality of classroom processes and products of assessment. Perturbing as the foregoing might be, perhaps the most surprising result is how lecturers’ understandings of SA and FA are communicated (Table 5). In addition, one would expect as a minimum that lecturers communicate assessment requirements to students and that this would translate into student understanding of assessment in general. Table 12 shows that lecturers are not convinced of this understanding which would leave a deficit in their communication with students.

We are drawn to the overall conclusion that more work is required in understanding the assessment beliefs of staff, across the higher education discipline landscape, because lack of consistency in personal beliefs and understandings about assessment link directly to practice. Only when this is done can we begin to work towards a shared platform for discussion.

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## **Appendix A**

### **QUESTIONNAIRE on Summative and Formative Assessment**

Where “YES – NO” or “SURE – NOT SURE” is presented, please circle your choice.

1. Give a rough definition of summative assessment.
2. Give an example of a summative assessment task.
3. Give a rough definition of formative assessment.
4. Give an example of a formative assessment task.
5. Do you use formative assessment tasks with your students? YES -NO
6. Do you use formative assessment tasks in class? YES -- NO
7. Do you use formative assessment tasks for homework? YES -- NO
8. Do you keep summative and formative tasks separate? YES -- NO
9. Do you conflate summative and formative tasks? YES -- NO

#### **If you use formative assessment with your students -**

10. Do you tell them it will be a formative assessment? YES -- NO
11. Do you explain **how** it will be a formative assessment? YES --NO
12. Is formative work marked? YES -- NO
13. Is formative work graded? YES -- NO
14. Is formative work related to summative work? YES -- NO
15. If yes, how is it related?
16. Do your students carry out self-assessment? YES -- NO
17. Do you present self-assessment as a formative exercise? YES -- NO
18. Do you present self-assessment as a summative exercise? YES -- NO
19. Does self-assessment use both summative and formative assessment? YES -- NO
20. Is theory important to us as teachers? YES – NO
21. Summative assessment can be used for end of course grades. YES -- NO
22. Formative assessment can be used for end of course grades. YES -- NO
23. Summative assessment can be used for mid-course grades. YES -NO
24. Formative assessment can be used for mid-course grades. YES-- NO
25. Summative - assesses product. YES -- NO
26. Summative - assesses process. YES -- NO

- 27. Formative - assesses product. YES -- NO
- 28. Formative - assesses process. YES -- NO
- 29. Summative - assesses for validation. YES -- NO
- 30. Summative - assesses for learning. YES -- NO
- 31. Formative - assesses for validation. YES -- NO
- 32. Formative - assesses for learning. YES -- NO
- 33. Summative provides useful feedback. YES -- NO
- 34. Formative provides useful feedback. YES -- NO
- 35. Summative and formative are different processes. YES -- NO
- 36. Summative and formative are similar processes. YES -- NO
- 37. I am SURE -- NOT SURE how summative and formative relate to each other.
- 38. Students understand summative assessment. YES -- NO
- 39. Students understand formative assessment. YES -- NO
- 40. Students focus on summative assessment. YES -- NO
- 41. Students focus on formative assessment. YES -- NO
- 42. Without looking back, give a definition of summative assessment.
- 43. Without looking back, give a definition of formative assessment.

Thank you very much for your time and brain power.



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## **El Profesor Cosmopolita en un Mundo Global**

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## Review

Hansen, D. T. (2014). *El profesor cosmopolita en un mundo global*. Madrid: Narcea. ISBN: 978-84-277-1938-5

El *Profesor Cosmopolita en un Mundo Global* de David T. Hansen es una obra destinada a los profesores de todo el mundo; siendo su objetivo ayudarles a responder a los retos contemporáneos que están vinculados a una realidad en continuo cambio y en la que viven personas con singularidades individuales y culturales.

En la introducción y en el capítulo número 1 del libro, Hansen nos habla de la perspectiva cosmopolita para alcanzar el fin indicado. Aclarando, a su vez, que se entiende como una perspectiva porque es una forma de mirar y pensar que lleva a actuar de una determinada manera.

En el cosmopolitismo el profesorado educa siguiendo miradas, pensamientos y actuaciones solidarias que son proyectadas en la gente de todo el mundo. El autor señala que preocuparse por un mundo, más allá del propio, favorece la apertura a nuevos conocimientos que deben ser comprendidos desde lo conocido y la reflexión. Otra idea vinculada a esta aportación es que no se trata de olvidar los esquemas previos, sino de transformar aquellos que sean necesarios mediante la reflexión y los valores.

La *filosofía del arte de vivir*, es el tema principal de los dos siguientes capítulos. En el primero de ellos se explica de manera detallada este corriente, que contiene propósitos cosmopolitas.

Estos propósitos son identificados en las aportaciones de Confucio, Sócrates, Platón, John Dewey, Alain Locke, Erasmo de Rotterdam, Diógenes, Tagore, Epicteto, etc. Por lo tanto, desde una mirada a la historia, el profesor aprende que el conocimiento de la condición humana, así como su respeto, son el origen de la responsabilidad social. Esta última

se tiene que enseñar y aprender como un propósito que da sentido a la vida de las personas.

En definitiva, se está haciendo alusión a cambiar el prisma personal; este cambio consiste en entender que las personas tienen que encontrar que la humanidad se entiende como tal y encuentra armonía en la comunidad y no en el individualismo.

El tercer capítulo, se centra -entre otros- en unos de los rasgos más particulares de la condición humana: la velocidad con la que cambian los valores.

Esta situación debe entenderse por el profesorado como una oportunidad para enseñar que todos debemos estar unidos ante el cambio; de esta manera, la respuesta hacia la incertidumbre no será desde la desesperación. Esta unión tiene sentido porque el cambio continuo es algo que hemos compartido las personas a lo largo de la historia.

En el capítulo número 4, el cosmopolitismo se entiende como una pedagogía basada en la creatividad cultural. Sobre la creatividad cultural ya hemos hablado, más específicamente, en la parte en la que exponíamos que los aprendices tienen que interaccionar con lo nuevo sin perder de vista la reflexión y lo conocido. En esta expansión del conocimiento individual entra en juego la forma de expresar los valores (pacífica, deliberativa, violenta, etc.), y es en la expresión de los valores donde cada individuo muestra su nivel de relación con el cosmopolitismo. Una relación de cercanía con esta perspectiva se encuentra en conservar los valores propios, mantenerlos en el tiempo y transformarlos mediante la absorción de otros nuevos en espacios diferentes.

En la última sección del libro, vemos como se ofrece las instituciones educativas formales como espacios donde cultivar las finalidades cosmopolitas (que hemos ido viendo a lo largo de los capítulos indicados). La importancia del cosmopolitismo en las aulas y la forma de plantarlo se puede entender mejor a partir un ejemplo que resume, una vez más, desde las acciones de una profesora, que en la interacción con el legado cultural se encuentra el aprendizaje de la realidad.

No podemos terminar sin decir que es un libro que se une a la filosofía para educar al profesorado de cada presente. Entonces hablamos de un libro sin fecha de vencimiento. También es un libro que apuesta por orientar a los

102 *Fernandez Antón – El Profesor Cosmopolita [Book Review]*

docentes del mundo a cultivar el cosmopolitismo, en las aulas, a través de un camino basado en la reflexión que se plasma en dos preguntas que tienen que ser respondidas por cada uno de nosotros: ¿quién soy? ¿En qué deseo convertirme?

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## List of 2015 Reviewers

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