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Are Learners of English as a Second Language Creative and Innovative?

Rohan Abewickrama
University of Sabaragamuwa

ABSTRACT

The study investigated the creativity of the learners of English as a second language at a state university in Sri Lanka. The sample consisted of 20 intermediate level second year undergraduates who were following the Core English Language (CEL) Level 4 course. CEL is part of the BA Degree Programme and it contains 11 credits. Their creativity was measured by employing a standardized creativity test. This investigation compared the descriptive statistics of the creativity test of the present study and the descriptive statistics of the standardized creativity test conducted in Hungary for a representative sample of high school graduates by Barkóczi and Zétényi (1981) to examine the statistical variations.

The findings of the study showed that the respondents were sufficiently competent to create a higher number of responses and a considerable number of novel solutions on all the sub-tasks of the creativity test. However, according to the descriptive statistics, the subjects were unable to select their answers from multiple domains. The results of the present investigation deviate from the findings of the previous studies (Barkóczi and Zétényi, 1981; Albert & Kormos, 2004) which revealed respondents' were less competent in producing rare solutions and asserted their capability of selecting answers from multiple domains. Since the results of this study are different in comparison with the results of the previous research, further investigations are necessary to determine the creativity of learners of English as a second language prior to arriving at far-reaching conclusions.

Apparently to promote creativity in these learners both 'teaching with creativity' and 'teaching for creativity' should be improved (Higgins, 2000). For a prosperous future, a country requires creative and innovative people. However, the education system in Sri Lanka seems to be working against this. At a national level government has a responsibility to promote higher levels of teacher autonomy and creativity in both teaching and learning

Key Words: Learner Creativity, University Students

1. INTRODUCTION

Creativity has received a high degree of attention from scholars, professionals and policymakers alike in the 21st century since creativity and innovation are keys to success in today's rapidly changing world. Every major twentieth-century psychologist (e.g. Freud, 1959; Rogers, 1951; Skinner, 1953) has identified the significance of creativity and explored what it means to be creative. At present there is an upsurge in enthusiasm for creative thinking and the need for creative people in every sphere is strongly felt. There is an increasing professional interest in the area which can be seen in the growth of journals and books specifically devoted to creativity. Hence, creativity is attracting attention in the media and popular press as well.

2. SIGNIFICANCE OF CREATIVITY IN HIGHER EDUCATION IN SRI LANKA

According to the National Education Commission Report (2009) on the National Policy Framework on Higher Education and Technical and Vocational Education in Sri Lanka, the ability to create a demand driven higher education system that focuses on creativity and innovation will determine the country's capacity to sustain the benefits of the economy. Furthermore, the report states that higher education must allow independent thinking that leads to new knowledge and creativity. 'However, the dearth of employment opportunities in Sri Lanka has led to the creation of courses that cater to the needs of particular employment avenues' (p. 36). This situation no doubt has contributed to improving graduate employability. 'However, over-emphasis of this aspect could have negative impact on open-ended free thinking and innovation which are the hallmark of higher education' (p. 36).

According to Senadeera (2001), the academic teaching/learning process of the Faculties of Arts in Sri Lankan Universities has been limited only to three aspects: (a) listening to lectures, (b) taking down notes, and (c) writing at the examinations. This traditional approach has weakened creative and innovative abilities, problem solving skills and the ability to engage in research and project work in undergraduates (Senadeera, 2001).

Therefore, the government of Sri Lanka has given higher education reforms a priority and long-term strategies are being developed to respond to the national concern that the higher education system of the country has little potential to provide undergraduates with the modern skills required for the country's development. Hence, a new approach was initiated in 2010 by introducing a novel project in consultation with the World Bank. The proposed project, Higher Education for the Twenty-first Century (HETC) aims (a) to enhance the capacity of the higher education system and (b) to deliver quality higher

education services in line with equitable, social and economic development needs of the country (www.hetc.lk). In particular, it expects to provide undergraduates with a complete and balanced tertiary education while enhancing soft skills to mould them into creative, educated citizens of the country.

3. OVERVIEW OF THE PAPER

The background, rationale, aim of the study and the theoretical framework for the study are discussed first. The methods employed in conducting the research, the research design and the background of the research sample and the instrument utilized are discussed next, followed by the standardized creativity test.

Descriptive statistics of the four sub-tests of standardized creativity test employed for the population are discussed in the next section. This is followed by a comparison of the descriptive statistics of the second- year undergraduate research sample and the descriptive statistics of the standardized creativity test conducted in Hungary for a representative sample of high school graduates by Barkóczi and Zétényi (1981). In the final section, conclusions, recommendations and pedagogical implications are examined.

4. RATIONALE AND AIM OF THE STUDY

Foreign language instructors generally agree that the notion of proficiency includes the four language skills, as well as structural, semantic, discoursal and other communicative aspects. Creativity is thus a less addressed component in the foreign and second language teaching field. Vaguely associated with imagination, invention or wit, creativity is often not evaluated in the current classroom context. Perhaps this may be one reason why creativity tends to be ignored as a language learning skill (Dinapoli, 2001). 'Within learning and teaching, creativity can often be seen as an elusive concept that is rarely prioritized, and when it is, it is often related to the concept of problem solving ' (Davis, 2006, p. 37).

The ESL research of individual learner variables has failed to investigate the effects of creativity although the influence of other cognitive variables such as intelligence, language aptitude and different learning and thinking styles have been researched widely (Gardner & MacIntyre, 1993; Oxford & Ehrman, 1993; Skehan, 1989, 1991). Many of the individual differences that exist between learners have been studied in an attempt to identify the appropriate methods in second language teaching and learning. Though the relevance of several cognitive, motivational, personality and social factors has been researched, the significance of one complex phenomenon, learner creativity has not been thoroughly explored yet (Albert & Kormos, 2004).

According to the researcher's knowledge, no study has specifically focused on learner creativity in Sri Lankan ESL classrooms. This study investigated the creativity of learners of English as a second language at a state university in Sri Lanka. Thus, current research findings would contribute to the enrichment of the second language teaching/learning research base in Sri Lanka.

5. THEORETICAL FRAMEWORK FOR THE STUDY

According to Albert and Kormos (2004), 'theories of creativity, similarly to the wide range of issues covered by it, are numerous' (p. 282). Authors working within the psychodynamic (Freud, 1908-1959; Kris, 1952), the humanistic (Csikszentmihalyi, 1988; Maslow, 1968, Rogers, 1954) as well as the socio-psychological (Amabile, 1983, 1996) approaches have presented theories in an attempt to account for this phenomenon. As proponents of recent models of creativity (Amabile, 1983, 1996; Sternberg & Lubart, 1991, 1996) clearly state, creativity is probably best hypothesized as a complex interplay of several cognitive, personality, motivational, and social factors (Albert & Kormos 2004). They also state that intellectual abilities are arguably among the most important components of creativity (Lubart, 1994).

5.1 Cognitive components of creativity

Many researchers concentrated purely on the cognitive factors underlying creativity in their investigations. Guilford (1950) was the first linguist who presented a list of cognitive processes involved in creativity. According to Guilford, these processes include: sensitivity to problems, creative fluency of production, ability to come up with novel ideas, flexibility of mind, synthesizing ability, analyzing ability, reorganization or redefinition of organized wholes, a high degree of complexity of the conceptual structure, and evaluation. Daubman, Nowicki, and Isen, (1987) mention that creativity has three primary and positive effects on cognitive activity:

1. Make additional cognitive material available for processing, increasing the number of cognitive elements available for association;
2. Lead to defocus attention in a more complex cognitive context, increasing the breadth of those elements that are treated as relevant to the problem;
3. Increase cognitive flexibility, increasing the probability that diverse cognitive elements will in fact become associated.

However, 'the factor of creativity-relevant intellectual abilities tend to load on one common higher-order factor called idea production, which provides empirical evidence of the autonomous existence of this ability' (Albert 2006, p. 82). According to Carroll (1993), idea production is usually measured by tasks which prompt examinees to quickly think of

a series of responses. Carroll (1993), after reviewing and reanalyzing 121 datasets, identified nine basic factors which are relevant for idea production: ideational fluency, naming facility, associational fluency, expressional fluency, word fluency, sensitivity to problems, originality, figural fluency, and figural flexibility. Out of the nine factors, eight are primarily concerned with the speed of idea production and are differentiated on the basis of the type of the idea produced, whereas the aspect of creativity, originality seems to determine the quality or level of idea production (Carroll, 1993).

According to Albert (2006), two different approaches are used in assessing a person's creative potential. One is measuring several non-cognitive aspects of creativity, such as personality and motivation, in addition to intellectual processes and intellectual style. This was practiced by Sternberg and Lubart (1991), who made efforts to establish individual creativity this way. Although this approach is more in line with the current constructs of creativity which state that creativity should be considered as a complex interplay of several cognitive, personality, motivational and social factors (Amabile, 1983, 1996; Sternberg & Lubart, 1991, 1996), it is not feasible in correlational research designs where creativity is only one variable to be measured. The other option, therefore, is assessing divergent thinking, the intellectual ability that is considered to be the most important characteristic of the creative process (Guilford, 1967; Torrance, 1962).

Creativity-relevant intellectual abilities have a number of common factors, which draw attention to the fact that in almost fifty years one aspect certainly did not change; researchers believe that creativity rests on the same cognitive foundation as other intellectual abilities, such as intelligence. As a result, the cognitive abilities that form the basis of creativity are usually integrated into comprehensive theories of intellect (Carroll, 1993; Guilford, 1967; Sternberg, 1985b). Although theories of intellect bear relevance for theories of creativity and provide a general frame of interpretation of the phenomenon, the drawback of this approach is that creativity becomes difficult to distinguish from other intellectual abilities in terms of purely cognitive factors (Albert & Kormos, 2004).

6. RESEARCH METHODOLOGY

6.1 Background of the research sample

The subjects of the research were twenty second-year students in a state university in Sri Lanka following the course unit, Core English Language Level (CEL)-IV as a second language for their BA Degree programme. They had their primary and secondary education in Sinhala. According to the scores at the placement test, the selected subjects were intermediate learners of English. Their ages ranged from 20-24 and 12 of them followed Economics as a major subject while the rest specialized in Sociology as a major.

6.2 Selection of the research sample

One of the reasons for choosing this purposive sample is that a relatively high level of proficiency is not required to complete the verbal and the figural tasks of the creativity test. Hence, it was assumed that the participants who were at the intermediate level of proficiency were appropriate for the study.

According to Albert (2008), gender and age do not influence the phenomenon under investigation. Hence, no constraints were set with regard to these variables. The use of a bigger sample was not feasible due to the time-consuming and labor-intensive analysis of the verbal and figural tasks in the creativity test. Most previous studies on creativity have also used twenty to twenty five participants (Foster & Skehan, 1996; Robinson, 1995; Skehan & Foster, 1997, 1999). Albert (2008) states that a correlational analysis can be performed on a sample of this size and the results are, to some extent, generalizable.

6.3 Instruments used

The standardized test of creativity (Barkóczi & Zétényi, 1981) used by Albert (2008), Albert and Kormos (2004) to measure the aspects of creativity in their exploratory study was employed.

6.4 Creativity test

The standardized creativity test designed by Barkóczi and Zétényi (1981) for Hungarian adults consisted of five parts. The first task was only meant to serve as a warm-up task because the previous studies have stressed the participants' undisturbed mentality in creativity and only the remaining four tasks were scored. In accordance with the level of complexity of the sub-tasks, a time limit was set for each task. The subjects were not allowed to go back to previous tasks due to two reasons: (a) the sub-tasks of the creativity test measured four different aspects of creativity (b) the respondents' use of additional time for each task would create a misleading picture of the aspects of creativity.

The warm-up task was a sentence completion exercise, in which respondents were asked to finish sentences within three minutes. For this task sentences were selected from a standardized English proficiency test: Test of English as a Foreign Language (TOEFL). The first two evaluated tasks required verbal responses from the participants. In the task called 'Unusual Uses', the respondents had to suggest unusual uses of everyday objects such as a pencil or a book (for instance a book may be used as a paperweight or as a door stop). In the 'Distant Associations' task (in a similar fashion to Mednick's Remote Associates Test, 1962), the students had to create associations on the basis of

the common characteristics of two unrelated words (e.g., given the words 'cannon' and 'sky', think of a word related to both of them but in different ways: thunder). The last two tasks were drawing tasks (based on the Torrance Tests of Creative Thinking: Torrance, 1966). In the first figural task, 'Picture Construction' the respondents were made to think of a picture in which the given shape was an integral part and add lines to make any novel pictures, and then to finish abstract shapes in a creative manner (Albert 2008; Albert & Kormos, 2004). However, Barkóczi and Zétényi (1981) used a similar task 'Circles' instead of 'Picture Construction' in their study in which respondents were asked to draw as many pictures as they could, starting out with the shape of a circle. In the second task, 'Incomplete Figures', the subjects were expected to sketch some novel objects or design by adding as many lines as they could to the six figures given. The four tasks needed to be completed in five, six, eight and ten minutes respectively.

6.5 Measures of creativity

The scoring of the standardized creativity test was carried out in accordance with the process specified by Barkóczi and Zétényi (1981). According to them, the resulting raw scores should be converted to a standardized T-profile, whereas due to 'the conversion of scores using the figures of the test booklet was judged to be rather imprecise' (p. 95), Albert (2008) in her study used standardised scores, Z-scores, for further calculations. No doubt Z-scores indicate the distance from the mean in terms of standard deviations; therefore, they are directly comparable to one another considering their relative location in their respective distributions (Salkind, 2004). This study also used standardized scores, Z-scores for calculations.

Each item of the test was scored for three out of the four measures of creativity (fluency, flexibility and originality) as defined by Baer (1993) and the standardized Hungarian test of creativity did not also measure elaboration. The sub-scores were added up for the four tasks of the creativity test. Therefore, each of the four sub-sections of the test received three scores independently, a fluency score, a flexibility score, and an originality score.

The fluency score in this survey is called 'creative fluency' in order to differentiate it from the temporal variable, 'fluency' generally used in SLA research. The fluency score equals the number of responses given by the respondents and each response is worth 1 point. However, when scoring the two figural tasks, exact repetitions, scribbles, abstract designs, incomplete or unrecognizable responses were not counted. The flexibility score reflects the number of categories the subjects select their answers from (that is, the responses are from a single domain or multiple domains) and each response is worth 1 point. The categories were set up in the course of the standardization procedure by Barkóczi & Zétényi (1981).

The originality score (that is, the statistical frequency of responses) was calculated in a different way as specified by Cropley, J. A. (2001) in his book 'Creativity in Education and Learning: a Guide to Teacher and Education' by 'assigning different values to the responses according to their relative frequency/infrequency' (zero for answers occurring on more than 15 percent of test, one point for answers from 7 percent to 14 percent of test, two points for 3-6 percent, three points for 1-2 percent and four points for less than 1 percent) (p. 104).

These values correspond approximately to the proportions lying beyond half standard deviation intervals along the X-axis of a normally distributed trait-approximately 15 percent of scores lie beyond one standard deviation (SD) away from the mean, approximately 7 percent beyond one and a half SDs, approximately 3 percent beyond two SDs and so on. In this way originality is defined in the specific context of a particular group via a statistical procedure (Cropley, p.104).

The measures of creativity shown in Table 1 given below, were calculated using the creativity test scores. First, different sub-scores were calculated: total creative fluency, the sum of the four creative fluency sub-scores; total flexibility, the sum of the four flexibility sub-scores; and total originality, the sum of the four originality sub-scores. Apart from these sub scores, the total creativity score was calculated by adding up all the creative fluency, flexibility and originality scores of the various sub-tasks. Since the four tasks differ in their modality, it is also possible to calculate verbal creativity and figural creativity scores. Verbal creativity scores were calculated by adding up the creative fluency, flexibility and originality scores of the verbal tasks: Unusual Uses and Distant Association, while figural creativity scores were calculated in a similar fashion for the two drawing tasks: Picture Constructions and Incomplete Figures Task.

It is apparent that in this scoring system, the creative fluency scores (more precisely the number of responses the subjects produce) influence both the originality and the flexibility total scores significantly and this usually results in high inter-correlations between the three sub-scores of the test. For instance, if a subject produces two highly original ideas, worth the maximum test score 4 point each, his originality score will be 8 points for the given task. If however, another subject creates five statistically more common responses, worth 2 points each, his originality score will be higher (10 points) than his less fluent peer (Albert 2008; Albert & Kormos, 2004). Hence, the establishment of creative fluency free scores is very important as these could provide information about other facets of the subjects' creativity, regardless of the number of responses they produce.

In order to achieve this relative flexibility (the ratio of total flexibility and total creative fluency) and average originality (the ratio of total originality and total creative fluency)

were also measured, following the procedure specified in the test (Barkociz & Zétényi, 1981). Hence, the total creative fluency score can be used to measure creative fluency, the relative flexibility score to measure flexibility and the average originality score to measure originality as defined above. The measures of creativity used in this study are presented in Table 1.

Table 1: Measures of creativity

Measures of creativity	Description
Total creative fluency	the sum of responses given by the respondents on the four sub-tasks.
Total flexibility	the sum of flexibility scores, reflecting the number of categories the answers originated from.
Relative flexibility	the ratio of total flexibility and total fluency scores.
Total originality	the sum of originality scores, reflecting the statistical rarity of answers.
Average originality	the ratio of total originality and total fluency scores.
Total creativity score	the sum of total originality, total flexibility and total fluency scores.
Verbal creativity	the sum of total originality, total flexibility and total fluency scores on the two verbal tasks (Unusual Uses and Distant Associations).
Figural creativity	the sum of total originality, total flexibility and total fluency scores on the two drawing tasks: Picture Construction and Incomplete Figures.

(Albert & Kormos, 2004, p. 14).

6.6 Statistical analysis

Data derived from the analytical procedures were analyzed using the software SPSS 11.0 for Windows. The mean, the standard deviation and the Coefficient of Variation (CV) were calculated to elaborate on the characteristics of the target population.

7. ANALYSIS AND INTERPRETATION OF DATA

7.1 Descriptive figures of the creativity test

As stated in Section 6, creative fluency free scores, that is, relative flexibility and average originality are very significant since they could provide information about other facets of the subjects' of creativity regardless of the number of responses they produce. Hence, the descriptive figures of the fluency free scores shown in Table 2 are examined.

It is significant to note that the mean values and standard deviation figures for the variable creative fluency on all the four sub-tasks of the creativity test are recorded as the highest while the mean values and standard deviation figures for the variable relative flexibility on the corresponding sub-tasks are recorded as the lowest. It is almost certain that the subjects are able to produce a higher number of responses on all the sub-tasks of the creativity test. However, low mean values for the variable relative flexibility indicate that they could not select the answers from multiple domains. Furthermore, the data illustrate that the respondents were competent in creating a significant number of novel solutions because the mean values for the variable average originality on all the sub-tasks of the test are higher than the corresponding mean values of the test for the variable relative flexibility. It is noteworthy to state that the task distant associations indicates the lowest mean value M=0.57 and standard deviation SD=0.10 for relative flexibility. This further suggests that the subjects found it difficult to create associations on the basis of the common characteristics of two unrelated words.

Table 2: Descriptive statistics of the four sub-tests of the standardized creativity test for the second-year undergraduates

Title of Sub-test	**Unusual Uses**			**Distant Associations**			**Picture Construction**			**Incomplete Figures**		
Variable	Mean	SD	CV	Mean	SD	CV	Mean	SD	CV	Mean	SD	CV
Originality	28.67	12.06	42	48.37	15.06	31	17.90	11.07	62	24.48	10.09	41
Creative fluency	12.90	4.77	37	18.52	4.62	25	5.24	3.21	61	7.81	2.82	36
Flexibility	9.48	3.14	33	10.33	2.53	24	3.10	1.79	58	6.00	2.26	38
Average originality	2.22	0.37	17	2.59	0.38	15	3.48	0.44	13	3.11	0.48	15
Relative flexibility	0.76	0.11	14	0.57	0.10	18	0.69	0.26	38	0.77	0.13	17
Total creativity	17.02	10.24	6	25.75	20.03	78	8.75	8.00	91	12.76	10.2	8

conducted in Hungary for a representative sample of high school graduates by Barkóczi and Zétényi (1981) are compared in the following section to illustrate the statistical variation of the results of two populations.

Since the CV is a dimensionless number when comparing between data sets with different units or widely different means, it is advisable to use the coefficient of variation for comparison instead of the standard deviation. The CV is an estimated standard error expressed as a percent of the estimated total or proportion and it is useful because the standard deviation of data must always be understood in the context of the mean of the data (Selvanathan et al., 2004). Hence, the CV was calculated in this study in order to compare the descriptive figures.

According to the descriptive statistics presented in Table 2 above and Table 3 below, the means of the second-year undergraduate sample tend to be considerably higher than the corresponding means of a representative sample of high school graduates in Hungary: Hungarian national standard (Barkóczi & Zétényi, 1981). However, there is one remarkable exception. For the variable creative fluency, the mean value on the picture construction task is M=5.24 for the research sample whereas the Hungarian national standard is M=12.84.

These figures indicate that in general the subjects of the second-year undergraduate sample employed in this study are able to generate a greater number of novel and wide ranging ideas on all the sub-tasks of the creativity test than the representative sample of high school graduates produced in Hungary. Nevertheless, in the case of the drawing task or picture construction the high school graduates in Hungary were able to perform competently by inventing a higher number of ideas unlike the respondents of the second-year undergraduate sample.

Furthermore, the mean value scores for the originality variable on all four sub-tests for the research sample are remarkably higher than the Hungarian national standard. The reason for this phenomenon may be because of the different approach utilized in measuring the originality as specified by Cropley, 2001, which was described in Section 6.5, whereas Barkóczi & Zétényi (1981) assigned the originality score on the basis of a list containing an index calculated from the statistical frequency of the responses given.

It further seems that on the two verbal tasks, unusual uses and distant associations, the CV of the research sample for all the variables is substantially lower than the corresponding CV of the Hungarian national standard. Even in the case of picture construction and incomplete figures, the CV of the second-year undergraduates for the variables, average

originality and relative flexibility is significantly lower than the corresponding CV of the national standard.

This reveals that generally the variation of the number of responses produced by the research sample is lower than the variation of the number of answers invented by the high school graduates in Hungary on all the sub-tasks of the creativity. The solutions given by the undergraduates of the research sample, therefore, can be considered more consistent than the responses provided by the high school graduates in Hungary.

The comprehensive analysis of the first part of Section 7.1, exposed the substantial variation of the performance across the four sub-tests of the creativity test administered for the target population. Evidently, reasons for the statistical variation may be personal or may be affected by the motivation level of the students that is, the subjects might have liked or disliked certain tasks or they might have got bored of them.

Table 3: Descriptive statistics of the four sub-tests of the standardized creativity test conducted for a representative sample of high school graduates (N=1, 098) in Hungary

Title of Sub-test	**Unusual Uses**			**Distant Associations**			**Picture Construction**			**Incomplete Figures**		
Variable	Mean	SD	CV	Mean	SD	CV	Mean	SD	CV	Mean	SD	CV
Originality	3.58	2.18	61	3.37	2.08	62	5.69	3.25	57	3.68	1.44	39
Creative fluency	8.63	4.27	49	7.73	4.61	60	12.84	6.6	51	7.59	2.04	27
Flexibility	7.09	3.67	52	5.91	3.53	60	7.55	3.83	51	6.63	1.77	27
Average originality	0.39	0.15	38	0.42	0.13	31	0.43	0.14	33	0.49	0.16	33
Relative flexibility	0.78	0.24	31	0.73	0.27	37	0.61	0.24	39	0.87	0.16	18

(Barkóczi & Zétényi, 1981, p. 32)

8. CONCLUSIONS AND RECOMMENDATIONS

According to the descriptive figures presented in Section 7.1, the respondents were competent enough to create a higher number of responses and a considerable number of novel solutions on all the sub-tasks of the creativity test. Comparatively this resulted in higher mean values for the variables, creative fluency and average originality. However, low mean values for the variable relative flexibility on all the sub-tasks of the creativity

test demonstrate that the subjects could not select their answers from multiple domains.

Several recommendations can be made as to how to improve creativity in these learners. Apparently to promote creativity in these learners both 'teaching with creativity' and 'teaching for creativity' should be improved (Higgins, 2000). In particular, teachers should be taught how to differentiate these two approaches which contain all the characteristics of admirable teaching-high motivation, high expectations, the ability to communicate and listen and the ability to interest, engage and inspire. It is the responsibility of teachers to distinguish when encouragement is needed and confidence is threatened. They must balance structured learning with opportunities for self direction. Teaching for creativity on the other hand involves more time and planning to generate and develop ideas and to evaluate whether they have worked. Hence, it creates a classroom climate where students feel mistakes are acceptable and risk taking is encouraged.

For a prosperous future, a country requires creative and innovative people. However, our education system seems to be still working against this. At a national level the government has a responsibility to promote higher levels of teacher autonomy and creativity in both teaching and learning.

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